



UNIVERSITÉ
DE NAMUR

University of Namur

Institutional Repository - Research Portal Dépôt Institutionnel - Portail de la Recherche

researchportal.unamur.be

THESIS / THÈSE

DOCTOR OF LANGUAGES

Making Referents Seen and Heard

Comparing Constructed Action Practices in LSF (French Belgian Sign Language) and Belgian French

VANDENITTE, Sebastien

Award date:
2024

Awarding institution:
University of Namur

[Link to publication](#)

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal ?

Take down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

MAKING REFERENTS SEEN AND HEARD

Comparing Constructed Action Practices in LSF (French Belgian Sign Language) and
Belgian French

A Dissertation Submitted to the Faculty of Arts
of the University of Namur
for the Degree of Doctor in Langues, Lettres, et Traductologie

By

Sébastien VANDENITTE

Board of examiners: L. MEURANT (supervisor), P. DE BRABANTER (co-supervisor), G.
HODGE, D. SAUNDERS, and L. VANDELANOTTE

À Jacqueline, Nathalie, Vanessa et Ambre

Acknowledgements

First and foremost, I am deeply grateful to my supervisors, Laurence Meurant and Philippe De Brabanter, for their invaluable support.

Laurence, your warm welcome to the LSFb-Lab, alongside your encouragements and scientific supervision at all stages of my PhD adventure made all the difference. Thank you for your insights on both LSFb and French linguistics, and for building a research environment in which they could be studied and compared. And, of course, I won't forget the Saint-Nicolas chocolates, Spring outings to the ice-cream shop and the one Citadelle run (but here's to many more!) that balanced it all out.

Thank you, Philippe, for encouraging my interest in LSFb during my Master's Degree, for insightful conversations about semiotics and methodological advice, as well as for steering me back on track when necessary, all while keeping an open mind. Your careful reading of the manuscript and thought-provoking comments have been a great help.

In addition to my supervisors, I am fortunate to have had the guidance of Gabrielle Hodge and Lieven Vandelanotte as members of my supervision committee.

Gabrielle, thank you for your detailed and generous feedback on my thesis project and on this manuscript. I truly appreciate the time you have taken to engage with me and answer my questions over the past years. Your stimulating and thoughtful suggestions have enriched my reflections and helped me consider the bigger picture.

Lieven, thank you for your time and insights at various stages of this research project. I'm very grateful for the chance to discuss LSFb and Belgian French with your students. My interactions with you and with them have sparked several of the reflections on viewpoint expression and its multimodal facets in this manuscript.

A special thanks to Daz Saunders for agreeing to serve as a jury member for the thesis evaluation and defense. Discussions with you during my PhD have provided a lot of food for thought, and I'm grateful for the time you've invested in reading and commenting on my thesis.

For helpful suggestions and support with statistical analyses, I want to thank Marie-Ange Remiche, Benjamin Anible, Gabrielle Hodge, Danielle Barth, and the statistical advisory team at the University of Jyväskylä.

I was also fortunate to meet others along the way whose advice and cheerful company made conferences and research visits even more enjoyable: Brittany Arnold, Lindsay Ferrara, Torill Ringsø, and Pernelle Lorette, thank you.

This thesis would not exist without the involvement of the corpus informants who allowed their interactions to be filmed and studied – I am deeply indebted to them.

My gratitude extends to those who helped collect, annotate, and transcribe the LSFB and FRAPé corpora: Alysson Lepeut, Anna Tavier, Aurélie Sinte, Caroline Kinet, Christophe De Clerck, Clara Lombart, Fatima Moubayed, Gauthier Raes, Hadrien Cousin, Sibylle Fonzé, Susana Sánchez. Special thanks also go to Sibylle Fonzé and Alysson Lepeut for patiently checking part of the annotations carried out for this study.

I also gratefully acknowledge the F.R.S.-FNRS and the SofinaBoël Fund for funding this research project and my research stay at the University of Jyväskylä.

Beyond academic support, I've had the privilege of meaningful exchanges and uplifting friendships that made these five years both more interesting and fun. At the University of Namur, I'll always cherish the (often less-than-serious) lunches and coffee breaks with Alice Heylens, Alysson Lepeut, Bruno Sonnemans, Clara Lombart, François-Xavier Stubbe, Hadrien Cousin, Jérôme Fink, Laurence Gagnon, Nicolas Hanquet, Sibylle Fonzé, and Sílvia Gabarró-López. Your company made my commute to Namur something to look forward to.

For part of my PhD, I also found a second home at the University of Jyväskylä, where I was met with warmth in the midst of the (often frozen) Finnish lakeland. To Anna Puupponen, Antti Kronqvist, Doris Hernández, Hennä Syrjälä, Jarkko Keranen, Juhana Salonen, Marjo-Leea Alapuranen, Milla Pitkänen, Minttu Laine, Noora Hoffren, Tommi Jantunen (to whom I am especially grateful for allowing me the time I needed to finish this manuscript), Veera Wusu, and Virpi Sipilä, thank you for teaching me so much and for making me feel welcome.

Over the past five years, I've been lucky to be surrounded by people who may not realise just how much their support has meant to me. My heartfelt thanks to Céline, Charbel, Corneliu, Felicity, Jarkko, Lily, Lise, Molly, Mustafa, Nicolas, Nora, Simone, and Violaine. Your kind words, smiles, and all the laughs we've shared have made for irreplaceable memories. I look forward to many more in the future.

Lastly, to my family: Mamy, j'ai enfin fini "mon livre"! Tu m'as appris à être curieux et ambitieux, merci pour tout le temps et le soin que tu nous as donnés. Maman, merci de ton soutien. Mon intérêt pour les langues est né de ton environnement multilingue. Vanessa, tes attentions et tes encouragements enveloppent et inspirent celles et ceux qui t'entourent, merci de ta bienveillance constante. Ambre, merci de rappeler à ton oncle d'ouvrir grand les yeux et la tête pour s'émerveiller des petites choses.

Jyväskylä, September 2024

Abstract

This dissertation compares constructed action, often called ‘personal transfer’ in the French-speaking scientific literature, in French Belgian Sign Language (LSFB) and in Belgian French. Long acknowledged as a key component in signed languages, constructed action has often been described as a peripheral strategy in spoken languages. Recent studies have focused on the empirical study of signed and spoken languages in a comparative semiotic approach. This dissertation contributes to this endeavour by using the LSFB and FRAPé corpora, two directly comparable video datasets of semi-structured dyadic interactions in LSFB and Belgian French. Constructed action is studied in these corpora within a conversational task on language attitudes and a narrative task performed by ten members of each language community. Three aspects of the phenomenon are systematically annotated and compared: the frequency of use of constructed action, the contribution and coordination of different bodily articulators and/or of voice, and the distribution of different degrees of constructed action. Taken together, these measures provide complementary indices of similitudes and differences in the functions and forms of constructed action in the discourse of both studied communities. The observed results are interpreted by means of a broad set of causal mechanisms, notably appealing to explanations of articulatory, social-interactional, and diachronic nature.

Résumé

Cette thèse compare les pratiques d'action construite, souvent appelées "transferts personnels" dans la littérature scientifique francophone, en Langue des Signes de Belgique francophone (LSFB) et en français de Belgique. Reconnue depuis longtemps comme une composante essentielle des langues des signes, l'action construite a souvent été décrite comme une stratégie périphérique en langues vocales. Depuis peu, plusieurs travaux ont porté sur l'étude empirique des langues signées et vocales dans une approche sémiotique comparative. Cette thèse s'inscrit dans le même élan en utilisant les Corpus LSFB et FRAPÉ, deux bases de données directement comparables de vidéos d'interactions dyadiques semi-dirigées en LSFB et en français belge. L'action construite est étudiée dans ces corpus à travers une tâche de conversation sur les attitudes langagières et une tâche de narration effectuées par dix locuteurs dans chacune de ces communautés linguistiques. Trois aspects du phénomène sont systématiquement annotés et comparés: la fréquence d'utilisation de l'action construite, la contribution et l'orchestration de différents articulateurs corporels et/ou de la voix, et la distribution de différents degrés d'action construite. Ensemble, ces mesures fournissent des indices complémentaires des similitudes et différences fonctionnelles et formelles de l'action construite dans le discours des deux communautés étudiées. Les résultats observés sont interprétés par le biais d'un ensemble de divers mécanismes causaux, faisant notamment appel à des explications d'ordre articulatoire, socio-interactionnel et diachronique.

Table of Contents

ACKNOWLEDGEMENTS	III
ABSTRACT	V
RÉSUMÉ	VI
LIST OF ACRONYMS AND ABBREVIATIONS	11
LIST OF FIGURES	12
LIST OF TABLES	15
1. INTRODUCING AND ILLUSTRATING CONSTRUCTED ACTION	16
2. COMPARING SIGNED AND SPOKEN LANGUAGES: A SKETCH OF PAST AND CURRENT DYNAMICS	20
2.1 WRITING ABOUT LANGUAGING DIVERSITY: A TERMINOLOGICAL NOTE	20
2.2 THE COMPARABILITY ISSUE	21
2.3 SIGNED LANGUAGE LINGUISTICS AND THE COMPARISON WITH SPOKEN LANGUAGES	22
2.3.1 <i>The Compatibility View: Signed languages are (like spoken) languages</i>	24
2.3.2 <i>Signed language differential view: Signed languages exhibit properties not found in spoken languages (i.e., speech)</i>	25
2.3.3 <i>Different to what? Broadening the concept of (spoken) language to include gesture</i> ...	26
2.3.4 <i>Broadening the concept of (signed) language to include gesture</i>	29
2.3.5 <i>Deconstructing the binary distinction between language and gesture</i>	33
2.3.6 <i>From gesture in spoken and signed languages to a Neo-Peircean comparative semiotics of languagers' communicative actions</i>	35
2.3.6.1 Signed and spoken language use as polysemiotic: description, indication and depiction as new comparative concepts.....	36
2.3.6.2 Semiotic perspectives on signed and spoken languages	39
2.3.6.3 Revising 'language modalities': Cautioning against generalisations	41
2.4 A BROADER FRAMEWORK: CONSIDERING DIVERSE CAUSAL FRAMES IN COMPARATIVE RESEARCH.....	43
2.4.1 <i>Microgeny</i>	43
2.4.2 <i>Ontogeny</i>	45
2.4.3 <i>Enchrony</i>	46
2.4.4 <i>Diachrony</i>	46
2.4.5 <i>Phylogeny and synchrony</i>	47
2.4.6 <i>Putting the pieces together</i>	47
2.4.7 <i>Systematicity of form-meaning pairings and causal frames: different sites of 'conventionalisation'?</i>	48
3. A FIRST LOOK AT CONSTRUCTED ACTION	51
3.1 APPROACHES TO CONSTRUCTED ACTION: WHAT HAS BEEN UNDER THE SPOTLIGHT?.....	52
3.2 HIGHLIGHTING THE REFERENTIAL TARGETS OF CONSTRUCTED ACTION	53
3.2.1 <i>Denoting animate referents</i>	53
3.2.2 <i>Denoting referents' utterances</i>	54
3.2.3 <i>Extending the phenomenon beyond utterances: denoting (non-languaging) action</i>	55
3.3 ON THE FORM OF CONSTRUCTED ACTION: USING THE BODY TO DENOTE REFERENTS.....	56
3.4 SHIFTING PERSPECTIVES	56
3.4.1 <i>Viewpoint and utterance reporting in spoken and signed languages</i>	56
3.4.2 <i>Internal viewpoint and the body in and beyond utterance reports in signed languages</i>	59
3.4.3 <i>Internal viewpoint in and beyond utterance reports in spoken languages: character viewpoint gestures</i>	61
3.5 WHERE DISAGREEMENTS SURFACE: SEMIOTIC COMPOSITIONS	62
3.5.1 <i>The semiotics of constructed action in spoken languages</i>	63

3.5.2	<i>The semiotics of constructed action in signed languages</i>	67
3.6	FLESHING OUT PREDICTIONS.....	78
4.	COMPARING CONSTRUCTED ACTION ACROSS SIGNED AND SPOKEN LANGUAGES.....	79
4.1	FREQUENCY OF CONSTRUCTED ACTION	79
4.1.1	<i>Signed languages</i>	79
4.1.2	<i>Spoken languages</i>	80
4.1.3	<i>Comparing signed and spoken languages</i>	82
4.2	ORCHESTRATING DIFFERENT ARTICULATORS	84
4.2.1	<i>Hands and arms movements</i>	85
4.2.2	<i>Voice</i>	87
4.2.3	<i>Eye gaze</i>	89
4.2.4	<i>Facial expression</i>	90
4.2.5	<i>Head and torso movements</i>	92
4.2.6	<i>The lower half of the body</i>	94
4.2.7	<i>Reevaluating claims about articulation differences between signers and speakers</i>	94
4.2.8	<i>A global picture of constructed action: Coordinating articulators</i>	95
4.3	USING DIFFERENT DEGREES OF CONSTRUCTED ACTION	96
4.3.1	<i>Spoken languages</i>	96
4.3.2	<i>Signed languages</i>	97
4.3.3	<i>Comparing signed and spoken languages</i>	101
4.4	NUANCING IMPRESSIONS OF UNIFORMITY	102
4.4.1	<i>Communities within communities</i>	104
4.4.2	<i>Age</i>	105
4.4.3	<i>Interindividual differences</i>	105
4.4.4	<i>Text type and discourse genre</i>	107
4.4.5	<i>Referential target and communicative ‘complexity’</i>	108
4.4.6	<i>Cohesive discourse strategies: Using constructed action to track referents</i>	110
4.4.6.1	Use of constructed action across different information status contexts.....	110
4.4.6.2	Spatial referent-tracking: Placing enacted referents	111
4.4.6.3	Reformulating through constructed action.....	111
4.4.7	<i>Constructed action as a social action</i>	112
4.4.7.1	Vividness and rhetorics	113
4.4.7.2	Layering of viewpoints and stance: positioning oneself and others	114
5.	TAKING STOCK: DRAWING CONCLUSIONS FROM THE LITERATURE ON CONSTRUCTED ACTION	118
5.1	BROADENING THE DEFINITION OF LANGUAGE AND LINGUISTIC CAUSAL FRAMEWORKS....	118
5.2	METHODOLOGICAL ISSUES: TOWARDS MORE RELIABLE RESEARCH ON CONSTRUCTED ACTION	119
5.2.1	<i>Criteria for data collection and selection</i>	119
5.2.2	<i>Data analysis and enrichment</i>	124
6.	METHODOLOGY	127
6.1	RESEARCH QUESTIONS.....	127
6.2	A CROSS-LINGUISTIC APPROACH TO CONSTRUCTED ACTION: THE LSFb-FRAPÉ DIRECTLY COMPARABLE CORPORA	128
6.3	SAMPLING CONSTRUCTED ACTION USE IN THE LSFb AND FRAPÉ CORPORA.....	129
6.3.1	<i>Participants’ profiles</i>	129
6.3.2	<i>Task selection</i>	130
6.4	CORPUS ENRICHMENT.....	130
6.4.1	<i>Operationalising key concepts for the annotation protocol</i>	131
6.4.2	<i>Identifying participants’ turns</i>	132
6.4.3	<i>Identifying stretches of constructed action: the ‘CA:summary’ tier</i>	133
6.4.4	<i>Identifying articulator contribution to constructed action</i>	136
6.4.5	<i>Body partitioning: Overlapping tokens of constructed action</i>	139

6.4.6	<i>Annotation of degree of constructed action: the ‘role’ and ‘CA:type’ tiers</i>	139
6.4.7	<i>Summary of annotation protocol</i>	141
6.5	ANALYTICAL SUBJECTIVITY AND INTER-ANNOTATOR CONSENSUS MEASURES	141
6.5.1	<i>Results of the inter-annotator consensus measures: Identification of constructed action</i>	142
6.5.2	<i>Results of the inter-annotator consensus measures: Identification of enacting articulators</i>	144
6.5.3	<i>Results of the inter-annotator consensus measures: Identification of role dominance</i>	146
6.5.4	<i>Inter-annotator consensus: Discussion</i>	148
6.6	DATA EXTRACTION AND PREPARATION	149
6.6.1	<i>Overlap information between ‘turn’ and ‘summary’ tiers</i>	149
6.6.2	<i>Overlap information between ‘summary’ and ‘articulator’ tiers</i>	149
6.6.3	<i>Exporting the information found in CA:type and related metadata</i>	150
7.	RESULTS	151
7.1	PRESENTATION OF THE ENRICHED CORPUS	151
7.2	RESEARCH QUESTION 1: FREQUENCY OF CONSTRUCTED ACTION	155
7.2.1	<i>Proportion of time spent on constructed action</i>	155
7.2.2	<i>Confirmatory analysis: Comparing mean proportions of time spent on constructed action across languages and tasks</i>	159
7.3	RESEARCH QUESTION 2: ARTICULATOR CONTRIBUTION TO CONSTRUCTED ACTION	161
7.3.1	<i>A narrow look at each articulator across languages and tasks</i>	161
7.3.1.1	Gaze	165
7.3.1.2	Face	169
7.3.1.3	Head	172
7.3.1.4	Torso	175
7.3.1.5	Hands and/or arms	178
7.3.1.6	Constructed dialogue	181
7.3.1.7	Voice	184
7.3.2	<i>Articulatory index</i>	185
7.3.3	<i>A holistic look at articulator use: Using heatmap dendrograms</i>	188
7.4	RESEARCH QUESTION 3: DEGREES OF CONSTRUCTED ACTION	196
7.4.1	<i>Data description: Distributions of degrees of constructed action across languages, tasks, and participants</i>	196
7.4.2	<i>Statistical treatment</i>	202
8.	DISCUSSION	203
8.1	FREQUENCY OF USE OF CONSTRUCTED ACTION	203
8.1.1	<i>LSFB</i>	203
8.1.2	<i>Belgian French</i>	205
8.1.3	<i>LSFB-Belgian French comparison</i>	208
8.2	ARTICULATOR CONTRIBUTION TO CONSTRUCTED ACTION	209
8.2.1	<i>Articulator contribution to constructed action in LSFb</i>	210
8.2.1.1	LSFB signers’ use of eye gaze	210
8.2.1.2	LSFB signers’ use of head and torso	213
8.2.1.3	LSFB signers’ use of facial expression	215
8.2.1.4	LSFB signers’ use of hands and arms	217
8.2.1.5	LSFB signers’ use of constructed dialogue	219
8.2.1.6	Indexing and/or placing in LSFb	222
8.2.1.7	Discussion: orchestrating different articulators in LSFb	228
8.2.2	<i>Articulator contribution to constructed action in Belgian French</i>	230
8.2.2.1	French speakers’ use of gaze	231
8.2.2.2	French speakers’ use of head and torso	233
8.2.2.3	French speakers’ use of facial expression	235
8.2.2.4	French speakers’ use of hands and arms	237
8.2.2.5	French speakers’ use of constructed dialogue and voice	239
8.2.2.6	Indexing and/or placing in Belgian French	241
8.2.2.7	Discussion: orchestrating different articulators in Belgian French	243
8.2.3	<i>Comparative explanations of articulator use in LSFb and Belgian French</i>	245

8.2.3.1	Social norms of depiction: when to enact?	245
8.2.3.2	Combining depiction with descriptive semiotics: simultaneity and linearity in managing concurrent and competing functions.....	246
8.2.3.3	From constructed action to action constructions?.....	247
8.2.3.4	Role-shifting: From construing (inter)action to a construction of (inter)action?.....	249
8.3	DEGREES OF CONSTRUCTED ACTION.....	252
8.3.1	<i>Belgian French</i>	252
8.3.2	<i>LSFB</i>	258
8.3.3	<i>LSFB-Belgian French comparison</i>	263
8.4	LIMITATIONS AND SUGGESTIONS	269
8.4.1	<i>Sample diversity</i>	270
8.4.2	<i>Selected tasks and elicitation materials</i>	270
8.4.3	<i>Identifying enactment</i>	271
8.4.4	<i>Measuring frequency of constructed action</i>	271
8.4.5	<i>Measuring contribution of articulators to constructed action</i>	272
8.4.6	<i>Identifying viewpoint prominence and degrees of constructed action</i>	272
8.4.6.1	Degrees of constructed action as a measure of viewpoint expression and/or prominence? 272	
8.4.6.2	Enactment prominence with respect to what?.....	273
9.	CONCLUSION	276
	BIBLIOGRAPHY	281
	APPENDIX	307

List of Acronyms and Abbreviations

Names of signed languages

ASL: American Sign Language
Auslan: Australian Sign Language
BISINDO: Indonesian Sign Language
BSL: British Sign Language
DGS: German Sign Language
DTS: Danish Sign Language
FinSL: Finnish Sign Language
ISL: Irish Sign Language
ISN: Nicaraguan Sign Language
Libras: Brazilian Sign Language
LIS: Italian Sign Language
LSC: Catalan Sign Language
LSF: French Sign Language
LSFB: French Belgian Sign Language
LSM: Mexican Sign Language
LSQ: Quebec Sign Language
NTS: Norwegian Sign Language
RSL: Russian Sign Language
SASL: South African Sign Language
STS: Swedish Sign Language
VGT: Flemish Sign Language

Abbreviations in Tables and Figures

CA: Constructed action
CD: Constructed dialogue
PT: Pointing action
DS: Depicting sign

List of Figures

Figure 1. CLSFB S059 T12 (00:04:00:02 – 00:04:03:895).....	16
Figure 2. CFRAPé L019 T12 (00:00:20:074 – 00:00:21:681).....	16
Figure 3. CLSFB S030 T05 (00:06:45:632 – 00:06:56:974).....	17
Figure 4. CFRAPé L020 T05 (00:04:27:620 – 00:04:35:071).....	18
Figure 5. Illustration of the use of indicating verbs in LSFb: CLSFB S030 T05 (00:00:58.291 – 00:01:04.416).....	31
Figure 6. CLSFB S052 T12 (00:04:42.211 – 00:04:44.780).....	32
Figure 7. CLSFB S029 T12 (00:03:28.151 - 00:03:29.201).....	32
Figure 8. CLSFB S028 T05 (00:04:59.560 - 00:05:02.100).....	58
Figure 9. LSFb Corpus, Session 37, S076, T12: 00:05:12:48 - 00:05:13:76.....	58
Figure 10. CLSFB S028 T05 (00:03:42.514 – 00:03:44.400).....	60
Figure 11. CLSFB S060 T12 (00:02:15.455 - 00:02:18.015).....	60
Figure 12. CFRAPé L001 T12 (00:03:26.050 – 00:03:29.650)	61
Figure 13. Annotation on the CA:summary tier in the FRAPé Corpus.....	134
Figure 14. Annotation on the CA:summary tier in the LSFb Corpus.....	134
Figure 15. Uncertain annotation of constructed action in the FRAPé Corpus.....	135
Figure 16. Uncertain annotation of constructed action in the LSFb Corpus.....	136
Figure 17. Bar plots for consensus measurement ('CA:summary' tiers).....	143
Figure 18. Bar plots of causes for disagreement with 'CA:summary' annotations....	144
Figure 19. Consensus measures for articulator contribution	145
Figure 20. Consensus measurement for Role1 – Role2 pairs.....	147
Figure 21. Causes for disagreement with 'Role Dominance' annotation pairs.....	148
Figure 22. Number and confidence of annotated tokens of constructed action across tasks and participants.....	154
Figure 23. Proportion of time spent on constructed action in Belgian French and LSFB	155
Figure 24. Proportion of time spent on constructed action across T5 and T12 in LSFB and Belgian French.....	156
Figure 25. Proportion of time spent on constructed action per participant across tasks (ordered by the share of confidently annotated tokens)	157
Figure 26. Distribution of discourse time spent on constructed action across languages and tasks in both versions of the dataset	159
Figure 27. Articulator contribution to constructed action across Belgian French and LSFB (inclusive dataset).....	162
Figure 28. Articulator contribution to constructed action across Belgian French and LSFB (conservative dataset)	162
Figure 29. Articulator contribution to constructed action across tasks in Belgian French and LSFb (inclusive dataset).....	163
Figure 30. Articulator contribution to constructed action across tasks in Belgian French and LSFb (conservative dataset).....	164
Figure 31. Barplot of eye gaze contribution to constructed action.....	167
Figure 32. Lineplot of eye gaze contribution to constructed action	168
Figure 33. Barplot of facial expression contribution to constructed action	170
Figure 34. Lineplot of facial expression contribution to constructed action.....	171
Figure 35. Barplot of head contribution to constructed action	173

Figure 36. Lineplot of head contribution to constructed action	174
Figure 37. Barplot of torso contribution to constructed action	176
Figure 38. Lineplot of torso contribution to constructed action.....	177
Figure 39. Barplot of hands and arms contribution to constructed action.....	179
Figure 40. Lineplot of hands and arms contribution to constructed action.....	180
Figure 41. Barplot of contribution of constructed dialogue to constructed action..	182
Figure 42. Lineplot of contribution of constructed dialogue to constructed action	183
Figure 43. Barplot of voice contribution to constructed action	184
Figure 44. Lineplot of voice contribution to constructed action	185
Figure 45. Articulatory index across tasks (inclusive dataset)	186
Figure 46. Articulatory index across tasks (conservative dataset).....	187
Figure 47. Heatmap dendrogram of articulator contribution with a 2-cluster solution across participant-task combinations (Dataset version 1)	192
Figure 48. Heatmap dendrogram with a 3-clusters solution comparing the contribution of different articulators across participant-task combinations based on the third version of the dataset	194
Figure 49. Distribution of types of constructed action in LSFB and Belgian French	196
Figure 50. Distribution of types of constructed action across languages and tasks .	197
Figure 51. Distribution of types of constructed action by participant and task.....	198
Figure 52. Distribution of types of constructed action across languages and tasks (inclusive dataset)	201
Figure 53. Distribution of types of constructed action across languages and tasks (conservative dataset).....	201
Figure 54. CLSFB S060 T05 (00:02:40.696 – 00:02:42.845).....	203
Figure 55. CLSFB S028 T12 (00:03:43.062 – 00:03:45.276).....	204
Figure 56. CFRAPé L027 T05 (00:06:54.594 - 00:07:00.243)	206
Figure 57. CFRAPé L020 T12 (00:04:50.333 - 00:04:52.703)	206
Figure 58. CLSFB S030 T05 (00:00:05.204 - 00:00:06.340):.....	210
Figure 59. CLSFB S059 T05 (00:03:48.289 - 00:03:50.558).....	211
Figure 60. CLSFB S76 T12 (00:00:07.118 – 00:00:07.944).....	211
Figure 61. CLSFB S029 T12 (00:00:31.144 - 00:00:32.962).....	212
Figure 62. CLSFB S059 T05 (00:00:16.641 - 00:00:19.905).....	212
Figure 63. CLSFB s029 T12 (00:05:48.410 - 00:05:52.979)	213
Figure 64. CLSFB S075 T12 (00:00:45.005 - 00:00:46.433).....	213
Figure 65. CLSFB S031 T05 (00:02:19.966 - 00:02:21.104).....	214
Figure 66. CLSFB S028 T05 (00:01:11.727 - 00:01:13.827).....	214
Figure 67. CLSFB S076 T12 (00:02:12.204 - 00:02:14.804).....	215
Figure 68. CLSFB S097 T12 (00:03:04.743 - 00:03:06.580).....	215
Figure 69. CLSFB S031 T05 (00:00:37.548 - 00:00:40.333).....	216
Figure 70. CLSFB S097 T12 (00:06:02.430 - 00:06:05.418).....	216
Figure 71. CLSFB S031 T05 (00:04:58.555 - 00:04:59.585).....	217
Figure 72. Four lexical signs that denote signing in LSFB	217
Figure 73. CLSFB S029 T05 (00:00:40.982 – 00:00:43.123).....	218
Figure 74. CLSFB S075 T05 (00:02:55.169 – 00:02:58.957).....	218
Figure 75. CLSFB S031 T05 (00:07:23.210 - 00:07:24.480).....	219
Figure 76. CLSFB S059 T12 (00:06:19.424 – 00:06:22.627).....	219
Figure 77. CLSFB S030 T05 (00:02:27.216 - 00:02:29.925).....	220
Figure 78. CLSFB S028 T05 (00:03:57.324 - 00:04:01.578).....	221

Figure 79. CLSFB S097 T12 (00:03:31.993 - 00:03:33.995).....	222
Figure 80. CLSFB S030 T05 (00:01:42.372 - 00:01:46.358).....	223
Figure 81. CLSFB S030 T12 (00:00:53.250 - 00:00:55.663).....	224
Figure 82. CLSFB S060 T05 (00:04:15.242 - 00:04:16.634).....	224
Figure 83. CLSFB S029 T12 (00:05:37.351 - 00:05:43.944).....	225
Figure 84. CSLFB S060 T12 (00:08:12.011- 00:08:20.745).....	226
Figure 85. CLSFB S030 T12 (00:05:20.390 - 00:05:42.217).....	227
Figure 86. CFRAPé L020 T05 (00:01:34.646 - 00:01:38.484)	231
Figure 87. CFRAPé L027 T05 (00:11:23.353 - 00:11:29.014)	232
Figure 88. CFRAPé L002 T12 (00:00:35.616 - 00:00:39.569)	232
Figure 89. CFRAPé L029 T12b (00:00:25.159 - 00:00:32.063)	233
Figure 90. CFRAPé L020 T05 (00:01:52.453 - 00:01:57.303)	234
Figure 91. CFRAPé L002 T05 (00:06:41.674 - 00:06:43.989)	234
Figure 92. CFRAPé L019 T12 (00:06:48.629 - 00:06:51.184)	235
Figure 93. CFRAPé L001 T12 (00:05:52.571 - 00:05:57.675)	235
Figure 94. CFRAPé L016 T05 (00:02:47.104 - 00:02:52.148)	236
Figure 95. CFRAPé L022 T12 (00:03:21.517 - 00:03:24.655)	236
Figure 96. CFRAPé L019 T05 (00:07:03.299 - 00:07:05.928)	237
Figure 97. CFRAPé L027 T05 (00:05:10.142 - 00:05:17.521)	237
Figure 98. CFRAPé L022 T12 (00:04:22.275 - 00:04:25.482)	238
Figure 99. CFRAPé L022 T12 (00:13:19.962 - 00:13:21.403)	238
Figure 100. CFRAPé L030 T12 (00:10:30.852 - 00:10:36.459)	239
Figure 101. CFRAPé L020 T12 (00:02:24.023 - 00:02:28.491)	239
Figure 102. CFRAPé L027 T05 (00:10:11.969 - 00:10:17.589)	240
Figure 103. CFRAPé L021 T05 (00:13:17.535 - 00:13:20.944)	240
Figure 104. CFRAPé L016 T12 (00:08:47.416 - 00:08:50.810)	241
Figure 105. CFRAPé L016 T12 (00:05:31.713 - 00:05:33.889)	241
Figure 106. CFRAPé L022 T12b (00:00:07.467 - 00:00:10.064)	242
Figure 107. CFRAPé L027 T05b (00:08:17.486 - 00:08:24.622)	243
Figure 108. CFRAPé L019 T05 (00:06:23.105 - 00:06:28.466)	248
Figure 109. CFRAPé L016 T05 (00:02:05.020 - 00:02:07.910)	252
Figure 110. CFRAPé L020 T05 (00:03:02.874 - 00:03:11.183)	253
Figure 111. CFRAPé L001 T05 (00:04:58.313 - 00:05:00.625)	253
Figure 112. CFRAPé L016 T05 (00:02:36.216 - 00:02:38.646)	254
Figure 113. CFRAPé L029 T12 (00:01:58.852 - 00:02:01.623)	255
Figure 114. CFRAPé L001 T12 (00:04:58.042 - 00:04:58.986)	255
Figure 115. CFRAPé L020 T12 (00:04:55.031 - 00:04:57.499)	256
Figure 116. CLSFB S060 T05 (00:02:55.484 - 00:02:57.156)	258
Figure 117. CLSFB S030 T05 (00:03:47.284 - 00:03:49.695)	259
Figure 118. CLSFB S029 T05 (00:05:14.819 - 00:05:17.266)	259
Figure 119. CLSFB S052 T05 (00:00:46.330 - 00:00:48.955)	260
Figure 120. CLSFB S052 T12 (00:03:55.705 - 00:03:57.288)	260
Figure 121. CLSFB S097 T05 (00:05:20.338 - 00:05:22.637)	261
Figure 122. CLSFB S059 T12 (00:04:47.236 - 00:04:49.608)	261
Figure 123. Articulator heatmap dendrogram (version 2)	309
Figure 124. Articulator heatmap dendrogram (version 4)	310
Figure 125. Articulator heatmap dendrogram (version 5, 2 clusters).....	311
Figure 126. Articulator heatmap dendrogram (version 5, 3 clusters).....	312
Figure 127. Articulator heatmap dendrogram (version 6, 2 clusters).....	313

Figure 128. Articulator heatmap dendrogram (version 6, 3 clusters).....	314
Figure 129. Articulator heatmap dendrogram (version 7)	315
Figure 130. Articulator heatmap dendrogram (version 8)	316

List of Tables

Table 1. Varying terminology to refer to constructed action and related phenomena	52
Table 2. Informants of the LSFB and FRAPé corpora.....	129
Table 3. Annotation of roles and CA types	140
Table 4. Tier structure in ELAN	141
Table 5. Turn duration (min.).....	151
Table 6. Number of identified tokens of constructed action.....	151
Table 7. Number of tokens of annotated constructed action per participant and task	152
Table 8. Proportion of discourse time spent on constructed action and deviation from the mean for each participant and task in each dataset version.....	158
Table 9. Mean and standard deviation of proportion of time spent on constructed action across languages and tasks in both versions of the dataset	159
Table 10. Eye gaze contribution to constructed action: Descriptive statistics	165
Table 11. Facial expression contribution to constructed action: Descriptive statistics	169
Table 12. Head contribution to constructed action: Descriptive statistics	172
Table 13. Torso contribution to constructed action: Descriptive statistics	175
Table 14. Hands and arms contribution to constructed action: Descriptive statistics	178
Table 15. Contribution of constructed dialogue to constructed action: Descriptive statistics.....	181
Table 16. Voice contribution to constructed action: Descriptive statistics	184
Table 17. Articulatory index per participant and task (inclusive dataset).....	186
Table 18. Articulatory index per participant and task (conservative dataset)	187
Table 19. Number and types of performed heatmap dendrogram analyses.....	190
Table 20. Distribution of types of constructed action (inclusive dataset).....	200
Table 21. Distribution of types of constructed action (conservative dataset)	200

1. Introducing and Illustrating Constructed Action

The present thesis aims to study, from a comparative perspective, the use of constructed action in French Belgian Sign Language (LSFB) and in its ambient spoken language, Belgian French. Before presenting the literature on the topic, several examples of constructed action are provided here, as an introductory illustration.



LH	RUN	CA:CATCHING SHEET OF PAPER	CA:HOLDING
RH WOMAN	RUN	CA:CATCHING SHEET OF PAPER	CA:HOLDING

Figure 1. CLSFB S059 T12 (00:04:00:02 – 00:04:03:895)
The woman runs and catches the sheet of paper, relieved.



Figure 2. CFRAPé L019 T12 (00:00:20:074 – 00:00:21:681)

Il y a une jeune dame aussi qui a l'air de partir au travail qui qui court après un papier.

There's also a young woman who seems to be going to work who who's running after a sheet of paper.

Figure 1 and Figure 2 are respectively retrieved from the LSFB and the FRAPé corpora (Lepout et al., 2024; Meurant, 2015). Both examples capture utterances produced during Task 12, a narrative retelling task used for the collection of the LSFB and FRAPé corpora. In this task, informants were asked to watch an animated film and to retell the story which they had watched to a conversational partner. In the part of the retellings displayed here, both informants describe how a woman runs after a sheet of paper that she held in her hands and that was blown away by the wind. In addition to using items in their narrations that would be found in dictionaries of French and LSFB – such as the French words ‘dame’ (‘woman’) and

‘court’ (‘runs’) or the LSFb lexicalised signs ‘WOMAN’ and ‘RUN’, both also rely on another communicative strategy. Indeed, they use their bodies to show the woman’s action of catching the sheet of paper. In the stretch of discourse that spans the last three stills (from ‘RUN’ to ‘CA:HOLDING’), the LSFb signer in Figure 1 does so by leaning her body forwards and reorienting it to the left, adopting the woman’s facial expressions of effort (during ‘RUN’) and relief (during ‘CA:WOMAN-CATCHES-SHEET-OF-PAPER’ and ‘CA:HOLDING’). The signer’s arms are also subsequently extended and brought back closer to her body as one would to grasp for and hold something. These actions overlap to a large extent with those performed by the French speaker in Figure 2. While uttering ‘*qui court après une feuille de papier*’ (‘who’s running after a sheet of paper’), the speaker reorients his head and gaze direction to the right, leans his head backwards, extends his arms, and moves his hands. In these examples, rather than only drawing on lexical items and syntax to refer to the retold event, both informants provide their addressee with a near first-hand experience of seeing the event as it unfolds. This use of the body is what will be called ‘constructed action’ in this thesis. Let us turn to two additional examples.

The utterances illustrated in Figure 3 and Figure 4 capture stretches of discourse filmed during the collection of Task 05 of the LSFb and FRAPÉ corpora. In this task, a moderator guiding the dyads of informants through their exchanges prompted them to discuss what they believe constitutes ‘good LSFb’ or ‘good French’. As part of this task, informants of both corpora discussed language attitudes and, sometimes, retold past conversations. In Figure 3, the LSFb signer relates that she often wanted to follow her elder sister whenever she went out because that would be an occasion to meet and chat with other young deaf people.



Figure 3. CLSFB S030 T05 (00:06:45:632 – 00:06:56:974)
When my sister went out, I’d call her and beg: ‘Can I please come with you?’.

The informant tells her addressee that, upon realising that her sister was going out to meet friends, she would often ask whether she could join (PLEASE WITH). The signer also adopts an imploring facial expression (spanning from PT:PRO1 to WITH) and leans her head and torso forwards (while uttering WITH). These bodily actions contribute to portraying the past interaction together with the reported signs ‘PLEASE WITH’.

In Figure 4, the Belgian French speaker talks about an interaction that she had with a French-Canadian co-worker. She explains that, during their exchange, the Belgian regionalism ‘*il drache*’ (‘*it’s raining lots*’) was not understood by her colleague: ‘*il drache?!*’. The informant’s answer then clarifies the meaning of the expression: ‘*Ok Guillaume alors ça veut dire ‘il pleut très très fort’ en Belgique*’ (‘*Ok Guillaume so it means ‘it’s raining lots and lots’ in Belgium*’).



Figure 4. CFRAPé L020 T05 (00:04:27:620 – 00:04:35:071)

- ‘*euh il drache euh c’est...*’ *Donc là je vois Guillaume qui tique: - (inintelligible) ‘il drache?’*. - ‘*Ok Guillaume en fait, (ça veut dire) ‘il pleut très très fort’ en Belgique*’.

- ‘*erm it’s lashing down erm’ it’s...*’ So then I see Guillaume flinch: - (unintelligible) ‘*it’s lashing down?*’. - ‘*Ok Guillaume so, (it means) ‘it’s raining lots and lots’ in Belgium*’.

While uttering ‘*I see Guillaume*’, the informant leans her torso to the left and reorients her head and gaze to the right as though looking at her co-worker. Next, the informant squints her eyes, furrows her eyebrows, and pulls her head backwards as she reports the utterance ‘*it’s lashing down?*’, thereby conveying the reported utterer’s confusion. Finally, the informant combines the last sequence of the reported interaction – ‘*Ok Guillaume so, (it means) ‘it’s raining lots and lots’ in Belgium*’ – with a reorientation of her head and gaze to the right, several head nods, and the rotation of her forearms to turn her hands upwards. Together, these body movements provide the addressee with a glimpse of the reported speaker’s didactic attitude. As in the prior example, the Belgian French speaker’s portrayal of the interaction is made up of much more than the words that were uttered. The informants’ bodily actions in Figure 3 and Figure 4 are reminiscent of those described in the utterances featured in Figure 1 and Figure 2. Like in the initial examples, informants in both utterances use their bodies to portray the actions or events that are at issue. In this case, the denoted events happen to be human interactions.

In the present thesis, this specific kind of constructed action is referred to as ‘constructed dialogue’ or ‘utterance reporting’. In addition to the strings of words that make up these constructed or reported utterances (commonly referred to as ‘quotation’, ‘(direct) reported speech’, etc.), addressees experience a multimodal ensemble involving other aspects of these exchanges such as the interactants’ posture, facial expressions, or vocal prosody. The literature review in Chapters 3, 4, and 5 will focus on how the phenomena briefly touched upon in this illustration have been accounted for in prior research on signed languages, spoken languages, or both. Before that, a sketch of how spoken and signed languages have been compared is provided in Chapter 2.

2. Comparing Signed and Spoken Languages: A sketch of past and current dynamics

2.1 Writing about languaging diversity: a terminological note

Because of the history of signed language linguistics and gesture studies and of the diversity of the theoretical frameworks that have taken (multimodal) communication as an object of inquiry, the literature on signed and spoken communication is rife with different terminological uses. In this thesis, phenomena analysed in diverging approaches are presented and discussed. To make the reading process as easy as possible, a coherent terminology is used, potentially altering the labels that researchers originally gave to some of the discussed phenomena. Hence, in the discussion of the literature, the use of the selected coherent terminology is often favoured but original labels may be additionally indicated where deemed relevant. In this vein, the present section aims to introduce and disambiguate several terms that will be used in this thesis and are often found with diverse meanings in the literature.

First, the practices whereby signers and speakers engage in meaningful interaction using any resource available to them are referred to as ‘languaging’. Individuals who engage in these practices are referred to, inclusively, as ‘languagers’. When discussing different kinds of languaging, as is relevant to this dissertation, we will refer to ‘signers’ as individuals using a signed language to engage in languaging as against ‘speakers’ who use a spoken language. It is worth pointing out that one and the same individual may be a signer and a speaker. Relatedly, it is possible to refer to ‘speaking’ or ‘signing’ communities. Languaging practices may be described as relying on two ‘modalities’: the ‘oral-aural’ modality (the modality commonly used when producing speech) or the ‘visual-kinesic’ modality. These modalities can be further dissected as involving different ‘channels’ or ‘articulators’. These channels include the vocal tract, which is frequently used to produce speech. As is often the case in the field, instead of referring in detail to the articulators themselves (larynx, tongue, lips, etc.), the term ‘voice’ will be used to denote the ensemble involved in producing aural-oral communication. Researchers describing the visual-kinesic modality have often provided more detail, perhaps because of the perception that different visible body parts have prominently distinct affordances (see Puupponen, 2019). Frequently, signed language linguists and gesture researchers talk about ‘eye gaze’, ‘face’ (or ‘facial expression’), ‘head’ and ‘torso’ movements, ‘hand and arm’ movements as well as the use of the ‘lower half of the body’ among other articulators.

An additional terminological remark is in order. Of all the words featured in this thesis, ‘language’ and ‘gesture’ are likely to be among the most frequent ones, at least in the first chapters. Interestingly, their meaning and delineation may well be among the most controversial in the field. On the one hand, ‘gesture’ may be interpreted broadly as the use of the body to communicate, i.e., visible action (Kendon, 2004). From this perspective, both speakers’ bodily movements and signed languages are examples of gesture. On the other hand, other authors have emphasised that (signed) languages should be distinguished from gesture or, at least, that their language-like properties should be clearly teased apart from their gesture-like ones (e.g., Goldin-Meadow & Brentari, 2017). In this case, the term ‘gesture’ refers to less conventional and gradient, as against conventional and categorial characteristics of communicative expressions. As I do not seek to draw fundamental distinctions between communicative systems as either linguistic or gestural and because more relevant terminology has emerged in the field, these terms will be used to point out that some researchers tease apart what they consider to be linguistic and gestural systems or properties of a communicative system. In such cases, the meanings denoted by these terms will be made explicit.

To summarise, languaging has been proposed as an overarching term for communication in both signing and speaking communities. It may be articulated in two modalities by means of diverse channels or articulators. With this brief terminological note, some of the groundwork needed for the discussion of how signed and spoken languages have been compared over time has hopefully been laid.

2.2 The comparability issue

How similar and different are the world’s languages? And how can the results of such comparisons be explained? Evans (2020, p. 418) argues that if cross-linguistic comparisons are to provide language researchers with valuable insights, the central issue of comparability needs to be addressed:

Whether we are interested in categorical universals, implicational universals, or the identification of phenomena as rare, unique or non-existent, we cannot escape from the need for rigorously defined comparisons which are able to decide what counts as relevant, in a particular language, to our cross-linguistic claim.

Providing the first description of LSFb using a contrastive approach with French, Meurant (2008, p. 5) points to the same issue:

[N]ous savons que nous nous exposons au moins à deux dangers, que nous ne pourrions prévenir que par une vigilance de chaque instant. Le premier consisterait à importer, au sein de l’analyse, des catégories communément admises, mais qui seraient étrangères aux catégories que produit la langue elle-même, et dès lors artificiellement projetées sur elle. Le deuxième danger, d’autant plus menaçant que notre langue est le français, serait de fonder l’explication du fonctionnement grammatical de la LSFb sur notre compréhension, française, de ses énoncés.

We know that we are exposing ourselves to at least two pitfalls, that can only be avoided by a constant state of alertness. The first one consists in introducing to the analysis widely

accepted categories that do not conform with those of the language and are therefore artificially projected onto it. The second pitfall, even more threatening since the language we use is French, is to base our explanation of how LSFb grammar works on our French understanding of its utterances.

To address the challenge of cross-linguistic comparability, Haspelmath (2007, 2010) argues for the use of comparative concepts that are not based on language-particular descriptions. Haspelmath (2007), together with other typologists (e.g., Croft, 1990; Givón, 2001), rejects the existence of universal, pre-established categories because a serious consideration of language diversity would prevent us from identifying common formal patterns (Evans & Levinson, 2009). Hence, according to Haspelmath, language researchers engaged in comparative endeavours should avail themselves of concepts that are purposefully devised for comparative research. These comparative concepts should be defined with “*universal conceptual-semantic concepts, general formal concepts, and other comparative concepts*” (Haspelmath, 2010, p. 681). Haspelmath stresses that there are no such things as good or bad comparative concepts as they need not reflect language-particular patterns. Rather, they are a by-product of the research process and are therefore intrinsically biased. However, a comparative concept might prove more productive and useful to linguists than another by providing new and broader insights about the data. Therefore, comparative concepts and related biases should be explicitly acknowledged and motivated by researchers. The issues raised by Evans, Meurant, and Haspelmath have been tackled by researchers in a variety of ways throughout the history of (signed language) linguistics.¹ One crucial question that has been constantly raised in the discipline relates to the benchmarks that are used to compare languages. As will be shown in this review, in some cases, this process has gone as far as redefining language itself.

2.3 Signed language linguistics and the comparison with spoken languages

For a long time in the history of linguistics, the introductory comparison between Figure 1 and Figure 3 (in LSFb) with Figure 2 and Figure 4 (in French) would not have been deemed fit for linguistic inquiry. Indeed, signed languages were simply not considered as languages. Stokoe’s study is the best-known early research on a signed language.² In *An Outline of the Visual Communication Systems of the American Deaf*, Stokoe (1960) argued that ASL (American Sign Language) lexical signs were compositional and could be broken down into discrete parts, mirroring what was already common knowledge in spoken language phonology. Before delving into the research on signed languages that emerged afterwards, the reasons for its absence prior to these studies will be outlined. A common explanation for

¹ Dingemanse (2018) discusses how similar considerations regarding ideophony have also played out in spoken language linguistics.

² Another linguist had studied how deaf children communicated in the Netherlands: Tervoort (1953) published *Structurele Analyse van Visueel Taalgebruik Binnen een Groep Dove Kinderen* (Structural Analysis of Visual Language Use in a Group of Deaf Children) (McBurney, 2012; Vermeerbergen, 2006). West’s (1960) thesis also provided a phonological description of Plains Indian Sign Language (van der Hulst, 2022).

the long absence of scholarly attention to signed languages lies in language ideologies.

Indeed, several misconceptions led to the belief that deaf signed languages were not fully fledged linguistic systems on a par with spoken languages (Vermeerbergen, 2006). A language was considered to be an arbitrary system produced through the speech stream. Because of their reliance on directly visible articulators, signed languages were perceived as closer to speakers' visible bodily actions and neither was considered worthy of linguistic inquiry. As Kendon (2014, p. 2) puts it, “[a]t least, since the middle of the nineteenth century, sign languages had come to be dismissed as unworthy. They were regarded as nothing but loose gesturings or pantomimes” (see also Cuxac, 2000). It thus appears that the comparability problem surfaced early on when linguists first approached signed languages. A first question that was asked was whether such a comparison should be attempted at all, i.e., whether signed languages should be considered as *bona fide* linguistic systems.

With the growing recognition that signed languages were indeed languages, the question became *how* signed languages should be compared to spoken languages. Karlsson (1984, pp. 149-150) summarises two broad approaches to the matter:

On the one hand, there is the oral language compatibility view. This presupposes that most of [signed language] structure is in principle compatible with ordinary linguistic concepts. On the other hand, there is the [signed language] differential view. This is based on the hypothesis that [signed language] is so unique in structure that its description should not be primarily modelled on oral language analogies.

According to Vermeerbergen (2006), both approaches co-existed at the beginning of the discipline. However, the oral language compatibility view soon became the dominant one. A frequent explanation for this preference lies in the urgency to legitimise signed languages. Asserting their linguistic status was crucial on several levels for deaf communities and related stakeholders, e.g., relatives of deaf individuals and educators. It was also a necessary step to ensure signed language linguistics could benefit from funding allocated to language research.

In this context, several factors listed by Vermeerbergen made the scales tip in favour of the compatibility view. The first has to do with the research profile of the linguists interested in signed languages early on. They were hearing, rarely strong signers, and trained in linguistics by looking at highly standardised (spoken) languages with writing systems. Second, some researchers approached signed languages as a testbed for linguistic theories and models that had initially been developed to account for spoken languages. This meant that they could have been biased towards interpreting data as confirming their theories, rather than focusing on those elements which challenged their models. Third, this confirmation bias was facilitated by the methods used to analyse (signed) languages at the time. On the one hand, language samples were mostly made up of isolated and elicited utterances. On the other hand, data was analysed using mostly spoken language glosses, a methodological choice that often came with theoretical assumptions based on spoken language research. How did the compatibility view then shape linguistic analyses of signed languages?

2.3.1 The Compatibility View: Signed languages are (like spoken) languages

The bulk of the research carried out in signed language linguistics at the beginning of the discipline was concentrated in the United States and investigated ASL. Linguists strived towards proving that signed languages could be analysed in linguistic terms using theoretical frameworks that were prominent at the time. The field was then being strongly reshaped by American post-structuralism. For instance, since Noam Chomsky's (1957) publication of *Syntactic Structures*, many linguists had taken an interest in pursuing a generativist research programme. This meant that language research largely revolved around the notion of 'competence', i.e., the language-internal ability to generate well-formed sentences, as against 'performance' – the use of this skill in interaction. In that framework, one of linguists' goals was to unveil the grammars of languages by identifying a set of rules which could account exhaustively for the creation of any possible sentence. Such grammars were assumed to have a common underlying structure or template reflecting the language module, the human neurobiological foundation of language in these approaches. If signed languages were indeed languages, they should have been no exception.

Because of this influential view, signed languages were often described with the same analytical frameworks as spoken languages. In some cases, remaining discrepancies were accounted for by surface differences, which were deemed a mere consequence of the visual-kinesic modality. In particular, many signed language phenomena were likened to morpho-syntactic structures already described for spoken languages. For instance, signed languages were described as displaying 'pronominal' pointing and 'agreement' or 'agreeing' verbs which exhibit morphological 'person' marking. In the same vein, another category of signs found across diverse signed languages was treated in morphological terms as a system akin to 'classifiers' (e.g., Frishberg, 1975; Suppalla, 1986). The assimilating perspective led signed languages such as ASL to be considered as "*highly abstract, rule-governed, combinatorial linguistic system[s]*" (Klima & Bellugi 1979, p. 318). In hindsight, Vermeerbergen argues that one consequence of the compatibility view is that "[c]haracteristics that make sign languages unique were often ignored, minimised, or interpreted as comparable to spoken language mechanisms after all" (2006, p. 170).

Thanks to the growing scholarly recognition of signed languages as languages on a par with their spoken counterparts, the need to demonstrate their linguistic status by equating them with spoken languages decreased. This meant that a growing number of researchers started questioning common claims on signed language phenomena and their comparison with morphosyntactic structures of spoken languages. Instead, these researchers suggested that some signed language phenomena could best be described in their own terms, as already proposed by early defenders of the sign language differential view.

2.3.2 Signed language differential view: Signed languages exhibit properties not found in spoken languages (i.e., speech)

Though early research largely adopted the compatibility view, a minority of researchers already proposed the creation of new theoretical models and methodological toolboxes to capture phenomena deemed specific to signed languages (DeMatteo, 1976; Mandel, 1976). A prominent example of the differential approach is found in Cuxac's semiological model. Cuxac (2000, pp. 23-24) emphasised the importance of iconically motivated forms in signed languages, describing iconicity as one of the key structuring principles of LSF (French Sign Language):

Toutes les langues permettent de reconstruire des expériences, mais les langues orales ne font que le dire (sauf les cas d'ajouts gestuels : un poisson grand comme ça, ou d'imitation posturale de personnages, ou d'imitation de voix dans des dialogues rapportés), sans le montrer. Il en va tout autrement avec les langues des signes, où la dimension du comme ça en montrant et/ou en imitant (comme si j'étais celui dont je parle, et quelles que soient ses actions) peut toujours être activée.

All languages enable one to reconstruct experiences, but spoken languages only do that by saying (save instances of gestural complements: a fish big like that, or the imitation of characters' posture, or the imitation of voices in reported dialogues), without showing. Signed languages differ dramatically, as the 'like that' dimension of showing and/or imitating (as though I were the one I am talking about, whatever their actions) can always be activated.

According to Cuxac (2000), signed languages exhibit two distinct means of communicating meanings: one is to 'tell without showing', i.e., using conventional, arbitrary forms, whereas the other is to 'tell by showing'.³ The latter strategy consists in using 'transfer' forms, which are structures that are iconically motivated (2000, p. 24):

J'ai regroupé fonctionnellement l'ensemble des structures de grande iconicité en opérations dites de transfert [...]. Le terme me semble approprié dans la mesure où il s'agit d'opérations qui permettent, en amont, de transférer, en les anamorphosant faiblement, des expériences réelles ou imaginaires dans l'univers discursif tridimensionnel appelé espace de signation, (l'espace de réalisation des messages).

[A]ll highly iconic structures can be grouped together functionally under the heading of transfer processes [...]. This term seems fitting to me inasmuch as we are dealing with processes that enable one, first and foremost, to transfer, by mildly transforming them, real or imaginary experiences into the tridimensional discursive universe called signing space, (the space where utterances are produced).

Like Cuxac (2000), other researchers recognised the importance of iconicity in signed languages (e.g., Taub, 2001). But other specificities of signed languages were also pointed out by the resurfacing differential approach. One of these was that signed languages exhibit simultaneity of articulation. Indeed, signers can deploy several bodily channels at the same time. This seemingly contrasted with

³ See also Vermeerbergen's (2006) metaphorical distinction between the still and sparkling water modes in VGT.

the linear organisation of the speech stream in spoken languages (Vermeerbergen et al., 2007). Another question raised about the singularity of signed languages related to their comparability with speakers' visible bodily actions: Given that signed languages are expressed in the modality that is largely associated with speakers' visible bodily actions, to what extent do signed languages resemble so-called 'gesture', if at all? Quinto-Pozos (2002, p. 169) asks:

If, for the sake of argument, we posit gestures as paralinguistic elements that alternate with formal linguistic units (morphemes, words), how does one go about defining what is gestural and what is linguistic (or morphemic) in signed languages where both types of communication involve the same articulators?

The question gained momentum after the development of gesture studies. Starting in the 1970s and flourishing from the 1980s onwards, the new research field has made it possible to reconsider the comparison between signers' and speakers' communicative actions by expanding the range of what could be compared.

2.3.3 Different to what? Broadening the concept of (spoken) language to include gesture

Discussing the contribution of gesture studies requires defining 'gesture'. Even within gesture studies, different meanings have been attached to the term. Kendon refers to gesture as the use of visible action. In particular, gesture is restricted to those visible actions which have 'utterance uses', i.e., which constitute ostensive communicative signals. This definition is found in Kendon's (2004, p. 1) introduction to *Gesture: Visible Action as Utterance*:

[Gesture refers to] those actions that are employed as a part of the process of discourse, as a part of uttering something to another in an explicit manner. Thus, people may refer to something by pointing at it, they may employ the hands in complex actions organized to show what something looks like, to indicate its size or its shape, to suggest a form, object or process by which an abstract idea is illustrated, or they may show, through visible bodily actions, that they are asking a question, making a plea, proposing an hypothesis, doubting the word of another, denying something or indicating agreement about it, and many other things. There are also visible actions that can serve as alternatives to spoken words and socially shared vocabularies of such actions are commonly established. In some circumstances, indeed, entire languages that function as autonomous systems in their own right have been fashioned from visible action. In other words, there is a wide range of ways in which visible bodily actions are employed in the accomplishment of expressions that, from a functional point of view, are similar to, or even the same as expressions in spoken language.

That intentionally expressive visible actions may function as meaningful parts of utterances or, indeed, as utterances in their own right has now gained acceptance among researchers. However, Kendon (2004) shows that for a considerable part of the 20th century, scholarly interest in visible bodily action declined. This lack of attention marked a change with the past. Kendon devotes several chapters to the history of human thinking about visible bodily action. These include discussions of ideas about its use as a rhetorical tool in Ancient Greece and Rome as well as about the philosophical inquiry into the expressive potential of visible bodily action, its

universality, and its origins. Kendon also discusses influential publications produced in the 19th century which further advanced the understanding of visible bodily action such as De Jorio's (1832) description of gestural practices in Naples in *La mimica degli antichi investigate nel gestire napoletano (Gestural Expression of the Ancients in the Light of Neapolitan Gesturing)*.

However, Kendon notes that for most of the 20th century interest in visible bodily action receded. Several reasons can account for this decline: questions that had triggered thinkers' interest in the phenomenon, e.g., the quest for the origins of language, were no longer popular. The theoretical developments in psychology and linguistics had indeed led to adverse conditions for gesture research. The rise of behaviourist and psychoanalytical approaches in psychology meant that visible bodily action was deemed too controlled and conscious to be worthy of investigation. Linguistics did not take a greater interest in visible bodily action; the phenomenon was deemed largely social-cultural in nature and did not appear to exhibit a language-like potential for the expression of complex meaning. Bloomfield (1933, p. 39, as quoted in Kendon, 2004, p. 67) says about visible bodily action that “*to a large extent it is governed by social convention*” and that “*most gestures scarcely go beyond an obvious pointing and picturing*”. Another factor that prevented modern gesture research from emerging earlier than it did, is the interest taken by many linguists in the generativist programme. The focus on competence as against performance meant that linguists regarded *in situ* interaction as less informative than language users' intuitions, e.g., in acceptability judgements. The latter were indeed deemed to reflect their competence to generate well-formed sentences. Largely peripheral to this vision of language as an abstract, self-enclosed system, visible bodily action was relegated to performance and received less attention from linguists.

It is only by the 1970s that the utterance uses of visible action became an object of (scholarly) inquiry again. Kendon (2004) discusses several factors that led to this revival. One, which lies outside the scope of the current discussion, is the renewed interest in the potential role played by visible bodily action in language evolution (e.g., Corballis, 2002; Tomasello, 2008). A second factor has to do with the development of micro(-ethnographic) analyses of language use as a form of cooperation in conversational settings. With the availability of new recording technology, the observed multimodality of interaction led to new questions about how speakers intentionally coordinate speech and visible bodily action, to what extent the latter provides key meaning contributions, and is attended to in conversation (Bavelas et al., 1992, 1995; Goodwin, 2000; Streeck, 1988, 2008). For instance, Streeck (1988, p. 65) argues that conversational partners explicitly signal when visible bodily action provides information:

Close examination of interactional sequences thus reveals that participants have organized ways of displaying for one another where, if not in the talk itself, information can be gained to fully understand the talk. One of these ways orients to gesture. Using it the parties establish manual action as a significant component of representation.

Another major research line that boosted the emergence of gesture studies has to do with a new understanding of visible bodily action as involved in the psychological

course of action underlying the utterance process. Starting in the 1970s, several researchers showed not only that visible action can constitute ostensive signaling that communicates meaning, but also that it co-occurs with speech in patterned ways, suggesting an integration of the two meaning-making modalities (Kendon, 1972, 1980, 1994; McNeill, 1985, 1992). First, several aspects related to the timing of visible bodily action indicate its tight relationship with speech as another part of the utterance process. Speakers mostly produce visible bodily action while speaking. In addition, breaking down meaning units in speech, one may notice that they co-occur with distinct (hence, potentially corresponding) phases of visible bodily action, but also that gestural affiliates of concurrent speech may occur slightly prior to associated phrases in the speech stream (Kendon, 1972, 1980). Kendon (1980) interprets these observations as showing that visible bodily actions do not function “*as mere embellishments of expression or as by-products of the speech process*” (p. 218). Rather, they “*must be seen as originating simultaneously with the origination of speech*” (p. 219). These observations resonate with emerging psycholinguistic models of utterance formation that break down the process into smaller stages. The empirical validity of the first one – the conceptualisation stage or “*the organization of semantic structures*” (Kendon 1980, p. 224) – is supported by the observation of the relationship between visible bodily action and speech: “*the process of utterance has its origin in the organization and manipulation of mental representations of images and actions directly and not, initially, in the organization of forms that can be derived only from verbal language*” (p. 224). Second, supporting the idea that both speech and visible bodily action are part and parcel of an integrated utterance process, researchers have shown that when speech and visible bodily action are used, they can be characterised as co-expressive as they communicate the same or similar meanings. These insights led to the growing understanding that visible bodily action should not be relegated to the language-peripheral category of ‘non-verbal’ communication (McNeill, 1985).

The renewed interest in varied gesture-related questions feeds into another line of investigation, which is one of the chief preoccupations of this dissertation: the interrelatedness of speakers’ visible bodily actions with the signed languages of deaf communities. Gesture studies indeed constitute one reason for the reemergence of the signed language differential view described earlier. Faced with descriptions of visible bodily action in speakers’ utterances, some signed language linguists agreed with gesture scholars’ plea for a new definition of language. Such a definition is found in McNeill (1992, p. 2):

Thus one theme of this book is that language is more than words, that a true psychology of language requires us to broaden our concept of language to include what seems, in the traditional linguistic view, the opposite of language – the imagistic, instantaneous, nonsegmented, and holistic.

This broader conception of language, McNeill (1985, p. 350) already notes in his early research, is “*contrary to the assumptions of many linguistic analyses that hold that language structures should be analyzed only in terms of speech sounds plus grammar. We tend to consider linguistic what we can write down, and nonlinguistic, everything else*”. It is worth pointing out that the McNeillian definition of gesture differs from Kendon’s. Indeed, McNeill adopts a narrower

definition of gesture that focuses mostly on those visible bodily actions which have holistic, imagistic, and motivated properties. Interestingly, when McNeill argued in favour of a new conception of language as multimodal, signed languages did not seem to fit well within that model. Relying on early descriptions like the one provided by Klima and Bellugi (1979), McNeill came to view signed languages as “*fully-fledged linguistic systems with segmentation, compositionality, a lexicon, a syntax, distinctiveness, arbitrariness, standards of well-formedness, and a community of users*” (1992, p. 38). Because of the clash between McNeill’s definition of ‘gesture’ and the conception of signed languages which he adopted, any potential for ‘gesture’ to appear in signed discourse was dismissed (McNeill 1992, p. 40):

[O]ne supposes that for the deaf and others who make use of conventional sign languages the primitive stages of their sentences also include global-synthetic images, just as in the case of spoken languages, but their signs, unlike the spontaneous gestures of the hearing, do not, cannot, reflect this stage. The kinesic-visual medium is grammatical and socially regulated for the deaf, and this shifts the overt performance of deaf signers to the final stage of the internal temporal evolution of utterances.

Relying on early claims that signed languages could be described with morphosyntactic concepts derived from spoken language linguistics, the McNeillian approach does not consider the comparison of signed and spoken languages using speakers’ visible actions. With time, however, more and more research in signed language linguistics did claim that part of what constitutes signing may bear more resemblance to speakers’ visible bodily actions (particularly in a McNeillian sense) than with speech. This opened research avenues where signed languages could be compared not only with speech but with speakers’ multimodal languaging behaviour.

2.3.4 Broadening the concept of (signed) language to include gesture

While largely discarded at first, the gesture question became prominent in signed language linguistics. Several studies started addressing the potential presence of phenomena akin to speakers’ visible bodily actions in signed discourse, as suggested by the following titles: ‘Gesture in sign language discourse’ (Liddell & Metzger, 1998), ‘Do signers gesture?’ (Emmorey, 1999), and *Grammar, Gesture, and Meaning in American Sign Language* (Liddell, 2003). Hence, once the potential existence of gesture-like (i.e., less conventionalised) phenomena in signed languages was considered, signed language linguists attempted to devise benchmarks for language and gesture in signed languages. When asking whether signers gesture, what seems to have been asked by most researchers is: do signers make use of visible actions that are richly improvised, non-categorical, i.e., actions which cannot be described as conventionalised?

To tackle these questions, researchers like Okrent (2002) argued that a modality-free operationalisation of ‘gesture’ was needed. Indeed, Okrent showed that speech and visible bodily action were neither as internally cohesive nor as different from one another as had often been claimed. For instance, emblems, i.e., conventionalised, community-specific manual actions (e.g., Teßendorf, 2013), are

closer to what has been described in spoken languages as words. In contrast, speech-synchronised visible actions involve more richly improvised, context-dependent, and motivated forms. Okrent showed that speech too could exhibit similar qualities. For instance, phonetic signals such as duration or fundamental frequency can be manipulated for iconic purposes. Gradient changes in vowel length or pitch height are interpreted iconically, like ‘sound’ images, in utterances such as “*It was a loooooong time*” or “*The bird flew up [high pitch] and down [low pitch]*” (p. 187). Therefore, Okrent argued that there is no one-to-one correspondence between modality and conventionalisation status. In other words, the phenomena called ‘language’ and ‘gesture’ may often (co-)occur within both modalities.

In the same vein, particularly influential studies supporting the idea that signed languages like ASL may exhibit gesture-like material are carried out by Liddell (1996, 1998, 2003) and Liddell & Metzger (1998). These studies advocate against a traditional view of language as a closed arbitrary system. Liddell (2003) argues that phenomena such as pronominal pointing, indicating verbs or depicting verbs include both conventionalised form-meaning pairings and elements that can be likened to speakers’ visible bodily actions. Hence, Liddell defends the view that core aspects of meaning-making in ASL also include gesture. This view is applied to strategies that are known to be frequent in ASL and other signed languages. As an increasing amount of research started reconsidering the role of gesture along the same lines, a new picture of speech, speakers’ visible bodily actions, and signed languages emerged. Signed and spoken languages became viewed as systems that exhibit composite utterances, i.e., utterances made up of semiotically diverse parts (Enfield, 2009). Liddell (2003) therefore advocates a more inclusive conception of language as composite: “*spoken and signed languages both make use of multiple types of semiotic elements in the language signal*” (2003, p. 332). A similar position is adopted by Johnston et al. (2007): “*Rather than being homogenous systems as commonly assumed [...], signed (and spoken) languages may be best analysed as essentially heterogeneous systems in which meanings are conveyed using a combination of elements, including gesture*” (pp. 197-198). This recognition led to a gestural reanalysis of several aspects of signed discourse.

Where some phenomena had been treated as closely related to spoken language morpho-syntactic structures, some signed language linguists started examining them through this new analytical lens. In particular, phenomena that exploit the signing space were subjected to new analyses. Pointing actions, which were traditionally considered to constitute pronominal systems inflecting for person categories, were compared to speakers’ uses of pointing. In the same vein and following Liddell’s (2003) proposal, a category of verbs that can be directed from and to different locations associated with the referents of the verb’s agent and patient roles was also reevaluated. The utterances shown in Figure 5 illustrate the use of pointing actions and of these verbs, called ‘indicating signs’ here, in LSFb. The signer points to herself (PT:PRO1) as well as to another location in space (PT:PRO3) associated with a referent whose signing is described as good (GOOD.PAPER). Both locations are recruited again in the production of the indicating signs LOOK and COPY. In the first two stills of the second row, the informant directs the sign LOOK at herself to denote that she is inspecting her own way of signing. In

the second still of the last row, the signer uses the location associated with the ‘good’ signer as the starting point of COPY to convey that she is borrowing from that person’s way of signing. Finally, a few seconds later, the signer uses the sign COPY twice, starting from different locations in space, to express that she adapts her own signing style by ‘borrowing’ from different people.

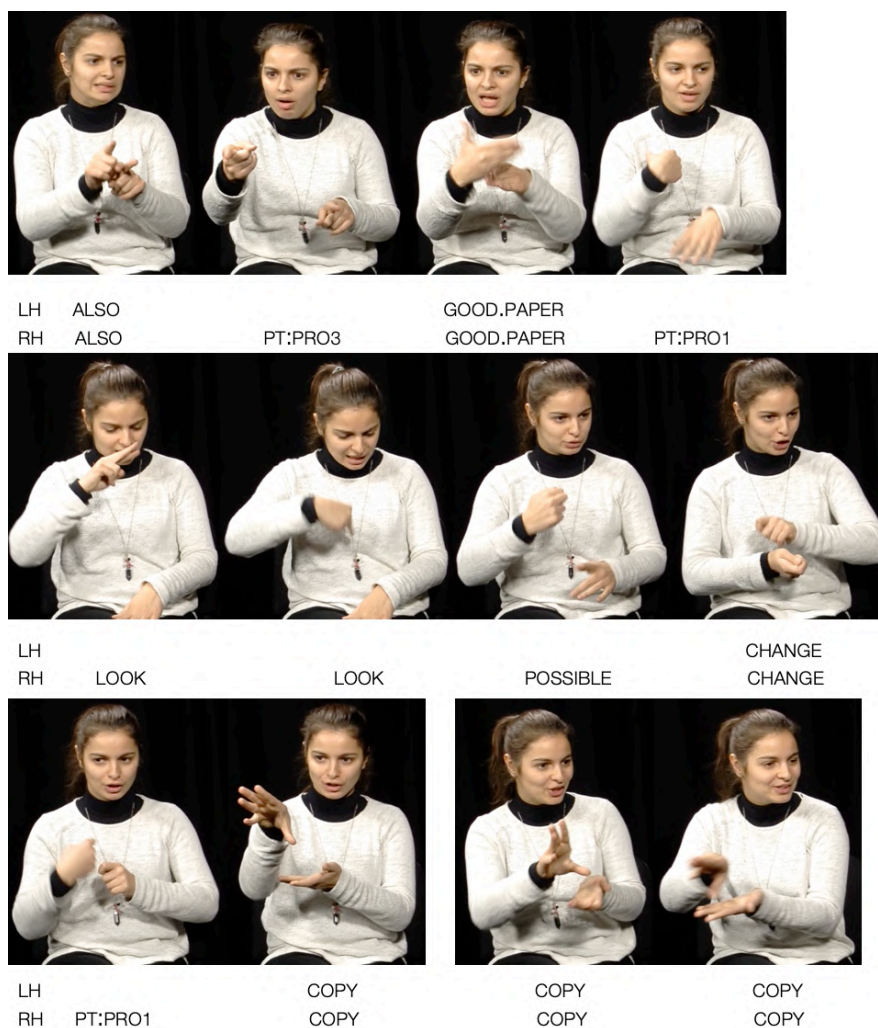


Figure 5. Illustration of the use of indicating verbs in LSFb: CLSFB S030 T05 (00:00:58.291 – 00:01:04.416)

Also, when I like someone’s way of signing, I’ll work on myself and try and change my ways. I’ll copy (what they do). (...) I’ll copy from one person, then from another.

Whereas these signs had often been treated as ‘agreeing verbs’, several analysts started questioning that they exhibited person inflection. Instead, they could be described as unique fusions of lexically-specified forms and pointing actions (Fenlon et al., 2018; Liddell, 2003; Schembri et al., 2018).

Similarly, ‘classifiers’ were revisited as ‘depicting’ signs which, in addition to exhibiting a conventional handshape, also partly function like gestures by

gradiently depicting processes such as motion events (Cogill-Koez, 2000; Liddell, 2003; Schembri et al., 2005; Cormier et al., 2012). Figure 6 and Figure 7 illustrate tokens of a depicting sign (DS:PERSON.1) whose handshape – an extended index finger directed upwards – conventionally denotes a standing human. Other aspects of the form of this sign, like its location in space or its orientation, vary as a function of the signer’s referential intent. In the third still of Figure 6, the signer positions the sign on top of another one which depicts a train platform, and the absence of movement denotes the referent’s static behaviour.



Figure 6. CLSFB S052 T12 (00:04:42.211 – 00:04:44.780)

This man is alone and is standing on the platform, holding folders in his hands.

In Figure 7, the same depicting sign is quickly displaced from right to left to express that a person ran in front of the (enacted) referent.



Figure 7. CLSFB S029 T12 (00:03:28.151 - 00:03:29.201)

A woman quickly runs past him.

In addition to these phenomena, which have been among the most controversial ones in signed language linguistics, other analyses likening signed language use to speakers’ visible bodily actions emerged, notably to account for patterns of mouth actions (Johnston et al., 2016; Lewin & Schembri, 2011) or for the use of headshaking to signal negation (Johnston, 2018). Hence, as McCleary & Viotti (2010, p. 182) put it, a new research avenue opened for signed language linguists, that of discovering those aspects of signed discourse which are gesture-like and whose counterparts in speakers’ visible actions are found cross-linguistically (as claimed for spoken languages by McNeill 1992, pp. 222-225):

Ironically, it has been partly the success of gesture studies in showing the universality of co-speech gesture that has created an environment in which [signed language] linguists can

begin to break with the taboo against describing [signed languages] in anything but strictly linguistic terms. If the co-occurrence of what is considered linguistic (discrete, categorical, combinatorial, linear, conventional, hierarchically organized) with what is gestural (analogical, continuous, noncombinatorial, spatial, idiosyncratic, nonhierarchical) is found to be universal among spoken languages, why should it not also be so among [signed languages]?

However, after the establishment of the analytical concepts ‘language’ and ‘gesture’ within signed and spoken language linguistics and gesture studies, the relevance and the validity of the benchmarks used to define and distinguish between these concepts has become increasingly questioned.

2.3.5 Deconstructing the binary distinction between language and gesture

After language (defined as a conventional, arbitrary, and categorical system) and gesture (seen as improvised, motivated, and gradient meaning-making) were argued to be found across spoken languages (both in speech and speakers’ visible actions) and signed languages, several questions were raised: What would be the next step for gesture studies, (signed language) linguistics and their common lines of research? Should these fields ask how much of language and gesture is found in both kinds of languaging communities, in which contexts, and due to which factors? Some researchers seem to have answered these questions by arguing for a clear-cut, categorical distinction between language and gesture (see Goldin-Meadow & Brentari, 2017 and peer responses for a recent illustration of the debate). Kendon (2008) and Müller (2018) trace this distinction to influential frameworks which emerged in gesture studies and linguistics. Gesture studies were largely guided by the McNeillian focus on gesture as “*spontaneous creations of individual speakers, unique and personal*” (McNeill, 1992, p. 1), excluding many of the other uses of visible action as utterance. Though McNeill argued for a redefinition of language that would encompass both speakers’ gestures and speech, the two sub-systems were claimed to exhibit fundamentally distinct properties in his approach: speech reflects propositional thinking. By contrast, gesture is characterised as idiosyncratic and iconic (Müller, 2018). This view also reflected a widespread assumption in language theory at the time, namely that language could be described as a set of conventions that vary cross-linguistically. Over time, however, the binary distinction between language and gesture has been questioned.

The assumption that language and gesture form two internally cohesive systems that can be neatly distinguished has been subjected to criticism. As explained in Section 2.3.4, Okrent (2002), for instance, stressed that one of the most important criteria usually used to separate language and gesture – conventionalisation – could not be reduced to a binary question. Rather, different forms could be placed anywhere on a continuum between fully improvised and idiosyncratic to fully conventionalised. Occhino & Wilcox (2017) similarly point to the absence of clear criteria to operationalise such a distinction. An additional pitfall that Occhino & Wilcox (2017, p. 37) warn against lies in the origins of this theoretical divide: the appeal for a clear-cut distinction is based on a modality-bound (spoken language-

centric) framing of research comparing speakers' and signers' communicative actions:

[R]esearchers are still using hearing speakers' gestures, as determined by hearing researcher judgment, as a guide. The approach is to categorize certain elements of a usage event as speech and others as gesture, then to search in signed languages for forms similar to those categorized as gesture in spoken language. The danger lies in making the unwarranted assumption that similar forms share the same function.

Yet again, this debate is reminiscent of Haspelmath's (2010) discussion of comparative concepts. One might say that comparative concepts used in studies comparing (or making comparative claims about) signed and spoken languages were often modality-specific ones (i.e., based on patterns characteristic of speaking communities). Therefore, some researchers have been arguing that the asymmetry inherent in the selection of the comparative concept 'gesture' is now hindering further progress in the field.

In this context, several researchers have been pleading for a paradigm shift where insights from signed language linguistics are used as a lens to study spoken language phenomena. Vigliocco, Perniss and Vinson (2014) propose a thought experiment along these lines (pp. 1-2):

[W]hat if the study of language had started with the study of signed language rather than spoken language? In general, language studies and our theories of language, defined and moulded by structures salient in Indo-European spoken languages, have largely ignored components of language that are immediately obvious and highly salient in sign languages, namely the multimodal nature of language and the iconicity of language. If these features of language had been instrumental in determining the course of language research from the beginning, then our dominant ideas about language processing, language development and language evolution, and the relationship between language and cognition more generally, might be very different.

Vigliocco et al. show that several biases would have been avoided if signed languages had been a starting point in linguistics. One is the written bias: using signed languages as a reference point for language theory, models would not have abstracted away from language use in a similar manner. Another is that iconicity would have been considered as an organising principle of language use on a par with arbitrariness. Similarly, in her plea for more cross-linguistic research across signed and spoken languages, Müller (2018) encourages turning the traditional approach on its head by asking to what extent some phenomena reported by signed language linguists might also be found in speakers' bodily actions. In similar terms, several researchers start highlighting the paradigm shift that occurs in spoken language linguistics and gesture studies as a result of developments in signed language linguistics (Müller, 2018). As exemplified in the following quotes, the findings of signed language linguistics are not without consequences for language theory in general and for spoken language research in particular:

It is possible, of course, that ASL in particular, and signed languages more generally, are organized differently than vocally produced languages. If correct, then sign languages simply include more varied kinds of semiotic elements in the language signal than vocally produced languages. This is a highly unlikely result since the human brain with all its

conceptualizing power creates and drives both signed and spoken languages. It is much more likely that spoken and signed languages both make use of multiple types of semiotic elements in the language signal, but that our understanding of what constitutes language has been much too narrow.

(Liddell, 2003, p. 362)

However, sign languages, at least until very recently, have never had a written form. There is no form of any sign language that has been abstracted from its enacted manifestations as a consequence of a written form for it. Yet we find that features in the enacted manifestation of signing that cannot be analyzed conveniently by a written-language-derived formalist language model, are nevertheless central to its functioning. Now it might be that these features are also central to the functioning of spoken language, when it is manifested in its enacted form.

(Kendon, 2008, p. 357)

2.3.6 From gesture in spoken and signed languages to a Neo-Peircean comparative semiotics of languages' communicative actions

In an attempt to restore balance to the conceptual tools used to approach signed and spoken languages, new comparative concepts inspired by Peirce's (1903) semiotics have recently been adopted by a growing number of researchers. Not only does this framework acknowledge that communicative actions extend beyond conventionalised form-meaning pairings, it also parts with the idea that conventionalised form-meaning pairings constitute the cornerstone of signed and spoken languaging. However, these recent proposals also break with former approaches in that they move beyond the binary distinction between language and gesture.

Rather than aprioristically drawing boundaries between communicative actions, some researchers seek to generally compare communicative strategies across individuals, communities, and contexts. Kusters et al. (2017, pp. 2-3) propose adopting a wider analytical lens to study languaging, namely that of semiotic repertoires, a concept that is maximally inclusive of all resources recruited by languages to communicate:

[A]n analysis of only the relationships between gesture and speech, gesture and sign and gesture in sign, is insufficient for understanding meaning-making in (signed) interaction – the scope should be wider, including other multimodal means of constructing meaning [...] Indeed, all human interactions, and linguistic repertoires, are (and always have been) multimodal. Language in use, whether spoken, signed or text, is always and inevitably constructed across multiple modes of communication and through 'contextual' phenomena such as the use of the surrounding physical spaces [...]. People speak, point, gesture, sign, write, draw, handle objects and move their bodies, in a variety of combinations or aggregates, within diverse social and material contexts. Multimodality scholars [...] have investigated how different 'modes' work together (or 'semiotic fields', or 'modalities': several terminologies are in circulation), such as pictures, spoken language, gestures, posture and proxemics; how some modes can be primary in some situations or some sequences of interactions, and get subordinate roles in others.

As a consequence, some researchers argue that the field needs to operationalise new concepts fit to compare signed and spoken language use without imposing characteristics of one onto the other. Kendon proposes an alternative which, he argues, proves more informative. As visible bodily action (speakers' visible bodily actions and signed languages) is part of heterogeneous systems in both signing and speaking communities, a more interesting goal than teasing apart language and gesture is to better understand and compare the semiotics underlying these actions. An example of this proposed agenda of 'comparative semiotics' is found in Kendon (2014, p. 3):

If we accept, as surely we must, that utterances produced by living languagers (speakers or signers) [...] in the ordinary co-present circumstances of life – diverse as these may be – always involve the mobilization of several different semiotic systems in different modalities and deployed in an orchestrated relationship with one another, then we must go beyond the issue of trying to set a boundary between 'language' and 'non-language', and occupy ourselves, rather, with an approach that seeks to distinguish these different systems, at the same time analysing their interrelations.

How can such a research agenda be pursued? The first step consists in adopting modality-free concepts, as already suggested by Okrent (2002). Rather than being based on language- or modality-particular observations, Kendon (2017, p. 30) stresses the need for concepts that ensure comparison: "*Our task as analysts is to set about developing a differentiated vocabulary describing this diversity and to undertake comparative studies of the contexts in which these different forms are used.*" Kendon's call for a refined understanding of the different meaning-making mechanisms underlying the fuzzy notions of language and gesture connects well with a theoretical framework initiated by Clark & Gerrig (1990) and Clark (1996). Arguing for a repositioning of language research based on the recognition of language as a joint action, Clark reappraises Peirce's (1903) semiotics to explain different kinds of communicative acts that occur in interaction. Crucially, Clark argues that the second Peircean trichotomy of signs as symbols, indices, and icons captures essential methods of communication that are ubiquitous in language use.

2.3.6.1 Signed and spoken language use as polysemiotic: description, indication and depiction as new comparative concepts

Peirce defines a symbol as "*a sign which refers to the Object that it denotes by virtue of a law [...] which operates to cause the Symbol to be interpreted as referring to that Object*" (1955, p. 102). According to Clark, the use of symbols corresponds to a method of signaling labelled 'describing-as', better known as 'description' in recent publications (Clark, 2016; Ferrara & Hodge, 2018). Dingemanse (2015, pp. 950-951) provides a detailed account of descriptive meaning-making:

Descriptions are typically arbitrary, without a motivated link between form and meaning. They encode meaning using strings of symbols with conventional significations, as the letters in the word pipe or the words in a sentence like the ball flew over the goal. These symbols are discrete rather than gradient: small differences in form do not correspond to

analogical differences in meaning. To interpret descriptions, we decode such strings of symbols according to a system of conventions.

As Clark (1996) notes, description has been the focus of language research. This method of signaling includes community-specific items ranging from lexical to morphosyntactic constructions across the world's languages. However, it also includes visible bodily actions. Emblems, also called 'quotable gestures' can be categorised as descriptive because of their high degree of conventionalisation. Description has been considered as the core of language, partly for methodological reasons: the ability to (at least partly) grasp descriptive meaning-making out of context means that it is mostly preserved when one studies language through only writing or speech, as linguists have often done. Clark's (1996) proposal is to study language as it is used, in interaction. In such contexts, more context-dependent but no less important meaning-making strategies, corresponding to the use of Peirce's indices and icons, come to the fore.

According to Peirce (1955, p. 107), an index is:

a sign, or representation, which refers to its object [...] because it is in dynamical (including spatial) connection both with the individual object, on the one hand, and with the senses or memory of the person for whom it serves as a sign, on the other hand.

Clark (1996) labels the use of indices as 'indicating'. Indicating is involved, according to Ferrara and Hodge (2018, p. 4), when one uses "*forms that anchor communicative events to a specific time and place*". This method is notably at play in what Enfield (2009) calls 'symbolic indexicals', i.e., tokens with descriptive and indicating semiotics. For instance, pointing can be performed with a conventional handshape featuring an extended finger to physically direct the addressee's attention to a referent. While pointing is among the most frequently mentioned instances of indication, this means of signaling can take other forms, such as 'placing' a referent in space to direct an addressee's attention to it (Clark, 2003). In addition, indication is found not only in languages' visible bodily actions but also in speech. For instance, the meaning of indexical expressions 'I', 'now', 'tomorrow' or 'here' partly depends on acts of indication to be interpreted. The referent of 'I' cannot be accessed by an addressee unless the latter connects the use of the word to whoever is pronouncing it.

Finally, the use of an icon, "*a sign which refers to the Object that it denotes merely by virtue of characters of its own, and which it possesses, just the same, whether any such Object actually exists or not*" (Peirce 1955, p. 102), is labelled as 'demonstrating' or 'depicting' (Clark, 1996, 2016). According to Clark (1996, p. 174), this method of communication is used to provide addressees with a near first-hand experience of perceiving the depicted referent. This dimension also appears in Dingemans's account of depictions (2015, p. 950):

[T]ypically iconic, representing what they stand for in terms of structural resemblances between form and meaning. They use material gradently so that certain changes in form imply analogical differences in meaning. Consider the varying intensity of the strokes of paint that represent the shimmer and shadows on Magritte's pipe, or the continuous

movement of a hand gesture mimicking the trajectory of a ball. To interpret depictions, we imagine what it is like to see the thing depicted.

Some of speakers' iconic visible actions are known to depict. However, depiction often involves not only the hands but also other channels such as facial expression (McNeill, 1992; Bavelas et al., 2014). Clark (1996) also argues that depictions go beyond visible bodily actions. For instance, one can use one's voice to depict utterances in what is commonly called (direct) 'reported speech'. More recently, research documenting depictive uses of speech has addressed the use of ideophones, classes of "*words that depict sensory scenes*", across several languages (Dingemanse, 2018, p. 1).

Crucially, as already mentioned for symbolic indexicals, Clark (1996, p. 159) emphasises that these three different methods of signaling are ubiquitous and frequently coexist as "*a single sign may have iconic, indexical, and symbolic properties*" (see also Ferrara & Hodge, 2018; Hodge & Ferrara, 2022; Puupponen, 2019). Understanding why and how these methods combine in composite utterances is part of the new research endeavour proposed by Clark (1996, p. 187):

A proper theory of signal composition faces at least two challenges. The first is to say how speakers design descriptions, indications, and demonstrations to make clear how they are to be knitted together. The second is to account for speakers' choice of composite - what is the most effective available mix of description, indication, and demonstration for current purposes.

Though Neo-Peircean insights were already surfacing in signed language linguistics and gesture research (see, for instance, Liddell's influential terminology of 'indicating' and 'depicting' verbs), recent studies have significantly improved our understanding of speakers' and signers' communicative actions. One reason for this is that the comparative semiotic framework constitutes a new response to the comparability issue that avoids the traditional language/speech – gesture divide. As Dingemanse (2019, p. 26) argues, "*[t]he Peircean classification of signs [...] provides a modality-agnostic way of thinking about possible relations between form and meaning [...] and the three corresponding modes of communication [...] are universally relevant to the analysis of communicative behaviour across modalities*". Through this new framework, common comparative claims have been revisited by integrating non-descriptive semiotics within the concept of language (Ferrara & Hodge, 2018; Jantunen, 2022; Puupponen, 2019). Along with this new definition of language comes a broadened research agenda for linguistics and related fields. Enfield (2009, p. ix) suggests that "*the most urgent work for this new tradition is extensive and intensive description, across languages and cultures, and across types of social and communicative activity*". Others have also emphasised that understanding the use of these different semiotic modes requires looking at how they are fluidly coordinated by languagers across different communicative ecologies. Ferrara and Hodge (2018, p. 3) explain how different practices may emerge: "*These reciprocal, dynamic interactions give rise to 'structural couplings' between individuals and their environment, which manifest as varied communication practices*". Kusters et al. (2017) highlight that individuals navigate

these contexts in fluid ways by drawing on their semiotic repertoires. This agenda and its advantages with respect to prior conceptions are also defended by Hodge & Ferrara (2022, pp. 4-5):

This is the aim of comparative semiotics, whereby various aspects of language and communication are compared across interactions, modes of communication, and languages [...]. In doing so, we can move beyond essentialist dualisms of ‘signed vs. spoken languages’, ‘aural-oral vs. visual-gestural modalities’, ‘iconicity vs. arbitrariness’, and ‘convention vs. improvisation’ to build a richer understanding of all our commonalities and differences, including how and why these emerge.

2.3.6.2 *Semiotic perspectives on signed and spoken languages*

With Neo-Peircean semiotics, a renewed outlook on language use has led to a refined understanding of how form-meaning pairings may take on different semiotic dimensions in context. For instance, such interactions can be modeled using semiotic triangles where different means of signaling, represented by the edges, can contribute more importantly to meaning-making than others (Puupponen 2019, Capirci, Bonsignori, and Di Renzo 2022). The early research carried out by Liddell (2003) showed that, together with description, indication and depiction play a central role in signed languages like ASL. More recent studies have also analysed other phenomena than pointing, indicating verbs, and depicting signs. For instance, Dingemanse (2015) and Ferrara & Halvorsen (2017) show that both descriptive and depictive semiotics may be at play in different tokens of the cross-linguistically attested lexical classes of ideophones and in iconic lexical signs of signed languages respectively. In the same vein, Puupponen (2019) offers a detailed review of the different descriptive, indicative, and depictive uses of head movements in signed languages (but also discusses the semiotics involved in the uses of other articulators, with particular relevance for research on nonmanuals). Beukeleers and Vermeerbergen (2022) similarly argue that different semiotics may be at play in different phenomena in signed languages.

Research on spoken languages has also shown that indication and/or depiction may provide key semantic contributions in spoken utterances. Blythe et al. (2016) report that when a taboo forbids one to name a place, Murrinhpatha speakers’ lexical repertoire does not contain abstract directional terminology to refer to that place. Murrinhpatha speakers then resort to indication, by means of pointing, to achieve this referential goal. Blythe et al. (2016) conclude that this shared labour between speech and bodily indication leads to a new understanding of language: “*In Murrinhpatha the vectorial component of spatial deixis has fallen squarely into the visuo-corporal modality [...]. So for Murrinhpatha at least, points have arguably become a necessary part of the language itself*” (2016, p. 155). Similarly, several researchers have shown how bodily actions may fill slots where traditional approaches would predict the occurrence of words or phrases functioning as syntactic constituents (e.g., De Brabanter, 2010; Ladewig, 2020; Slama-Cazacu, 1976). This Neo-Peircean framing of communicative phenomena also enables researchers to carry out modality-free, semiotically grounded comparisons. For instance, mapping spoken and signed language phenomena with respect to the comparative concept ‘ideophone’ provides Dingemanse (2019) with semiotic

criteria (among others) to revise the extent to which signed language mouth actions (or instances of depiction that often co-occur with these mouth actions) may be similar to spoken language ideophony (as suggested by Ajello et al., 2001; Hogue, 2011; and Lu & Goldin-Meadow, 2018).

Moreover, Neo-Peircean approaches have also informed the field by asking how different semiotics are interwoven in composite utterances throughout (larger) discourse stretches. Thereby, several concepts and/or functions may be revisited by considering their full-blown semiotic manifestations. Hodge & Johnston (2014) describe the operationalisation and use of the concept of ‘clause-like unit’ based on functional (“*meaningful symbolic composite utterances that assert something about the world by using one element in that utterance to predicate something about another element*”, p. 271) and formal (“*unified intonation contours*”, p. 271) characteristics. This concept enables one to explore how information units equivalent to what is often called ‘clauses’ in spoken language linguistics are expressed in Auslan (Australian Sign Language). Analysing the use of strategies with diverse semiotics, e.g., fully lexical signs, pointing actions, depicting signs, constructed action, in twenty Auslan narrative retellings, the authors show that core elements of clause-like units are frequently expressed by means of indication or depiction rather than through description only (see also Ferrara & Johnston, 2014 and Jantunen, 2017).

Research on referential cohesion has also been reframed in a semiotic perspective, particularly for signed languages (e.g., Cormier et al., 2013; Hodge et al., 2019a). Ferrara et al. (2022) have compared how NTS (Norwegian Sign Language), Auslan, FinSL (Finnish Sign Language), ISL (Irish Sign Language), and STS (Swedish Sign Language) signers denote referents in storytelling using semiotically diverse strategies. Their results show, for instance, that in all signed languages, more conventional semiotics are preferred for the introduction of new referents whereas less conventional ones are favoured to maintain or reintroduce referents. However, they also report a difference, namely that the conventionalised strategy of fingerspelling was less frequently used in FinSL, NTS, and STS than in ISL and Auslan. Another example of research taking into account semiotic compositeness is found in Meurant et al.’s (2022) comparison of descriptive and depictive reformulation strategies in LSFb and French. In their study, the authors report that LSFb signers and Belgian French speakers frequently used one semiotic mode, e.g., depiction, to rephrase what has been said through another semiotic mode, e.g., description. However, Meurant et al. (2022) also underline that reformulation did not always recruit both types of semiotics, leading the authors to interpret their findings as meaning that “*reformulation does not essentially serve to add a depictive dimension to an initial descriptive formulation*” (Meurant et al. 2022, p. 345). In addition, their study points to a distinction between the two groups: depiction always occurred simultaneously with descriptive uses of voice in French whereas the two methods of signaling alternated more frequently in LSFb.

In the preceding sections, I have shown that the comparability issue has constantly surfaced in the fields of signed language linguistics and gesture studies. A modality-dependent understanding of ‘language’ as speech first meant that signed languages

were simply not considered to be real languages. Subsequently, a narrow definition of ‘signed languages’ and ‘gesture’ led some researchers to claim that speakers’ visible bodily actions and signed languages only shared a common modality but were organised according to fundamentally different principles. Gradually, the idea that both conventional and non-conventional form-meaning pairings could be found in all modalities led to a modality-independent understanding of ‘language’ and ‘gesture’ where properties of both categories could be identified in speech, signed languages, and speakers’ visible bodily actions. However, in recent years, several researchers have argued against a binary division between language and gesture to reach a better understanding of how speakers and signers make meaning in interaction. Instead of a binary distinction, these approaches draw from Neo-Peircean semiotics and analyse utterances as composites that involve three methods of communication: description, indication, and depiction.

After reviewing several ways in which aspects of signed and spoken languages have been compared in the literature, another theoretical development remains to be addressed. In recent years, with changing assumptions about how comparisons of signed and spoken languages should be conducted, researchers have sought to strengthen the explanatory power of their language models. If new ways to compare signed and spoken languages (e.g., Neo-Peircean semiotics) enable us to better capture *how* they differ from or resemble each other, *why* they do so is a question that still needs to be seriously addressed. To that end, it is important to discuss and qualify a firmly established belief in the literature. It is very common in studies making comparative claims about signed and spoken languages, including claims of ‘uniqueness’ or ‘specificity’, that there are patterned communicative actions that may consistently differ across signing communities, on the one hand, and speaking ones, on the other.

2.3.6.3 *Revising ‘language modalities’: Cautioning against generalisations*

The idea can be fleshed out as follows: some language patterns are found in all signed languages and in no spoken language and/or other patterns are found in all spoken languages and in no signed language. A common explanation for this purported state of affairs has to do with so-called ‘modality effects’. As Zeshan & Palfreyman (2020) phrase it, modality differences have been foregrounded as an explanation for differences between signed and spoken languages: “*the language modality –auditory-vocal or visual-gestural – influences linguistic structures in different ways*” (p. 531). Zeshan & Palfreyman distinguish between two kinds of modality effects: ‘absolute’ effects (when phenomena or structures appear only in one kind of languages – signed or spoken) and ‘relative’ effects (where a structure appears to be significantly more frequent in either signed or spoken languages).

Earlier in this thesis, the term ‘modality’ was also used to refer to the array of sensory channel(s) recruited to produce and perceive languaging (see Section 2.1). This dimension has often been invoked as a crucial (or even essential) factor accounting for differences between signed and spoken languages (e.g., Meier 2002), sometimes to the point of referring to signed and spoken languages respectively as visual-gestural and aural-oral (e.g., Lillo-Martin and Gaejwski

2014). However, this view is problematic in several ways. Recent research has shown that spoken languages are fundamentally multimodal and that the concept of multimodality needs revising (see Sections 2.1 and 2.3.3). A first step in this direction is to acknowledge that the partly different coordination of multiple articulators (which make up so-called ‘modalities’) with different semiotics could affect language use and change. In the same vein, while it is true that signed languages and speakers’ visible actions are “*cut from the same cloth*” (Kendon, 2004, p. 324; Müller, 2018), it would be more accurate to explore the consequences of the flexible coordination of different articulators across contexts (Kusters et al., 2017; Puupponen, 2019).

It is sometimes unclear to what extent these considerations have been integrated in comparative studies. Research comparing signed and spoken languages has sometimes been labeled ‘cross-modal’, a convention that is still used nowadays to refer to these kinds of comparisons (e.g., Zeshan & Palfreyman, 2020; Sümer & Özyürek, 2022; Vandennitte, 2022a). For instance, Sümer and Özyürek (2022, p. 1023) discuss ontogenetic aspects of ‘event component (omissions)’ in signing and speaking children and say: “*It is not yet well understood [...] whether the modality of language being acquired (i.e. sign vs speech) modulates this universal developmental trajectory*”. The first line of the introduction to Quer and Steinbach (2019, p. 1) reads: “*Sign and spoken languages use two different modalities, the visual-gestural modality of sign languages and the oral-auditory modality of spoken languages*”. While terminological choices may be explicitly motivated, one should be mindful of the conceptual conflation between signed and spoken language uses (i.e., the languaging practices of signing and speaking communities) on the one hand, and the physical modalities through which these practices are produced and perceived (visual-kinesic and aural-oral), on the other. Indeed, this confusion perpetuates the impression that speakers’ visible bodily actions play a negligible role in spoken language use. Now that the notion of ‘modality’ is qualified, the assumptions that come with it (and with the notion of ‘modality effects’) need to be addressed too. Two flawed assumptions underlie the idea that modality effects can account for potential systematic differences across signed and spoken languages.

A first misconception relates to the overconfident belief that enough information about (signed and spoken) language diversity has been gathered. This assumption disregards the fact that the world’s linguistic diversity is far from well-documented. Indeed, many signed and spoken languages, mostly those of non-WEIRD (White Educated Industrialised Rich Democratic) languaging communities, remain to be better documented if one is to make such ambitious comparative statements (Majid & Levinson, 2010). More issues can be raised. First, while comparative research on diverse spoken languages is well under way (as attested by the vibrant field of language typology), this field has rarely considered insights from gesture studies or signed language linguistics (Cormier et al., 2010). Second, too little is known about how signed languages differ from each other. While many assume that there are many similarities between signed languages, more than between spoken languages, research comparing signed languages is still in its infancy and has only recently

started to pay attention to signing communities that are not (Western) ‘macro’ deaf communities. As Perniss, Pfau, and Steinbach (2007, p. 2) advise,

Before we can truly answer the question of whether modality effects do indeed cause less structural variation in sign languages as compared to spoken languages, it is necessary to investigate the differences that exist between sign languages in more detail and, especially, to include in this investigation less studied (often non-Western) sign languages.

Hence, the assumption that we do know enough about signed and spoken languages to say that each of these ‘groups’ exhibit distinct, internally coherent phenomena needs revising to avoid making too generalising comparative statements.

Second, another flawed assumption is that most differences between signed and spoken languages mainly result from modality or from the specific articulators used by language users. To explain why such an account is unsatisfactory, Vandennitte (2022a) uses a conceptual and terminological toolbox proposed by Enfield (2014) in *Natural causes of language: Frames, biases and cultural transmission*. In this book, Enfield asks which kinds of factors may be invoked to explain, among other phenomena, language diversity. As Enfield proposes, language as a wide object of study may be accounted for by multiple ‘causal frames’ subsumed under the acronym ‘MOPEDS’ (Microgenetic, Ontogenetic, Phylogenetic, Enchronic, Diachronic, Synchronic). Enfield notes that the different causal frames overlap to some extent with different subdisciplines within the language sciences. Each of these frames is defined based on a thematically coherent category of explanations that may often correspond to a specific timescale during which the relevant causal processes can be observed. Enfield stresses that, when asking why two languages are similar or different in a certain respect, one should not narrowly focus on one explanation but rather consider different possible causes as well as their interactions.

2.4 A broader framework: considering diverse causal frames in comparative research

The following paragraphs draw on the reframing of Enfield’s (2014) framework in Vandennitte (2022a) to shed light on the causal accounts offered to explain differences between speaking and signing communities. Different causal frames are addressed together with their relevance for the comparison of signed and spoken languages. Microgeny, ontogeny, enchrony and diachrony are first addressed in detail, followed by a brief discussion of phylogeny and synchrony.

2.4.1 Microgeny

In Enfield’s causal framework, microgenetic causes are invoked when language patterns can be shown to arise from the various ways in which language is processed, i.e., produced, perceived, and understood. The phenomena pertaining to microgeny are typically the focus of psycholinguists, neurolinguists, or researchers exploring the kinematics and acoustics of language, such as phoneticians. The phenomena at play here usually unfold across very narrow timespans. Microgenetic

accounts of language differences may seem rare because humans are often assumed to process actions in largely similar ways. However, examples of cross-linguistic differences tentatively explained by microgeny include the impact of vocal tract anatomy on the emergence of different phonological systems (Moisik & Dediu, 2017) or the pressure exerted on the use of manual gestures like pointing by other activities involving one's hands (Cooperrider et al., 2018). As alluded to earlier, signed language linguistics and comparative research on spoken and signed languages more broadly are domains in which microgenetic causality has often been invoked. Differences in the modality or, more specifically, the channels that are used may have obvious consequences. For instance, the motor controls most frequently involved in signed or spoken language use have been claimed to lead to different articulatory rates (Bellugi & Fischer, 1972).

Differences between signed and spoken languages have often been explained using modality effects. However, as already stated, signed language linguists rarely have the empirical grounds necessary to ascertain that modality is the (sole) explanatory force in such comparisons. One first reason for this is that modality remains a relatively unclear notion and leads to the assumption that characteristics related to production and perception directly impact how languaging emerges and changes over time. More recently, several studies have provided accounts that go into more fine-grained microgenetic analyses by focusing on channels or 'modes' rather than modalities. A detailed account of how specific articulators are used and what communicative solutions they afford is provided by Puupponen (2019). Following Wagner et al. (2014), Puupponen explores the semiotic versatility of different articulators depending on their physical properties: "*there are differences in the central semiotic features signaled with different body parts*" (2019, p. 25). Puupponen (2019, p. 28) lists a series of functions performed by signers with their hands, face, head, and torso along with the semiotic dimensions on which they rely:

- (i) Hands produce more fully lexical symbolic signs (i.e. types for tokens) than other parts of the body, indicate referents and discourse structure, signal one's own emotions and attitudes, and show semiotic flexibility (signs may emerge both as lexical signs and as more gradient and unconventional enacting);
- (ii) The face can enact, describe without enacting, indicate referents, and indicate discourse structure, and some signals may become more conventional symbolic signs;
- (iii) The head can indicate referents, indicate discourse structure, enact referents, and connect to (time) metaphors but symbolic types for tokens are rare, as is non-enacting description;
- (iv) The (upper) body indicates referents and discourse structure with a slightly smaller repertoire than the head, enacts referents, and connects to time metaphors.

Puupponen (2019, p. 25) adds that a detailed analysis not only of the affordances provided by specific articulators but also of "*interrelations of these different parts*" is important. This proposal is likely to yield fruitful insights for the comparison of signed and spoken languages where articulator use is sometimes distributed in different ways.

In this vein, Hodge & Ferrara (2022) develop a method to study the different ways in which signed and spoken composite utterances rely on different articulators that indicate, depict, and describe meanings. Hodge & Ferrara (2022, p. 3) note that the specific properties of articulators (e.g., one's hands or voice) influence semiotic

patterns, such as the distribution of the different methods of signaling. For instance, they suggest, referential targets may often be depicted using one's hands but the intent to depict sound might prompt one to use voice rather than other articulators. Similar claims are made by Meurant et al. (2022) who identify a different distribution of articulator use for description and depiction. Whereas different body parts are flexibly used for description and depiction in LSFB, French speakers' use of these two semiotic modes in reformulation is more clearly distributed among different articulators: voice is preferred for description whereas speakers' hands, and occasionally other articulators, are used for depiction. Even with a better understanding of how articulator-specific affordances may shape language use, one may not rule out that a difference arises because of another cause, which Zeshan & Palfreyman (2020) call 'quasi-modality' effects, or at least that microgeny may not provide the whole picture. In the latter case, differences may be induced by a combination of factors, including but not limited to modality of language expression/perception and articulatory modes.

2.4.2 Ontogeny

Ontogenetic causes relate to processes at play when individuals acquire languages. This causal frame has been invoked to account for cross-linguistic differences. For instance, Trudgill (2009) proposes that the degree of morpho-syntactic complexity in some languages may be explained partly through the history of how they have been acquired or learned. The history of some communities can be characterised by the integration of – or a high-contact situation with – a significant number of members who acquired the community language as a second language. Since language acquisition is harder after a certain age, communicative practices may be streamlined and evolve towards reduced complexity. For instance, Trudgill argues that varieties of English in communities that count a significant share of late learners are less complex than 'traditional' English varieties where most speakers acquire English as a first language. A similar proposal has been made by Schembri et al. (2018) for signed languages. They note that signing macro-communities are characterised by high contact with late learners of signed languages. This is the case both because of language deprivation of deaf children who are rarely exposed to a signed language input from their caregivers and because of the increasing number of new hearing signers who learn signed languages (De Meulder, 2019; Mitchell & Karchmer, 2004). As a result, this type of signing community may be considered as heterogeneous, at least with respect to when its members acquire a signed language and who they acquire it from (Ghesquière & Meurant, 2018; Hodge & Goswell, 2021). As a consequence of the diversity of its members' language profiles, Schembri et al. suggest, language use in such communities may also be streamlined and lead to communicative strategies that involve a lesser degree of morpho-syntactic complexity. Though some of these claims have recently been revised and nuanced (Bisnath et al., 2022), they illustrate that ontogenetic explanations have been used to account for cross-linguistic differences.

2.4.3 Enchrony

Enchrony is the causal frame in which processes related to human sociality and interaction, like “*relevance [...], local motives, [...] sign-interpretant relations [...], and social accountability*” are used to explain observed differences (Enfield, 2014, p. 15). For instance, social accountability may drive language users’ choice to use one or the other form. As their communicative practices are grounded in the social space they navigate, their language use may be perceived to either conform or deviate from community standards. Several differences across communities have been explained by such enchronic factors. Kita and Ide (2007) report that head nods are more frequent in Japanese than in American English conversations. A partly enchronic interpretation of this difference is that these two communities follow different social-interactional norms with respect to the “*emphasis on cooperation and consideration for others*” (Kita and Ide 2007, p. 159). Another example is provided by Kendon (2004) in his discussion of Neapolitans’ rich gesturing style and repertoire of emblematic gestures. Kendon compares Neapolitan to English gesturing and argues that the profusion of gesture in Naples may be explained partly by social-interactional reasons. Naples has grown to become a densely populated city with relatively small spaces, leading the city to be bustling with life and noisy. In this environment, drawing attention to oneself with a vivid and engaging gesturing style can prove useful to keep one’s addressee, and potentially other bystanders, engaged: “*Through gesture, [...] the Neapolitan seems to make a much more direct appeal to his interlocutors. It is as if he does not take his audience for granted but repeatedly turns to them and addresses actions to them that invite [...] a response*” (2004, p. 350). Beyond gestural pragmatic comparisons of speaking communities, enchrony has also been used to explain differences across speaking and signing communities. For instance, cultural practices of storytelling have been argued to be a more prominent feature of signing communities than the speaking communities to which they have been compared (Hodge & Ferrara, 2014; Ladd, 2003). As an example of the impact of this enchronic factor, the prestige conferred to skilled storytellers in signing communities has been used to explain reports of signers telling longer, more detailed stories than speakers (Marentette et al., 2004; Rayman, 1999).

2.4.4 Diachrony

The diachronic frame is the one that corresponds to the largest timescale. When considering diachronic causal processes, one looks “*at elements of language as historically conventionalized patterns of knowledge and/or behaviour*” (Enfield, 2014, p. 15). Diachrony is a frame that has been frequently relied on to account for phenomena of language-specific change such as lexicalisation or grammaticalisation (e.g., Croft, 2001; Traugott & Trousdale, 2013; Wilcox & Occhino, 2016). Therefore, time depth of languages has sometimes been argued to account for differences in the extent of morphosyntactic complexification processes. For instance, signed languages and creole languages have been discussed as young languages (Adone 2012), though time depth is hard to measure for many signed languages (de Vos & Nyst, 2018). Signed languages are often assumed to be younger languages and some are described as ‘emerging’ (Jaraisy & Stamp, 2022)

(though see Cantin & Encrevé, 2022, for a proposal challenging the youth assumption for some signed languages). One example of the use of the diachronic frame relates to morpho-syntactic complexity: Schembri et al. (2018) propose that the relatively young age of signed languages may account for the reduced presence of complex morphosyntax in comparison with some spoken languages. However, Bisnath et al.'s (2022) discussion qualifies methods used to measure complexity and caution against assuming too direct links between morphological complexity and time depth.

2.4.5 Phylogeny and synchrony

Two factors discussed in Enfield (2014) will be explained but not be addressed in depth here. The reason for this is that I view them as less relevant to provide direct insights into why language communities differ. First, phylogenetic factors relate to how humans came to develop language from an evolutionary perspective. When comparing languages across different communities, it is taken for granted that all of them evolved the cognitive system enabling languaging in the same way. Therefore, the causal frame of phylogeny will not be further discussed as a driving force of language diversity. Second, Enfield's synchronic frame differs from the other causal domains. It is presented as "*a true description of the items and relations in a person's head, as coded, for example, in their memory*", i.e., the representation of the linguistic system that is partly relied on to process utterances (2014, p. 16). Though one could not describe synchrony as unfolding across a certain timespan, the fixed language system captured by the linguist is relevant to think about causal processes (Enfield, 2014, p. 17):

Causality in a synchronic frame is tied to events that led to the knowledge, and to events that may lead from it, as well as how the nature and value of one convention may be dependent on the nature and value of other conventions that co-exist as elements of the same system.

Because such synchronic states constitute what one attempts to capture and contrast when comparing practices of different language communities, the relevance of this frame is directly related to that of the frames discussed in the preceding paragraphs. Therefore, the synchronic frame will not be further discussed.

2.4.6 Putting the pieces together

In the previous sections, it has been argued that accounts of differences between signed and spoken languages should not limit themselves to modality considerations in microgeny. Rather, they can address specific modes or articulators and their co-articulation. In addition, microgenetic explanations alone rarely suffice to provide solid explanatory accounts of languaging differences as signing and speaking communities may differ in many more ways that involve ontogenetic, enchronic and diachronic factors. This summary should be complemented by emphasising that none of the presented frames is independent. All of them participate in the complex ecologies in which language use occurs. Therefore, the causal processes at play in language are interconnected. Enfield (2014, p. 17)

suggests asking the following question to shed light on their interrelatedness: “[H]ow might the outputs of processes foregrounded within any one of these explanatory frames serve as inputs for processes foregrounded within any of the others?”. This question seems to be increasingly asked as a growing number of researchers have been arguing for a broadening of the causal frames used to explain differences across signed and spoken languages (Jantunen, 2022; Schembri et al., 2018; Vandennitte, 2022a; Zeshan & Palfreyman, 2020).

2.4.7 Systematicity of form-meaning pairings and causal frames: different sites of ‘conventionalisation’?

The preceding discussion of causal frames provides a means to revisit one of the recurrent issues which has emerged in the comparisons of signed languages and the multimodality of spoken languages, namely ‘conventionalisation’. Okrent (2002) argues for the existence of different sites of conventionalisation in a contribution to the debate on what forms can be categorised as language or gesture. Okrent’s proposal sheds light on the conflation of different meanings of the term ‘conventionalisation’: “*I believe that a large part of the conflict between the gestural and grammatical accounts results from a misunderstanding of what gesture means in relationship to language and where we are allowed to find gesture*” (2002, p. 177). Okrent observes that different research traditions appeal to different criteria for conventionalisation. Traditional accounts have it that conventionalised, categorical form-meaning pairings are the essence of what is linguistic. Okrent notes, however, that conventions reach beyond this narrow understanding (p. 186):

That being said, there are some conventions involved in the production of gesture. There may be cultural conventions that determine the amount of gesturing used or that prevent some taboo actions (such as pointing directly at the addressee) from occurring. There are also cultural conventions that determine what kind of imagery we access for abstract concepts. Webb (1996) has found that there are recurring form–meaning pairings in gesture. For example, an “F” handshape (the thumb and index fingers pinched together with the other fingers spread) or an “O” handshape (all the fingers pinched together) is regularly used to represent “preciseness” in the discourses she has analyzed. According to McNeill (personal communication), it is not the conventionality of the form– meaning pairing that gives rise to such regularity, but the conventionality of the imagery in the metaphors we use to understand abstract concepts (in the sense of Lakoff and Johnson 1980; Lakoff 1987). What is conventional is that we conceive of preciseness as something small and to be gingerly handled with the fingertips. The handshape used to represent this imagery then comes to look alike across different people who share that imagery. The disagreement here is not one of whether there are conventions involved in the use of gestures. It is rather one of where the site of conventionalization lies. Is it the forms themselves that are conventionalized, as Webb claims, or the conceptual metaphors that give rise to those forms, as McNeill claims?

Okrent subsumes her point with the important question of identifying ‘sites of conventionalisation’: “*What kinds of conventions are linguistic conventions?*” (2002, p. 196). One could rephrase Okrent’s proposal by saying that there are several roads or ‘causal processes’ to regularities in form-meaning pairings.

On the one hand, regular form-meaning pairings may emerge due to a close connection between the perception or representation of a referent and the affordances at a languager's disposal to denote that referent (Puupponen, 2019). For instance, when using one's body to refer to 'writing', a languager is very likely to recruit their hands and enact the manual movements involved in holding an object, e.g., a pen, and moving one's wrist. Puupponen argues that regular form-meaning pairings in the use of non-manual actions may often lie in this first site of conventionality (2019, p. 22):

As with speakers' manual gestures, so too with signers' non-manual actions the conventionality may lie in the "types of communicative action" [...], rather than requiring specific forms for specific functions. The ways in which iconic and indexical movements are produced have recognizable features through association and inductive processes even though they do not emerge as types for tokens in the same way as do shakes and nodding of the head.

Similarly, Jantunen (2022, pp. 176-177) mentions constraints on the form-meaning pairings instantiated by depiction, which is often defined by its gradience:

[A] gradient form-meaning relationship can be characterized as a relationship of many forms, many meanings. More precisely, gradience is about fuzziness and the indeterminacy of both the form and the meaning (cf. Liddell 2003). In practice this means *ad hoc* variability of the form and the meaning [...]. [T]his is exactly what happens in showing. [...] It must be added though that the connection of forms and meanings can never fully be free and that it is reasonable to expect at least some kinds of conventions in connecting the two even in the most gradient expressions.

In addition to this affordance-related 'regularity', some researchers have also argued that, for frequently perceived events or performed actions, image or action schemas may emerge based on repeated embodied experience (Ladewig, 2020; Müller, 2017; Zlatev, 2005, 2014).⁴ Hence, the direct mapping between a referent and a languager's affordances (involving both enchrony and microgeny) as well as repeated experience (additionally involving ontogeny) may already account for the emergence of form-meaning regularities.

On the other hand, the other site of conventionalisation involves the causal frame of diachrony. Over time, the diffusion of (at least partly) fixed form-meaning pairings leads to repertoires of descriptive meaning-making shared by specific languaging communities. Their members, having acquired the conventions, are able to use them to encode and decode meanings (Clark, 1996; Ferrara & Hodge, 2018; Jantunen, 2022; Janzen, 2012a).

Repeated experience may well be a key phenomenon related to different sites of conventionalisation. First, repeated experience of perceiving and interacting with one's environment may lead to entrenched prototypical representations of these functional domains. Second, if one accepts that language use is itself an experience, it should come as no surprise that repeated experience of 'languaging' may also

⁴ This could be related to what Okrent (2002, p.186) describes as '*the conventionality of the imagery*'. However, Okrent discusses metaphorical imagery whereas the process is here considered to also apply to more direct perceptual (visual and motoric) resemblances.

undergo entrenchment, spread across a community and conventionalise over time. It is indeed a tenet of many ‘usage-based’ frameworks that repetition (or frequency) drives language change processes at play in phenomena which have been referred to with labels such as ‘conventionalisation’, ‘lexicalisation’, ‘grammaticalisation’, and ‘constructionalisation’ (Bybee, 2007; Bybee, 2006; LaPolla, 2003; Traugott & Trousdale, 2013). At play here are different causal frames which range from an individual’s experience to a community’s conventions to denote experiences. Jantunen (2022) highlights the relevance of considering different ‘worlds’ when thinking about depiction and description. While categoriality and conventionality (prototypically associated with description) or lack/paucity of these properties (prototypically associated with depiction) tend to align, Jantunen notes that these dimensions of meaning-making exist on three ontological planes: “*physical (facts about) activity and interaction between individuals and environment*”, “*individual(ly entrenched) conceptual activity*”, and “*shared conventions formed on the basis of individual actions and conceptions*” (p. 178):

[I]t is possible to think (e.g., Jantunen 2017; Jantunen et al. 2020) that the continuum of categoriality is primarily attached to the individual and exists as a part of the individual’s cognitive reality. The continuum of conventionality, on the other hand, is positioned with respect to both the momentary actions and behaviors of individuals as well as the norms maintained by groups of individuals.

Jantunen (2022, p. 178)

This discussion paints a more complex picture of form-meaning regularities as caused by different (combinations) of causal frames.

3. A First Look at Constructed Action

The first part of this literature review has shown how gesture studies and signed language linguistics first struggled to place their main research objects – speakers’ visible bodily actions and signed languages – on the linguistic agenda, notably because they faced the challenge to show that signed languages and speakers’ visible bodily action were indeed related and comparable to spoken languages. Many theoretical and methodological changes have now grown solid roots within the discipline. As a consequence, more and more linguists acknowledge that any comprehensive model of language should take into account insights offered by signed language linguistics and gesture studies. Research on constructed action constitutes a good illustration of the different steps in the history of these disciplines.

Before reviewing the literature on constructed action, a note on terminology is in order. Attempting to review prior research on the topic, one quickly runs into an important issue, that of identifying what ‘constructed action’ means to different research traditions and researchers. There seems to be consensus neither on its nature nor on the extent to which the different labels and related accounts formulated in the literature encapsulate phenomena observed cross-linguistically, in particular across signed and spoken languages. Cormier et al.’s (2015, p. 169) comment summarises the effects of such a wide diversity of approaches:

Terminology used to refer to this phenomenon varies considerably, and it is often unclear if the same assumptions about its nature are being made by different researchers. It is often not even clear whether these terms are used to refer to the same phenomenon, different aspects of the same phenomenon, or perhaps different phenomena altogether.

Given this terminological diversity, prior reviews and publications referenced in the relevant literature were used to confirm that the studies included in this review address phenomena that fall, at least partly, within the scope of constructed action (Lillo-Martin, 2012; Cormier et al., 2015; Steinbach, 2021; Beukeleers & Vermeerbergen, 2022; Vandennitte, 2022a). The history of research on constructed action is outlined by foregrounding how it has been conceptualised. It will be shown that constructed action has been compared across signed and spoken languages using different theoretical and methodological standards. This review starts with a survey of the major dimensions of constructed action which have drawn linguists’ and gesture researchers’ attention to the phenomenon in Sections 3.1, 3.2, 3.3, and 3.4. Next, Section 3.5 shows how different research traditions have developed diverging perspectives on constructed action.

3.1 Approaches to constructed action: What has been under the spotlight?

Different researchers have taken an interest in diverse aspects of constructed action. A consequence of this is the large terminological pool one can draw from to discuss the phenomenon. But beyond terminological divisions, this also means that some phenomena which may be central to an account of constructed action may be considered largely peripheral to another account, if even part of constructed action proper at all. Table 1 provides a list of terms that have all been used to label formal and/or functional dimensions of constructed action or of phenomena that can be conceived as closely related to constructed action. These labels can help understand which elements exemplified in Figures 1, 2, 3, and 4 have been under the spotlight in diverse approaches. The description of these categories will provide a first glance at the literature on constructed action and afford a bird's eye view of different research traditions dealing with the topic.

Table 1. Varying terminology to refer to constructed action and related phenomena

Constructed action (Cormier et al., 2015; Metzger, 1995; Quinto-Pozos, 2007a)	Bodily quoting (Keevallik, 2010)
Constructed dialogue (Fischer & Kollien, 2016; Metzger, 1995; Mohammad & Vásquez, 2015; Tannen, 1986)	Direct / Indirect (reported) speech / reporting (Coulmas, 1986; Noonan, 2006)
Role shift / Role shifting (Padden, 1986; Stec et al., 2016; Steinbach, 2021)	Free indirect discourse/speech (Bally, 1912; Meurant, 2008)
Referential shift (Kocab et al., 2015; Stamp & Sandler, 2021)	Direct, indirect, or Free/Distancing Speech and thought representation (Vandelanotte, 2004, 2009)
(Character) perspective shift (Janzen, 2004; Parisot & Saunders, 2022)	Personal transfer (<i>Transfert personnel</i>) (Cuxac, 2000; Garcia & Sallandre, 2020; Meurant, 2008)
(Body) classifier (Suppalla, 1986; Zwitserlood, 2012)	Character viewpoint (C-VPT) gesture (Bressemer et al., 2018; McNeill, 1992; Stec et al., 2017)

(Re-)enactment (Arita, 2018; Hodge, Ferrara, et al., 2019; Hodge & Ferrara, 2014; Quinto-Pozos, 2014; Thompson & Suzuki, 2014)	Pantomime (Marentette et al., 2020; McNeill, 1992; Zlatev et al., 2020)
Handling classifier (Zwitserslood, 2012)	Point of view syntactic embedding, as ‘predicate’ or ‘operator’ (Lillo-Martin, 1995, 2012; Quer, 2011)
Depiction/Demonstration (Clark & Gerrig, 1990; Clark, 2016; Cormier et al., 2015; Ferrara & Hodge, 2018; Liddell, 2003)	(Direct/Indirect/etc.) Quotation (Clark & Gerrig, 1990; De Brabanter, 2017; Evans, 2012; Herrmann & Steinbach, 2012; Kimmelman & Khristoforova, 2018; Stec et al., 2015)
Shifted locus (Engberg-Pedersen, 1993)	Shifted reference (Engberg-Pedersen, 1993)
Shifted attribution of expressive elements (Engberg-Pedersen, 1993)	Bodily representation <i>(Représentation corporelle)</i> (Parisot & Saunders, 2019)

3.2 Highlighting the referential targets of constructed action

The first aspect that seems to be found across many labels of the phenomenon under scrutiny relates to what is being referred to with constructed action. The different referential targets highlighted by the terminology provide a first understanding of the scope of this phenomenon.

3.2.1 Denoting animate referents

The term ‘*transfert personnel*’ (‘personal transfer’) is coined by Cuxac (2000) to account for one of LSF signers’ uses of iconicity. Cuxac argues that this form consists in using one’s body to show a character (*personnage* in French). This is reminiscent of McNeill’s (1992) typology of iconic gestures where ‘character viewpoint gestures’, often abbreviated as ‘C-VPT gestures’, depict actions from a story character’s internal perspective (see also ‘character perspective shift’ in Parisot & Saunders, 2022). Extending these accounts beyond narration and using a less genre-based terminology, one could use the term ‘referent’ instead of ‘character’ and state that some accounts note that language users use constructed action to denote human referents. A similar account of the referential target of constructed

action is provided by Suppalla in the description of the form and function of ‘body classifiers’: “*The body classifier involves the whole body of the signer and is used as an independent articulator morpheme to mark noun agreement referring to an individual person. [It] is used to refer to the whole body of the animate object.*” (Suppalla, 1986, p. 193). Hence, it seems that the phenomenon under scrutiny is used to denote animate referents, most frequently human individuals.⁵

3.2.2 Denoting referents’ utterances

Another important part of what is communicated by languagers when they ‘do’ constructed action has to do with discourse. For instance, several bits of the utterance(s) presented in Figure 4 are not interpreted as uttered by the corpus participant (or at least not at the moment of recording). These stretches of discourse are the following ones: ‘*il drache*’ (‘*it’s raining lots*’), ‘*il drache?!*’ (‘*It’s raining lots and lots?!*’), ‘*Ok Guillaume alors ça veut dire ‘il pleut très très fort’ en Belgique*’ (‘*Ok Guillaume so it means ‘it’s raining lots and lots’ in Belgium*’). Utterances like these have frequently been described as instances of ‘direct speech reporting’ or ‘direct reported speech’ in linguistics. These expressions make it clear that the strategy is used to refer to acts of speaking. These labels have also been applied to instances in which signers refer to utterances. In Figure 3, PLEASE WITH is interpreted as uttered by the signer’s younger self rather than by the signer at the time and place of recording. Because of a clear equivalence between both cases, the terms ‘reported speech’ or ‘speech reporting’ have also been used to describe the phenomenon in signed languages (e.g., Shaffer, 2012).⁶

Similarly, other labels have focused on the fact that languagers may talk about utterances. Terms like ‘indirect speech reports/reporting’, ‘free indirect discourse’ or ‘speech and thought representation’ have been used mostly in spoken language linguistics. However, some researchers have also highlighted similarities of these phenomena to observations of signed languages (see, e.g., Meurant, 2008; Quer, 2011 for comparisons with free indirect discourse and indirect reporting). The term ‘quotation’ has sometimes been used as an umbrella term to refer to some of these ‘utterance-denoting’ phenomena such as ‘direct’, ‘indirect’, ‘free indirect’ quoting as well as other phenomena such as ‘mixed’ or ‘pure’ quotation (De Brabanter, 2017). These phenomena will be further addressed in the following parts of this review. Suffice it to say for now that the reference to utterances constitutes one of the meaning domains associated with constructed action in the literature. Yet another term to refer to how languagers report utterances is ‘constructed dialogue’. Tannen (1986) coins the term to refer to how languagers construct referents’ utterances in conversation, rather than necessarily reporting utterances that have occurred.

⁵ See however Sutton-Spence & Jo Napoli (2010) as well as Johnston (2019) for cases of ‘personification’ whereby referents usually considered inanimate take on animate or human-like properties through constructed action.

⁶ Some researchers have commented that using the term ‘speech’ can be problematic as the term does not make the inclusion of signed languages explicit (Hodge et al., 2023).

3.2.3 Extending the phenomenon beyond utterances: denoting (non-linguaging) action

With the description provided so far, one can see how the utterances shown in Figure 3 and Figure 4 constitute constructed action since they contain reported utterances. However, several authors have noted that this strategy also extends beyond talk about talk. For instance, the term ‘attitude’ role shift highlights that it is not only the referent’s utterances but also general attitudes that are denoted. Quer (2013, p. 25) argues “*that role shift actually covers a broader domain than pure utterance or thought, and [that...] it appears more generally in (some types of) attitude ascriptions*”, as shown by how constructed action can be framed by predicates such as BELIEVE or KNOW in LSC (Catalan Sign Language). Engberg-Pedersen (1993, p. 105) likewise discusses a ‘shifted attribution of expressive elements’, i.e., when “*expressive elements of direct speech are understood as expressive of the quoted sender’s mood or attitude*”.

In addition to the inclusion of attitude ascription, many signed language linguists use additional terms to refer to constructed action (sub-types), notably to highlight that languagers can also talk about other actions than utterances performed by referents. To do so, one of the most popular terms is the one used in this dissertation, namely ‘constructed action’. It has two different but widely used definitions: one is narrower and refers to a way languagers denote referents’ actions that are not linguaging (e.g., Lillo-Martin, 2012). Alternatively, the term ‘action role shift’ is also used to refer to the same range of phenomena (e.g., Maier & Steinbach, 2022). Under the second definition, ‘constructed action’ is understood as an umbrella term for all the phenomena discussed so far. Cormier et al. (2015, p. 167) paint a broad picture of the referential target of constructed action in signed languages that reflects this second perspective: “*Sign languages are known to make use of a [...] device [...] to represent the utterances, thoughts, feelings and/or actions of one or more referents*”. While not using this term, Cuxac’s concept of personal transfer also encompasses the representation of all actions, including linguaging ones (2000, p. 57).

By way of an interim summary, one could say that the terminological-conceptual network identified in this section is complex. Some researchers view all the mentioned referential targets of constructed action as an integrated whole. In such accounts, ‘constructed action’ is a strategy used to refer to animate, often human, referents’ actions, including communicative ones. Others have proposed distinguishing between different kinds of constructed action, most notably teasing apart instances in which the phenomenon functions to denote referents’ linguaging actions or attitudes and those in which it is used to refer to any other type of action. Yet another aspect of the phenomenon conveyed by the surveyed terminology relates to languagers’ use of their body.

3.3 On the form of constructed action: using the body to denote referents

Early on already, past accounts of constructed action in signed languages underscored a connection between the reference to animate referents and signers' use of their body. Indeed, in utterance reports, signers are described as relying on bodily actions to take on the role of reported utterers. Padden (1986, p. 48) observes: "*Role-shifting is marked by a perceptible shift in body position from neutral position (straight facing) to one side and a change in direction of eye gaze*". Lillo-Martin & Klima (1990, p. 194) identify two such uses of the body:

One form includes modifying facial expressions, body posture, and style of signing, in a manner sometimes referred to as role-playing. There are also, however, occasions for shifts that do not include the role-playing mannerisms [... but rather] a change in the orientation of the signer's shoulders, head, and/or eyes.

Similarly, Lillo-Martin (1995, p. 158) argues that constructed action "*can take the form of shifting the shoulders slightly to the right or left, forward or backward [...]; in addition, it can be signified by changing the eye gaze, head movement, indexing, and/or adopting the facial expression of the participant*". More recently, Parisot & Saunders' (2019) use of 'bodily representation' ('*représentation corporelle*') also illustrates the link between constructed action and the body.

The intricate link between constructed action and the body is also highlighted by terminology used in studies focusing on speakers. For instance, a frequent term used to refer to speakers' use of constructed action is 'character viewpoint *gesture*' (McNeill, 1992), where *gesture* refers to speakers' use of their hands and bodies rather than speech. Similarly, the close relationship between utterance reporting and visible bodily action in spoken languages has led to the description of quotation as 'multimodal' (e.g., Blackwell et al., 2015; Stec et al., 2016). Finally, this connection has also led researchers to liken the representation of non-communicative actions to quotation by labeling it '*bodily quotation*' (Keevallik, 2010). Hence, researchers working in varied frameworks have highlighted the prominence of the body to denote referents and their actions, whether they involve languaging or not.

3.4 Shifting perspectives

Another aspect which has frequently preoccupied researchers has to do with the felicitous interpretation of constructed action and the addressee's necessary realisation that a context shift occurs whereby the denoted referent's viewpoint comes to the fore and becomes the new centre from which indexical values are interpreted.

3.4.1 Viewpoint and utterance reporting in spoken and signed languages

Many terms used to refer to constructed action allude to a change in context of interpretation or perspective: '*shifted locus*', '*shifted reference*', '*shifted attribution*

of expressive elements', 'role *shift(ing)*', 'referential *shift*', '(character) perspective *shift*', 'personal *transfer*', 'character *viewpoint* gesture', '*Point of view* predicate'. This is one of the few dimensions that seems to be agreed upon in the literature: understanding utterances that involve constructed action requires a specific operation affecting the 'origo', 'grounding', 'deictic' centre, or 'context (of interpretation)' of such utterances. In spoken languages, the phenomenon has been largely discussed in the utterance reporting literature. As Coulmas (1986, p. 2) notes, it constitutes one of the major criteria used to define direct utterance reporting:

In direct speech the reporter lends his voice to the original speaker and says (or writes) what he said, thus adopting his point of view, as it were. Direct speech, in a manner of speaking, is not the reporter's speech, but remains the reported speaker's speech whose role is played by the reporter. [...] The reporter thus steps back behind the characters whose words he purports to report.

As Coulmas points out, a key aspect of the viewpoint configuration of direct reports is that indexical expressions are interpreted from the reported context. In signed languages too, it is well-known that direct utterance reports are interpreted from the reported rather than the reporting context. This feature is one of the most discussed ones in early research on constructed action. Padden (1986, p. 48) says: "*In a role-shifting structure, third person pronouns are shifted into first person*". This is what Engberg-Pedersen (1993, p. 103) calls 'shifted reference' in DTS (Danish Sign Language), namely "*the use of pronouns from a quoted sender's point of view, especially the use of the first person pronoun 1.p to refer to somebody other than the quoting signer*". Similarly, Poulin & Miller (1995) argue that referential shift in LSQ (Quebec Sign Language) can be used to express "*a change in point of view*" in utterance reports (p. 117). They define referential shift tokens with a focus on indexical shifting as "*structures where the signer uses a first person pronoun to refer to a third person referent*" (p. 117).

Figure 8 and Figure 9 illustrate this shift in the treatment of indexical expressions in LSFb. In Figure 8, from MOTIVATED to SL, the signer constructs a fictitious utterance by a hearing child. It is noticeable that the self-directed pointing action PT:PRO1 refers not to the signer but to the child in this utterance as the pronoun occurs within the report. Figure 9 exemplifies another indexical shift in the indicating verb LOOK. The signer directs the verb towards himself, which is commonly interpreted as 'X' is looking at me. However, as he is reporting a character's utterance, the verb direction and/or orientation does not indicate the signer but rather the enacted referent. Hence, the shift in perspective is apparent in the indexical expressions such as indicating verbs too.

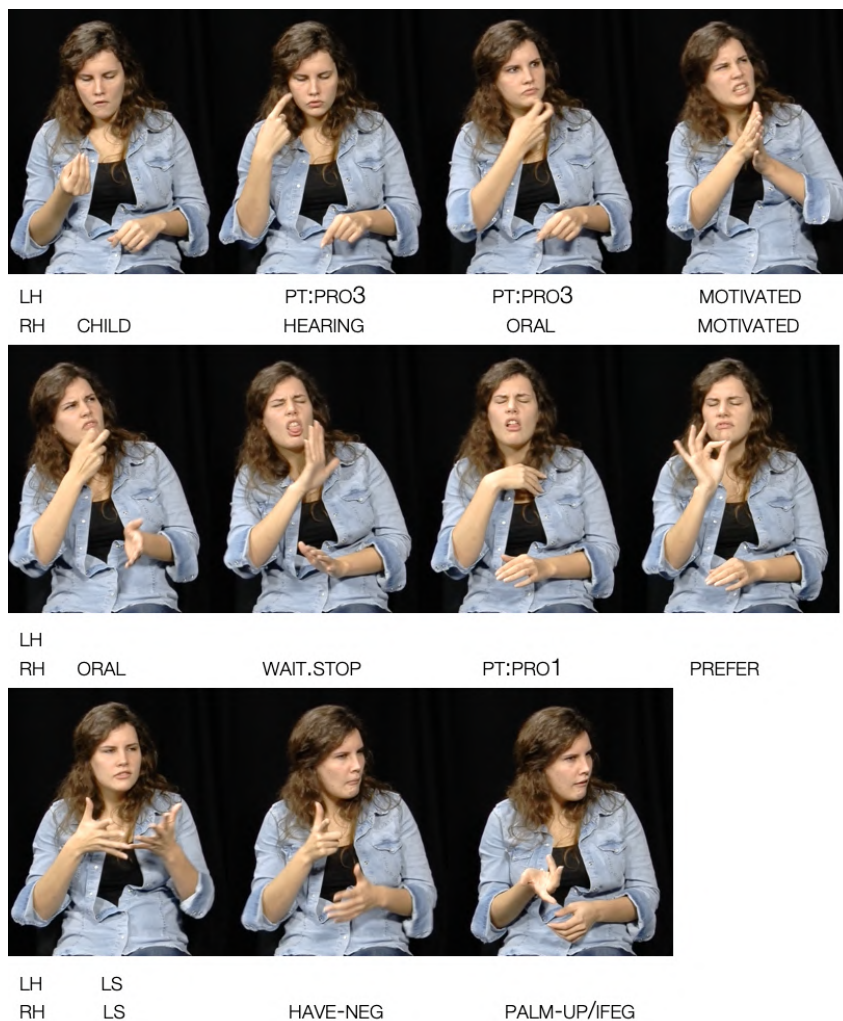


Figure 8. CLSFB S028 T05 (00:04:59.560 - 00:05:02.100)
 You'd never come across a hearing child (going): "No, I'm not keen on speaking.
 I'd rather sign."



Figure 9. LSFBS Corpus, Session 37, S076, T12: 00:05:12:48 - 00:05:13:76
 (Paperman thinks to himself :) "Oh no, he's seen me. Let's wait a bit".

3.4.2 Internal viewpoint and the body in and beyond utterance reports in signed languages

The co-occurrence of perspective shifting and bodily action is not, however, restricted to quotational contexts. Indeed, several signed language linguists stress that a referent's internal viewpoint may be foregrounded in the same way even when no utterance report takes place. Padden (1986, p. 49) notes: "*Although role-shifting is sometimes described as direct quotation [...], it does not always involve replicating discourse*". Poulin & Miller (1995) present the perspective shift as also occurring in the reporting of actions that do not involve languaging. Lillo-Martin (1995, p. 157) reports that the phenomenon extends beyond the reporting of utterances: "*It can also be used to quote participants' thoughts and feelings. In addition, it can be used to describe a scene from one participant's perspective, or in my terms, from that participant's point of view*". Hence, signed language linguists showed early on that signers may also use their body to foreground a referent's internal viewpoint even when the denoted actions do not involve languaging.

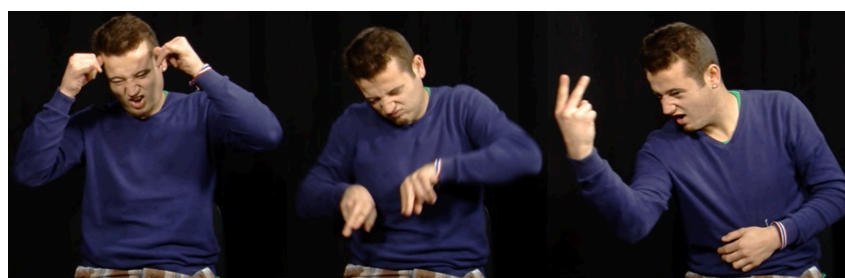
These viewpoint shifts, it has been argued, are often signaled through the use of space in signed discourse. Some authors have discussed this use of the body as exploiting locations in the space surrounding the signer. For instance, Lillo-Martin & Klima (1990) refer to referential shifts that interact with pronominal pointing and verb morphology within the architecture of ASL grammar. According to Lillo-Martin & Klima, both pointing and some verbs share the use of spatial loci, i.e., spatial locations on or around the signer, usually associated with specific referents and anaphorically exploited for subsequent reference after being established. Lillo-Martin & Klima describe a strategy whereby a locus which corresponds to "*some third-person referent, such as John, can change to the locus normally interpreted as first-person reference*" (p. 194). Engberg-Pedersen (1993, p. 103) refers to this phenomenon in DTS as 'shifted locus', "*the use of the sender locus for somebody other than the signer or the use of another locus than the locus c for the signer*". Engberg-Pedersen refers to the signer's location in space as the 'sender' or 'c' locus but other locations in space may be associated with referents. Typically, the 'sender' locus is assumed to refer to the signer but this may change in some contexts. Liddell & Metzger (1998, p. 694) note: "*ASL pronouns and some of its verbs must be directed toward either real things or conceptual entities in space*". They underscore that identifying the context of interpretation (or 'blended space') of an utterance is needed to capture its meaning: "*Without knowing which blended space is active, the directionality of signs is not interpretable*". Figure 10 exemplifies such a perspective shift affecting the indicating verb GIVE outside of an utterance report. While producing the verb, in the second still, the signer looks up and shifts her stance by leaning her torso to the right and reorienting her head and torso to the left. This use of the body is associated with the adoption of a deaf child's internal perspective as they are exposed to signed language from their caregivers after they are born. The signer's body becoming a new origo explains why the verb GIVE is directed towards the signer, as a recipient of the 'giving' action.



LH	BE-BORN	GIVE	GENERATION
RH	BE-BORN	GIVE	GENERATION

Figure 10. CLSFB S028 T05 (00:03:42.514 – 00:03:44.400)
(In deaf families, a signed language) is just transmitted through generations.

Another use of space that is impacted by such referential shifts relates to the placement and trajectories of a category of signs called ‘depicting signs’ or ‘classifiers’. For instance, moving a depicting sign towards oneself may often mean something like ‘X (referent denoted by the depicting sign) is moving towards me’. However, when the deictic centre is shifted, the same action may instead mean something like ‘X (referent denoted by the depicting sign) is moving towards Y (referent whose perspective the signer aligns with)’. In Figure 11, the corpus informant is retelling a story where a boy clings onto an animal’s horns (the signer here uses the sign COW). The signer refers to the boy in the last two stills by producing a depicting sign referring to human referents. The signer exploits the simultaneous production of this depicting sign (third still) with the expression of the animal’s internal perspective (stills 1 to 3). Without understanding that the signer is using constructed action to denote the animal, an addressee is unable to make full sense out of the movement direction of the depicting sign, as it exploits the signer’s body as a new origo for the animal.



LH	DS:HORNS	DS:BRAKING	DS:FALL
RH	DS:HORNS	DS:BRAKING	DS:FALL

Figure 11. CLSFB S060 T12 (00:02:15.455 - 00:02:18.015)
The animal suddenly stops, and the boy falls off its head.

Different configurations of depicting signs and of constructed action exist and have been shown to be pervasive, notably in narratives (e.g., Perniss & Özyürek, 2008; Smith & Cormier, 2014). For instance, Aarons & Morgan (2003) report that in SASL (South African Sign Language), their combinations contribute to the expression of viewpoint: “*These include three phenomena occurring simultaneously [...]: the signer’s use of a handling classifier; the signer’s use of*

semantic or whole-entity classifiers; and the concurrent use of the signer’s face and body to assume the first-person point of view” (2003, pp. 127-128). Hence, understanding when such perspective shifts occur is crucial to a felicitous interpretation of signed utterances. However, it would be inaccurate to describe these phenomena as specific to signed languages. Indeed, many of the above-mentioned phenomena have been described in spoken languages too, as early as McNeill’s (1992) research on speakers’ visible bodily actions.

3.4.3 Internal viewpoint in and beyond utterance reports in spoken languages: character viewpoint gestures

McNeill (1992) discusses several types of manual actions, including ‘imagistic iconics’ or ‘iconic gestures’. Iconic gestures are defined as bearing “*a close formal relationship to the semantic content of speech*” (p. 78). McNeill proposes to distinguish between two kinds of iconic gestures based on the viewpoint that they express. Indeed, it is possible to visually present referents from two types of viewpoints, as will be illustrated in Figure 12.



Figure 12. CFRAPé L001 T12 (00:03:26.050 – 00:03:29.650)
Et il y a une femme qui passe devant lui en courant euh et qui rattrape euh (...)
 And there’s a woman who runs in front of him erm and who catches erm (...)

First, a languager may perform a manual iconic gesture to depict an entity on a zoomed-out scale, as though observing the depicted process from afar, i.e., from an observer’s viewpoint, using an ‘observer viewpoint’ (O-VPT) iconic gesture. This is the case in the first two stills of Figure 12. The French speaker uses her left hand to show the woman’s trajectory as she runs in front of the man from an external or ‘observer’ viewpoint. Second, one may adopt a referent-internal perspective and imitate a referent’s actions on a real-life scale (where the speaker’s hands stand for the denoted referent’s hands) using a character viewpoint (C-VPT) iconic gesture:

Another area of meaning where speech and gesture are coexpressive is the point of view, or the feeling of distance from the narrative. Consider the event in the cartoon story where Sylvester climbs up the pipe. This could be conveyed gesturally in either of two ways. One would be to move one’s arms up and down, as if climbing a ladder. Here, the viewpoint would be the character’s: we imagine ourselves playing the part of Sylvester – the pipe is in front of us and we move our hands up and down as if clambering. Such a gesture has Character Viewpoint, or C-VPT. With this viewpoint we feel that the narrator is inside the story.

(McNeill 1992, pp. 118-119)

The last still of Figure 12 exemplifies a character viewpoint gesture, whereby the speaker uses her hands to depict the character's hands as she grasps for a sheet of paper.

C-VPT gestures have become a well-studied aspect of speakers' visible bodily actions. More recently, several researchers have pointed out that there is a strong relationship between speakers' use of direct reports and of character viewpoint gestures. Indeed, when reporting or constructing one's utterance(s) with speech, speakers often also display other aspects of the constructed event. Utterance reports have therefore been described as a particularly fertile environment for iconic gestures to be produced, making quotation a multimodal phenomenon (e.g., Blackwell et al., 2015; Soullaimani, 2018; Stec et al., 2015, 2016, 2017). Hence, using their bodies in addition to speech in utterance reports, speakers may also express quoted referents' internal viewpoint multimodally. Furthermore, as noted in signed languages, speakers too may use their body to enact or imitate 'characters' and thereby convey a referent's perspective even outside of utterance reports.

Like for signed languages, the interaction of constructed action or character viewpoint gestures and space has been studied in speakers' visible bodily actions. While no system akin to indicating verbs has been found in the gestural repertoires of speaking communities, speakers do point. In shifted contexts (e.g., a direct utterance report), the indexical shift can not only affect spoken indexical expressions like pronouns but also speakers' pointing behaviour (Cooperrider, 2011; McClave, 2000). In addition, like for signers' depicting signs, shifts may affect the interpretation of speakers' iconic observer viewpoint gestures. Indeed, the latter's placement and movement trajectory also involve a viewpoint-revealing spatial configuration of one's hands with respect to one's upper body (Frederiksen, 2017).

So far this conceptual survey has shown that languagers all make use of their body and/or of speech to refer to referents' actions and utterances. On the surface, these strategies look similar to one another. While analyses seem to converge on recognising that all the phenomena described above – utterance reporting in signed and spoken languages, speakers' and signers' use of their bodies – involve viewpoint effects, the ways in which these phenomena have been explained differ widely. Reasons for this include the comparability issue whereby shifting behaviours in signed languages have been likened to varied spoken language phenomena, ranging from morphosyntactic structures to speakers' visible bodily actions. Different approaches propose diverse accounts of the status of these phenomena and of their comparability across signed and spoken languages. These different approaches are discussed in the following paragraphs.

3.5 Where disagreements surface: semiotic compositions

In section 2.3.6, the Neo-Peircean approach to meaning-making has been presented. In this section, it will be shown that the semiotics at play in constructed action and related phenomena lies at the heart of the debates in both spoken and signed

language linguistics. The commonalities and differences across several accounts offered for this range of phenomena will be framed in semiotic terms.

3.5.1 The semiotics of constructed action in spoken languages

The diverse ways through which languagers refer to communicative acts has received considerable attention in linguistics. Several areas of interest have emerged across different sub-disciplines in the field, of which the diverse terminology to refer to the phenomenon is a reflection, e.g., ‘reported speech’, ‘utterance reporting’, ‘constructed dialogue’, and so on. Most traditional typologies of utterance reporting distinguish between ‘direct’ and ‘indirect’ reporting (Coulmas, 1986). These two categories are frequently defined as strategies deployed to refer to utterances from two distinct ‘deictic centres’, ‘grounds’ or ‘contexts of interpretation’. Compare (1) and (2), as cited in Coulmas (1986, p. 2, from Shakespeare, 1622):

(1) Have you pray’d to-night, Desdemona? asked Othello, and Desdemona answered: Aye, my lord.

(2) Othello asked his wife whether she had said her nightly prayers, which she affirmed.

To reach a felicitous interpretation of utterance (1), indexical expressions such as ‘you’ and ‘to-night’ need to be interpreted by an addressee as being grounded within the reported context rather than the current, reporting one. In other words, it may be argued that the viewpoint adopted here is that of the reported utterer. Conversely, in utterance (2), indexical expressions do not receive a shifted interpretation and are to be interpreted from the reporting context in which they are produced. Consequently, it may be said that the viewpoint here lies with the reporting utterer. Another well-known difference between the two types has to do with the structural organisation of the reporting and reported elements. Direct and indirect reports have often been contrasted by their different degrees of syntactic integration. However, while this distinction has a long tradition in the literature, it has been subjected to criticism with respect to both its accuracy and its exhaustivity, notably from a typological perspective (see Coulmas, 1986; Evans, 2012; D’Arcy, 2015). First, it appears that clear-cut cases of each category across languages are rare. Therefore, direct and indirect utterance reporting could rather be seen as prototypes rather than as distinct categories (Evans, 2012). In addition, the two types fall short of accounting for other strategies by means of which utterances are reported. For instance, many authors have argued for the existence of other types, such as free indirect reporting, whose place in-between or closer to either direct or indirect reporting is a subject of debate (see, e.g., Coulmas, 1986, for a discussion of these issues).

Different approaches have been developed to account for several of the above-mentioned phenomena (see, e.g., discussions in Clark & Gerrig, 1990 and De Brabanter, 2017). Some early approaches are rooted in philosophy of language and

were initially developed to account for metalinguistic quotation before being extended to other types of utterance reporting. First reflections were driven by philosophers' attempt to account for truth-conditional effects of pure or metalinguistic quotation by likening the phenomenon to names or definite descriptions. By Quine's (1940) famous distinction, the reported or quoted material, necessarily embedded between quotation marks, is only 'mentioned' (like a picture) whereas the quotation (a complex made up of the quotation marks and the enclosed quoted material) is also 'used'. Another influential approach was proposed by Davidson (1979) and states that quotation marks are used as demonstratives. By the demonstrative account, quotation marks, which play a central role, are a conventionalised means to refer to the enclosed, reported material. According to Davidson, "*quotation is a device for pointing to inscriptions (or utterances)*" (p. 91). In this approach, quotation seems to be mostly defined as combining description and indication (whereby quotation marks are conventionally understood to indicate reported material). This theory of quotations posits that any quotation will provide a *verbatim* copy of an original. According to De Brabanter (2017), the former approaches to utterance reporting "*conceive of quotations as linguistic expressions endowed with a semantics. These expressions are to be clearly distinguished from their referents*" (De Brabanter 2017, p. 229).

Another influential approach captures one of the features of utterance reports which will be our main object of interest in this dissertation. Clark & Gerrig (1990) argue that direct and indirect utterance reporting are fundamentally different types of communicative acts. Whereas indirect reports rely on description, i.e., conventionalised meaning-making, direct reporting really boils down to selectively demonstrating or depicting utterances. These depictions are non-serious actions whereby language users select which aspects are meant to be interpreted as quoted. These aspects, Clark & Gerrig (1990, p. 769) argue, go well beyond the words that are constructed or reported:

Our proposal is this: quotations are demonstrations that are component parts of language use. The prototypical quotation is a demonstration of what a person did in saying something. So when Alice quotes George, she may depict the sentence he uttered. She can also depict his emotional state (excitement, fear, shyness), his accent (Brooklyn, Irish, Scots), his voice (raspy, nasal, whiny), and even the nonlinguistic actions that accompanied his speech (gestures, frown, head angle).

The depictive dimension of direct reports was already identified prior to Clark & Gerrig's proposal by several researchers (e.g., Quine, 1940; Wierzbicka, 1974; Davidson, 1979). However, in these accounts, depictive meaning-making does not take a centre stage and/or the verbatim assumption, i.e., that the reported material necessarily is a faithful reproduction of a prior utterance, remains unchallenged. Empirical support for depictive accounts of direct utterance reporting has come from gesture studies. Clark & Gerrig's proposal that reporting utterers often use their body to report more than just words or sentences has been corroborated by several researchers, leading to an increasing recognition of utterance reporting as a multimodal phenomenon (Park, 2009; Blackwell et al., 2015; Stec et al., 2016).

The presence of a depictive dimension in direct reporting (and sometimes within other types of utterance reports) is now acknowledged in most accounts of the phenomenon (e.g., McGregor, 1994; Recanati, 2001; De Brabanter, 2005, 2010, 2017; Hodge & Cormier, 2019; Clark, 2016; Spronck & Nikitina, 2019; Vandelanotte, 2023). However, other types of semiotics have sometimes been invoked in attempts to provide a coherent picture of different types of utterance reports, including direct ones. In particular, these proposals describe different types of utterance reports as different conventions dedicated to denoting languaging actions in a common constructional class (see Spronck & Nikitina, 2019, for a recent proposal).

One such account is found in McGregor's (1994) framing analysis which argues that a model of utterance reporting must capture the relationship between the whole reporting unit, not just the reporting verb, and the whole reported unit. By McGregor's account, that relationship resembles the one that links a picture (the reported material) to its frame (the reporting clause): The frame functions to "[*delineate*] the reported clause from the surrounding clauses, and indicates that it is to be viewed or evaluated in a different way — as a demonstration, rather than a description" (McGregor, 1994, p. 77). Though McGregor seems to accept that direct utterance reports involve depiction, he extends this to indirect reporting, arguing that the latter also provides a 'picture' of the reported content.⁷ Different types of utterance reporting (as relationships between reporting and reported material), McGregor argues, constitute "*sign[s] in the Sausurrean sense*" and their meaning lies in an "*interpersonal metafunction*" (1994, p. 64). This metafunction accounts for the difference between direct and indirect reporting: Unlike in Clark & Gerrig's (1990) proposal, McGregor proposes that the distinction between direct and indirect reports lies in the viewpoint from which the reported material is depicted.

Vandelanotte (2009, 2023) adopts a similar perspective and proposes that the different types of utterance reporting and their related viewpoint effects are best captured as constructions: "*Languages have developed specialized ways to structure the representation of such contents, especially in various dedicated forms of speech and thought representation*" (Vandelanotte, 2023, p.1). Vandelanotte's (2009) account focuses on two dimensions to provide a typology of utterance reporting constructions in English, namely syntagmatic structure and the origo of indexicals and expressives: "*Specific combinations of features along these parameters will be argued to correlate with fairly abstract, 'grammatical' semantics for each type, together defining different constructional clusters*" (Vandelanotte, 2009, p. 10). Using these criteria, Vandelanotte presents a typology of form-meaning pairings that denote utterances in English: direct, indirect, free indirect, and distancing indirect speech and thought reporting. Hence, some accounts argue that the different viewpoint configurations, rather than a

⁷ McGregor's (1994, p. 81) interpretation that Clark & Gerrig's 'demonstration' does not "*refer to, and describe some state of affairs, or some world*" is at odds with how the term is interpreted here (and, arguably, with what Clark & Gerrig intended). This interpretation seems to conflate the more general reading of the term 'describe' as 'referring to something' with the semiotic notion of 'description', i.e., the use of conventionalised form-meaning pairings to refer to something.

fundamental semiotic distinction, may be better equipped to account for differences between types of utterance reporting. In these accounts, ‘descriptive’ semiotics appear to be invoked as different types of utterance reporting strategies – consisting both in reporting and reported material – are argued to form constructions.

Though speakers’ visible enactment practices (or ‘character viewpoint iconic gestures’) have traditionally been discussed in iconic or depictive terms, the idea that speakers’ enactment practices may come to involve other types of semiotics has also surfaced in gesture studies in recent years. Gesture researchers drawing on the frameworks of cognitive linguistics and construction grammar have argued that some of speakers’ visible actions may become partly conventionalised (Andrén, 2014; Cienki, 2017; Ladewig, 2020, 2020; Müller, 2017; Schoonjans, 2017; Schoonjans et al., 2016; Ziem, 2017; Zima & Bergs, 2017). On the one hand, these so-called ‘recurrent gestures’ would exhibit a partly stable, schematic form-meaning pairing emerging “*from repeated experiential uses-in-context which stabilize, merging with a motivated gestural form*” (Müller, 2017, pp. 290-291). On the other hand, these forms remain partly determined in context: “*With one or two parameters taking over a particular meaning, the other form parameters become free to adopt other meanings and functions sensitive to the local exigencies of meaning creation and interaction*” (Ladewig, 2020, p. 28). Bressemer et al. (2018) propose that the same may apply to tokens of enactment denoting the same visible action, which may exhibit varied forms on a cline of ‘semiotic complexity’ ranging from the recruitment of only one articulator to several body parts. These different instantiations are interpreted by Bressemer et al. as manifesting different degrees of reliance on schematic, conventionalised representations. The authors draw a parallel between enacting manual forms that occur with one or few articulator(s) – presumably more schematic – in German speakers’ utterances and the lexicalisation of manual enacting forms in signed languages: “*symbolically less complex depictions in sign language [...] are comparable to what we have characterised as semiotically-poorer, more abstract, more schematized depictions*” (2018, p. 243). Hence, some researchers have claimed that more conventionalised and schematic forms may emerge from speakers’ enactments of specific actions. These conventionalised forms may be recruited when representing these actions and may be combined with depiction.

To summarise, while depiction is widely acknowledged as involved in speakers’ utterance reports and representation of actions, several researchers have argued that other types of semiotics are also involved in the functional domains surveyed here. When it comes to denoting languaging actions, some researchers have argued for a central role of quotation marks in indicating reported utterances as differently used. In addition, several utterance reporting constructions have been claimed to account for different observed viewpoint effects, notably regarding the interpretation of indexical expressions. As for speakers’ enactments of non-languaging actions, some researchers have argued that form-meaning schemas exhibiting (at least partial) conventionalisation may emerge from initially depictive forms. As the next section will make explicit, the questions raised by researchers trying to account for spoken language utterance reporting or depictive representation of non-languaging

actions are close to those raised about the status of constructed action in signed languages.

3.5.2 The semiotics of constructed action in signed languages

We have already pointed out the relationship between constructed action and perspective-taking in signed languages in Section 3.4. Given the prominence of the phenomenon, working out the specifics of this context shift appeared to be key to understanding and describing signed discourse to linguists. In what follows, varied interpretations of this link which are still present in the literature are presented. These different accounts will be compared in semiotic terms.

Friedman (1975, p. 950) already discusses the link between the signer's body and the deictic shift that occurs in ASL:

The signer making 3P reference has yet another option [...]. In this, he makes no indexical reference, but rather uses his body to mark 3P. In a sense, he 'takes on' the 3P reference [...]. [T]his process in ASL – in which the signer conveys 3P reference by the use of surface 1P forms – is quite common and occurs easily in colloquial discourse. [...] The signer can then either orient his body or merely his head in different directions (i.e. to the right, to the left) to distinguish one 3P referent from another, or he can raise or lower his head or trunk (by bending his knees) to indicate, e.g., two 3P referents of different heights (e.g. mother and child). In either case, the eyes move accordingly. If, for example, the discourse concerns a conversation between a mother and child, the signer will look up (with his head raised) when he assumes the child's role, and will look down (with his head lowered) when he assumes the mother's role.

Mandel (1977, pp. 79-80) reports similar observations and highlights that the phenomenon occurs both within and outside utterance reports.

It is common for a signer to take the role of a person being discussed [...] When two or more people are being talked about, the signer can shift from one role to another and back; and he usually uses spatial relationships to indicate this ROLE-SWITCHING. In talking about a conversation between two people, for instance, a signer may alternate roles to speak each person's lines in turn, taking one role by shifting his stance (or just his head) slightly to the right and facing slightly leftward (thus representing that person as being on the right in the conversation), and taking the other role by the reverse position. [...] Similar role-switching can occur in nonquotative narrative. [...] A signer may describe not only what was done by the person whose role he is playing, but also what happened to that person.

As we have seen in Section 3.4, in signed languages, not only does constructed action interact with pointing actions (i.e., points that are often reported to carry out a pronominal function), it also affects the interpretation of indicating verbs as well as of some depicting signs when their location or movement involves the signer's body (Aarons & Morgan, 2003; Fenlon et al., 2018; Liddell & Metzger, 1998; Lillo-Martin & Klima, 1990; Padden, 1986). Because of the plurality of contexts in which these perspective changes occur, signed language linguists have sought a unified explanation for the use of the signer's body to foreground a referent's internal perspective and affect the behaviour of indexicals in both reported utterances and other 'shifting' contexts. As Lillo-Martin (2012, p. 371) puts it, "*earlier analyses of direct speech would not suffice to account for role shift, since it was clear that*

role shift is not limited to word-for-word reproduction of speech, but is a way of conveying a character's thoughts, actions, and perspective".

The first category of analyses of constructed action will be referred to as 'role-shifting' approaches here, as some of the analysts concerned discuss the phenomenon under the heading 'role shift' or 'role shifting'.⁸ According to these approaches, the shift to a different context of interpretation or to another perspective is encoded through a conventionalised strategy in signed languages. Form-wise, this strategy consists in the signer shifting stance or some other bodily behaviour towards an abstract location associated with the referent whose viewpoint or perspective is adopted. Padden (1986, p. 49), for instance, mentions "*a rapid shift in body position [...], facial configuration, and eye gaze*". This physical behaviour, according to this account, conventionally signals that another perspective or role is adopted and that indexical expressions should be interpreted from that new origo. So far in this description, role-shifting approaches seem to have much in common with Davidson's demonstrative theory: the body movements discussed seem to be a conventionalised means to indicate a perspective shift in a way similar to quotation marks. The remainder of this section pinpoints different aspects of role shifting analyses which will prove relevant to our comparative discussion of constructed action across signed and spoken languages.

First, defenders of this approach have often argued that role shift is a phenomenon that is specific to signed languages. In particular, this means that the visible bodily actions produced by speakers in similar contexts should not be seen as comparable to role shift. Padden (1986, p. 49) argues:

Role-shifting is perhaps an unfortunate term. It suggests structures which resemble play-acting; indeed, this is how these structures have been described. Like early descriptions of classifier structures as mime, role-shifting structures are thought not to be linguistic structures, but devices for playing roles within a conversation: the signer assumes the role of a character while signing. These descriptions incorrectly suggest that whatever common knowledge we have about play-acting ought to apply to understanding how role-shifting works in ASL. As it turns out, there are interesting constraints on role-shifting which indicate that its place in the syntactic and discourse system of ASL should be explored further.

In a similar vein, Poulin & Miller (1995) choose to use the term 'referential shift' to avoid conflating the phenomenon with 'gestural role-playing'. Lillo-Martin (1995, p. 156) also stresses that "*it is misleading to think of this construction in terms of play-acting rather than grammar*". Herrmann & Steinbach (2012, p. 222) also devote a section of their chapter to the link between role shift as found in signed languages and its analogue in spoken languages. Their proposal is that the phenomena might share a common 'origin' but have become fundamentally different:

⁸ 'Role-shifting' approaches have also accounted for constructed action in other terms such as point of view predicate (Lillo-Martin, 1995), point of view operator (Quer, 2005), or nonmanual agreement (Herrmann & Steinbach, 2012).

[O]nly in sign languages has role shift become a genuine part of the grammatical system, because the visual-manual modality, unlike the oral-auditory modality, offers the unique property of grammaticalizing manual and nonmanual gestures. Since gestures use the same articulatory channel that is also active in the production of signs, it is not uncommon for manual and nonmanual gestures to become grammaticalized in sign languages.

Yet another distinction has sometimes been drawn in role shift analyses (as discussed in Sections 3.2.2 and 3.2.3): some signed language linguists have provided different analyses of so-called ‘quotative’ or ‘attitude’ role shift, defined by Steinbach (2021, p. 354) as “*the reproduction or demonstration of linguistic material such as signs, phrases, sentences, or sequences of sentences (including prosodic markers) to report utterances, thoughts, or propositional attitudes of a person*”, and what has been called ‘constructed action’, ‘action role-shift’ or ‘non-quotative role-shift’, defined by Steinbach (2021, p. 354) as the “*reproduction of actions by the signer to demonstrate or depict actions a person performed in another context*”. Lillo-Martin & Klima (1990, p. 194) already draw a line between different types of the phenomenon which is congruent with later descriptions distinguishing utterance reporting and the enactment of non-communicative actions:

One form includes modifying facial expressions, body posture, and style of signing, in a manner sometimes referred to as role-playing. There are also, however, occasions for shifts that do not include the role-playing mannerisms. When a shift takes place the locus [a spatial location on or around the signer, usually associated with a specific referent and anaphorically exploited for subsequent reference after being established] for some third-person referent, such as John, can change to the locus normally interpreted as first-person reference. [...] This shift is signified by a change in the orientation of the signer’s shoulders, head, and/or eyes.

Quer (2011, pp. 286-287) similarly argues that, despite their frequent co-occurrence, the two kinds should be teased apart: “*Within constructed action, the signer adopts the role of the referent in order to reproduce not his/her linguistic discourse, but his/her actions, postures or gestures in a more or less imitative fashion*”. Quer seems to attribute a ‘linguistic’ status to the reporting of utterances and a ‘gestural’ or depictive one to the enactment of other actions: “*These are the most complex cases to account for, as they require teasing apart what is gestural from what is linguistic in a [role shifting] segment*” (p. 287). This distinction is also made clear in Herrmann and Pendzich (2018). Strictly speaking, ‘grammaticalised’ role shift is not considered depictive: “*The grammatical body leans, head positions and eye gaze changes to mark the shift are [...] not an imitation of the reported signer, but solely indicators of the context shift, not necessarily meaning that the person changed their body position, for instance*” (Herrmann & Pendzich, 2018, p. 279). By contrast, ‘action role shift’ “*is a depiction or a demonstration and not a description of another referent*” (Herrmann & Pendzich 2018, p. 281). Similarly, Engberg-Pedersen (2015, p. 415) also seems to argue against a purely depictive account of ‘perspective shifts’ in signed languages: “*it is not possible to describe the constructions that are the theme of this paper as nonarticulated or analogues of sculpture or painting, but they may nevertheless be seen as at least partial*

selective depictions”. Though Steinbach (2021, p. 356) also points out, like Quer, that the distinction may not always be clear-cut, a formal and functional separation is proposed between the two kinds:

[P]rototypical cases of [attitude role shift] and [action role shift] have different functional and formal properties: while [attitude role shift] is used to report utterances, thoughts, or attitudes and thus includes mainly linguistic material (typically sentences denoting propositions), [action role shift] is used to report actions and includes mainly gestural demonstrations. Furthermore, both kinds of role shift differ in their non-manual marking and in the presence and interpretation of indexicals, which typically appear in [attitude role shift].⁹

Hence, a first account of constructed action conceives part of these phenomena as specific to signed languages. In particular, some uses of nonmanual articulators are seen as grammatical markers of role shift, a mechanism which *indicates* a perspective change and a shifted interpretation of indexical expressions. Conversely, the ways signers portray referents’ (non-languaging) actions in a depictive fashion is seen as a different, gestural phenomenon.

A similar account, which does not strictly distinguish between constructed action and dialogue, has also been formulated in a cognitively oriented perspective by Jarque & Pascual (2016). Pascual (2014) provides extensive cross-linguistic evidence for the high relevance of the experience of intersubjectivity and face-to-face conversation for human thinking, discourse, and conventional meaning-making. According to Jarque & Pascual, the face-to-face nature of signed interactions (together with spoken languages which have no widespread written form) would lead to a stronger manifestation and grammaticalisation of the conversational frame in these languages. As a result, signed languages like LSC would see the emergence of a construction indicating viewpoint shifts which harnesses the conversational infrastructure of turn-taking between interlocutors. While Jarque & Pascual acknowledge that tokens of constructed action may include less conventionalised dimensions, they propose that they may be located somewhere on a grammaticalisation cline (p. 275):

In this chapter we showed that Catalan Sign Language signers use a schematic linguistic unit called *constructed action* [...] Signers enact a character’s actions and discourse – both a factual previous one and an entirely created one – by using non-manual articulators as well as body shifts in space, indicating viewpoint shift. Instances of constructed action in LSC are *composite utterances* (Enfield 2009), combining different manual and non-manual components (linguistic and gestural ones). Although conventionalized and entrenched to a degree, some elements of their form and meaning are dependent on specific instances of use, as observed by Ferrara and Johnson (2014) for Australian Sign Language. They seem to be in-between purely pragmatic and obligatory grammatical structures.

⁹ I would argue that using the presence of indexicals as a criterion to contrast the use of ‘attitude role shift’ (denoting utterances) and the use of ‘action role shift’ (denoting non-languaging actions) may lead to an issue of circular reasoning.

In contrast to role shifting accounts, some signed language linguists have argued early on that there was no fundamental difference between ‘constructed dialogue’ and ‘constructed action’ (the former being a sub-type of the latter) and that a similar mechanism could account for both contexts of perspective shift. Metzger (1995) notes that the two categories often overlap. For instance, a signer may start enacting the posture and actions of a referent before constructing the referent’s utterance. Both contexts of perspective shift are described as produced in a creative fashion, which connects to Clark & Gerrig’s (1990) proposal that utterance reports are selective depictions. Metzger (1995), for instance, says about ASL constructed action and dialogue that “*signers creatively construct both events and dialogue in ASL discourse. [...] The construction of dialogue in ASL seems to be very similar to the construction of events*” (p. 257).

The recognition that signers rely on more ‘creative’, less conventionalised meaning-making when enacting has gradually led signed language linguists to liken the strategy to speakers’ communicative practices, notably thanks to the reconsideration of speakers’ visible bodily actions by gesture researchers.¹⁰ Liddell & Metzger (1998) and Liddell (2003) are among the first to explicitly liken the use of constructed action in signed languages with speakers’ use of the strategy. They argue that there is no fundamental distinction between this phenomenon and what McNeill (1992) describes as iconic character viewpoint gestures. They address the phenomenon using insights from cognitive linguists, in particular relying on Fauconnier’s (1994) and Fauconnier & Turner’s (1998) ‘Mental Spaces’ or ‘Conceptual Integration Theory’. In this framework, languagers are argued to conceptualise, simulate, and make sense of the world and of language – construct meaning – relying on mental spaces. Liddell & Metzger (1998) and Liddell (2003) expand on conceptual integration theory by applying it to the study of signed language use.¹¹ Their extension starts with the detailed study of a particular input space coined ‘Real space’. Liddell defines it as “*a person’s current conceptualization of the immediate environment based on sensory input*” (2003, p. 82). Liddell (2003, p. 175) explains that “*mental space elements are mapped onto real space. That cognitive act involves conceptualizing things as something other than what they are. [...] [R]eal-space blends create otherwise impossible entities which have physical properties inherited from real-space and conceptual properties inherited from another mental space*”.

¹⁰ In early functional-cognitive approaches, however, researchers seem to have been reluctant to put constructed action practices in signed languages on a par with their analogues in spoken languages. Metzger (1995) contrasts the use of these strategies in ASL with speakers’ enactment practices: “*though often labeled as mimelike, this type of construction is not easily mastered by second language learners, as one might expect since mimelike gesturing is a genre accessible to all linguistic communities*” (1995, p. 263). Similarly, Cuxac (2000, p. 51) says: “*Against many linguists who persist in categorising these forms as pantomime, I maintain that they should be integrated within signed languages (Contrairement à de nombreux linguistes qui persistent à ranger ces formes linguistiques dans la pantomime, je maintiens qu’il convient de les intégrer dans les langues des signes)*”.

¹¹ Though Liddell’s (2003) focus is on ASL, several discussions exemplify how the presented phenomena can be likened to speakers’ visible actions.

Liddell & Metzger's proposal is that enacting a referent boils down to projecting the referent onto Real Space and, more particularly, onto oneself. Sometimes that blend may only involve a few bodily articulators (e.g., one's facial expression and eye gaze). However, real space blends that result from constructed action may also involve the enacted referent's environment, including other referents. This is notably the case when the ASL signer in their analysis enacts an interaction between the cartoon character Garfield and his owner. Liddell & Metzger argue that it is crucial to access the different input spaces and understand which parts of these spaces are being mapped onto the resulting blend. For instance, an addressee should be able to distinguish cases in which the signer's hands in Real Space are being involved in blending (when the signer's hands are perceived to be the character's) or not, e.g., when the signer keeps on using simultaneous description (1998, pp. 672-673):

The addressee would first have to understand that constructed action was taking place [...] and] to understand what that constructed action is. [...] Knowing both the activity and the performer puts the addressee in a position to fully understand the significance of the grounded blend.

It is the simulation that occurs while running the Real Space blend that accounts for the felicitous interpretation of indexical expressions and uses of space in Liddell & Metzger's and Liddell's account. A guiding thought in their explanation is provided by Liddell (2003): "*Signers [...] frequently conceive of areas of the space around them, or even themselves, as if they were something else*" (2003, p. 141). The directionality of signers' pointing actions and indicating verbs, like speakers' pointing actions, provides an instruction to connect an element of the semantic space to Real Space when physically present referents are pointed at. When a referent is absent from the communicative context, it can be simulated, that is, imagined or conceptualised as present. Similarly, when depictive signs are located or moved around the signer's body, the latter may be exploited as an origo (e.g., a depictive sign may be moved towards one's body to express that the depicted referent moves towards oneself). When this strategy is combined with the use of constructed action, the process of conceptual integration enables a felicitous interpretation of the 'constructed action – depictive sign' ensemble as, e.g., 'the referent (denoted by the depictive sign) moved towards the referent (that I am enacting)'.

Liddell & Metzger's (1998) and Liddell's (2003) approach rejects an explanation of constructed action in terms of grammar. Discussing an example where an interaction between two referents is enacted, they stress that nonmanual articulators do not grammatically signal a shift by indicating the position (or 'locus') of the referent whose perspective is adopted. Rather, constructed action invites the addressee to simulate an event:

[I]n none of these cases are we talking about a locus in space. In both blends we are talking about an invisible, conceived-of-as-present referent, rather than a point in space. In this narrative, the signer as narrator never points to a spatial locus ahead of him to refer to either the owner or Garfield. Within the blends, the two characters are never in the space ahead of the signer at the same time. In our analysis, when the signer is blended with one of the

two characters, the other character is imagined as full-sized, three-dimensional, and either standing or sitting in a chair (depending on the character).

(Liddell & Metzger 1998, p. 683)

A tradition in cognitive and functional linguistics has emerged from these earlier investigations, arguing that across several signed languages, constructed action (to be understood as the umbrella term here) is more akin to ‘gesture’ (in the sense of non-conventional meaning-making) than to ‘language’ as it was then defined (e.g., McCleary & Viotti, 2010; Quinto-Pozos & Mehta, 2010; Ferrara & Johnston, 2014). One clear takeaway from this tradition has been the recognition that signers and speakers were not as different as sometimes claimed and that more attention should be paid to speakers’ multimodal communication patterns. Showing that constructed action can integrate with more conventionalised signs to take on predicate and argument functions in Auslan clause-like units, Ferrara & Johnston (2014, p. 212) conclude:

[W]e suggest that CA is a part of Auslan in the sense that it is sanctioned by the grammar and is tightly integrated with it, even if it is not linguistic itself. [...] We further suggest that there may be interesting correlates to the use of enactment in spoken language discourse. [...] Perhaps with future research, the extent that CA is used in spoken language narratives (and other text types) can be further described while also considering its (localized) influence on surrounding grammatical structure.

With the emergence of Neo-Peircean semiotics, conceptual and terminological shifts have led to the more systematic use of the term ‘depiction’ rather than ‘gesture’ (understood as less conventionalised meaning-making) to refer to constructed action and dialogue (Ferrara & Hodge, 2018; Hodge & Cormier, 2019; Puupponen, 2019; Hodge et al., 2023). In addition to the core depictive aspect of constructed action, however, several authors also acknowledge that a depictive enactment may often involve or be bundled with other strategies in composite utterances (e.g., Puupponen, 2019; Hodge & Ferrara, 2022). Puupponen (2019) discusses several indicating bodily actions that FinSL signers may engage in while enacting. First, Puupponen underlines that the enacted behaviours may provide information about invisible surrogates, i.e., entities like people or objects that the enacted referent interacts with. For instance, enacting a referent as holding an object indicates the held object.¹² Second, referents may be ‘placed’ at specific locations in space whereby a nonmanual action, such as a head movement, leading to that location will index or place the referent: This action enables one to “[connect] the content of manually produced signs to imaginary referents established earlier in the discourse” (Puupponen, 2019, p. 16). The nonmanual actions involved may be diverse: “The signer may, for example, change the orientation of the face along with the eye gaze, tilt the head sideways, or lean the whole upper body sideways, or produce a combination of these movement features” (Puupponen, 2019, p. 16). Puupponen (2019) also discusses how both indicating strategies may combine: “In some movements of the head or the whole upper body, the head moves towards an introduced or previously established location (i.e. an imaginary referent) while the

¹² See also Cuxac (2000, p. 54) for a list of strategies which can be interpreted as indicating referents.

face and gaze may be oriented towards an addressee [...] or to the imaginary referent" (p. 16). This last description is strikingly similar to what role shifting accounts have proposed. Crucially, however, these indicating bodily movements are considered neither as grammaticalised, nor as obligatory in depictive approaches.

Researchers who treat constructed action as essentially depictive have also recognised that repeated enactments of specific actions may lead to the emergence of conventional types over time (as was discussed for spoken languages in Section 3.5.1). This phenomenon has been described for many signed languages, where enactment can act as a 'substrate' for highly conventionalised lexical signs (e.g., Ferrara & Halvorsen, 2017) or for 'recurrent' constructed actions (Wähl, 2022). Wilcox & Xavier (2013, p. 100) point to the central role of frequency in the lexicalisation of constructed actions in signed languages: "*whereas constructed action usage events [...] may begin life as gestural depictions, their repeated use by signers in certain contexts and genres leads to schematization*". However, this process should not be seen as a one-way ticket to convention-based uses. It is widely acknowledged that usage-events of these iconic manual signs may be located on a continuum from more descriptive to more depictive readings, depending on the signer's intent, as cued by their duration, their formal characteristics, and the use of co-occurring enacting articulators (Cormier et al., 2012; Ferrara & Halvorsen, 2017; Wilcox & Xavier, 2013). This process should not be seen as applying to all enactment forms, according to Wilcox & Xavier (2013). The authors argue that lexicalisation is restricted to enactments of actions which are functionally and formally specific enough (2013, p. 100):

When [...] symbolically less-complex constructed actions are repeated, they tend to lexicalize. Because the variation of these usage events is constrained, schematizing across multiple usage events results in a low-level, symbolically simple lexical schema — for example, lexical signs such as BRUSH-TEETH [...]. Symbolically-complex constructed actions resist lexicalization because the variation across usage events is too great to develop a low-level, lexical schema.

Some researchers have however argued for the emergence of 'conventional' schemas beyond the lexical level. Wilcox & Xavier (2013) claim that more 'complex' instances of enactment, while they do not undergo lexicalisation, can still lead to a schematic construal and a conventionalised form, which they coin the constructed action 'grammatical schema' or 'scenario' (2013, p. 102):

When symbolically-simple constructed actions are schematized, the resulting schemas are more detailed and appear as lexical units. When symbolically or conceptually complex constructed actions occur as usage events, a different schema emerges. When signers extract the commonality inherent in multiple experiences of these symbolically complex expressions with fewer recurring features in common, the schema that emerges is at a much higher level [...]. In other words, the unit or schema is far less comprehensive and detailed than the usage events that give rise to it. We call this a constructed action grammatical schema or a constructed action scenario.

In yet other approaches, researchers acknowledge the depictive or iconic dimension of both constructed action and dialogue but argue that, at least in some contexts, for the depictive intent and the viewpoint shift to be apparent, signed languages have

grammaticalised a specific use of eye gaze, whereby a break in gaze address marks for a depictive intent. In the French semiological approach originally developed by Cuxac (2000, p. 54), gaze plays an essential role in the interpretation of ‘personal transfers’:

Lorsque le locuteur est investi dans un transfert personnel, et joue le rôle d'un personnage transféré, son regard est celui-là même du personnage en question, agent, patient ou bénéficiaire du procès de l'énoncé. Il ne doit évidemment pas croiser le regard de l'interlocuteur tant que la référentialisation n'est pas achevée, car en ce cas le transfert cesserait.

When the utterer engages in personal transfer, and takes on the role of a transferred character, whether agent, patient or beneficiary of the process denoted by the utterance, their gaze is the character's gaze. It must obviously not meet the addressee's gaze as long as the referential process is not over, as the transfer would end if it did.

Hence, in Cuxac's (2000) research on LSF, an eye gaze break from the addressee signals that a signer shifts to a ‘saying by showing’ mode, which includes constructed action and dialogue as ‘highly iconic’ structures (see also, e.g., Sallandre 2001, Sallandre et al. 2019, Garcia & Sallandre 2022). In this ‘semiological’ approach, in addition, ‘(personal) transfers’ are not seen as fully improvised depictions: “*it must be emphasized that, while it is true that the precise meaning of a transfer unit depends on the context, [...] these units have in themselves a highly generic semantic value*” (Garcia & Sallandre 2022, p. 5). Personal transfers are indeed described as ‘structures’ “*constrained and constraining, limited in number and using units that are themselves compositional, based on paradigmatic elements*” (Sallandre & Garcia, 2013, p. 161). In fact, in this approach, several types of personal transfer ‘structures’ are listed. These structures are notably determined by the co-occurrence (or lack thereof) of enactment with other meaning-making strategies, e.g., ‘classic’ personal transfers (when the signer's whole body is involved in enacting), ‘prescriptive’ person transfers,¹³ personal transfer with utterance reporting (when a referent's languaging actions are depicted), or ‘double’ personal transfer (when enactment co-occurs with a depicting sign) among others (Sallandre, 2003). Cuxac (2000) however excludes another category called ‘semi-’ personal transfer (when enactment co-occurs with a lexicalised sign) due to the involvement of conventional semiotics in these instances.

Eye gaze also plays a central role in Meurant's (2008) description of the infrastructure of reference in LSF. In this study, Meurant discusses a range of phenomena that overlap with what is here called constructed action. Meurant's theoretical framework, like the semiological approach, draws on French linguistic traditions of enunciation theories. First, Meurant uses Benveniste's (1966, 1974) concept of ‘conversion’, the process by which language users perceive and interpret utterances. This process is seen as key to understanding how context-dependent values of indexical expressions are resolved or ‘converted’ in discourse. Meurant also adopts a model proposed by Coursil (2000) where the ‘addressee value’ acts

¹³ Here, rather than the occurrence of another meaning-making strategy, the type seems to correspond to a specific social purpose.

as an anchor point for the referential conversion system. This model, Meurant argues, proves useful to account for a wide range of referential phenomena in LSFb. Focusing on the illocutionary value of the ‘addressee’ for reference resolution, Coursil’s model is used as a principled way to defend the existence of a morphological person category in LSFb. Meurant’s analysis is based on the observation of how LSFb signers’ gaze and hands interact in discourse: LSFb signers refer to themselves by simultaneously looking at their addressee and pointing towards their chest. The distinction between second- and third-person reference can be described as signaled by the alignment (or lack thereof) between pointing and gaze direction.¹⁴ Indeed, second-person reference is signaled when pointing and gaze are both directed in the same direction (whereby a second person interpretation emerges). By contrast, LSFb signers refer to third-person referents by directing their gaze and pointing actions to distinct locations.

In addition to distinguishing between three person values in LSFb, this analysis leads Meurant to address other phenomena frequently associated with constructed action and dialogue in the literature. One of these is the notion of personal transfer, a term borrowed from Cuxac’s (2000) semiological approach. Like Cuxac, Meurant points to the co-occurrence of personal transfer with a break in eye gaze address. This break is characterised by an eye gaze closure which interrupts the referential conversion mechanism described earlier for the three-way person distinction. Meurant therefore redefines personal transfers as instances of ‘person neutralisation’. By preventing person values to be ‘computed’, Meurant argues, personal transfers enable a new referent’s perspective to emerge. This iconically represented referent’s perspective becomes an origo for referential mechanisms during the occurrence of constructed action.

Meurant’s account differs from the semiological approach in two ways. First, based on the analysis of gaze as a structuring element in the LSFb referential system, Meurant (2008) argues against the conflation of ‘personal transfers’ with multimodal enacting behaviours found in utterance reports in LSFb. Though Meurant acknowledges the depictive nature of both phenomena, their different patterns of gaze behaviour are interpreted as morphologically distinct. Whereas in constructed dialogue or utterance reports, person values are maintained (a reported addressee is maintained in utterance reports), personal transfers are characterised by the absence of deictic reference to person values because of the break in gaze address (Meurant, 2008, p. 109):

Certes, les formes du discours rapporté manifestent une assimilation entre le corps du signeur et celui d'un personnage. Certes, le regard du signeur y est détourné de l'interlocuteur qui se trouve placé face à lui. Cependant, il ne s'agit plus du regard vague qui efface toute trace d'énonciation, mais au contraire d'un regard fixe, qui installe un second champ énonciatif, et dédouble ainsi point de repère et références déictiques [...].

¹⁴ This summary somewhat overlooks that, based on Meurant’s reappraisal of Coursil’s (2000) research, what is here called ‘second person’ is considered a ‘non-person’ against which first- and third-person reference is computed. Nevertheless, it is believed that this terminological shortcut makes the existence of a three-way referential mechanism more explicit.

Reported discourse forms do indeed exhibit an assimilation of the signer's body to that of a character. In such instances, the signer's gaze is indeed averted from the addressee in front of her. However, this gaze is no longer a vague one that erases any mark of the enunciation process but rather a fixed gaze, which builds a second enunciative field, and so duplicates its origo and deictic referential values [...].

Second, Meurant proposes to adopt a unified approach to 'personal transfer' that includes, unlike Cuxac (2000), 'semi-' personal transfers. This is because, despite their co-occurrence with lexical signs, these cases exhibit both formal and functional properties of 'fuller' personal transfer structures: they are characterised by a break in gaze address too and they likewise provide an iconic portrayal of a referent's internal perspective.

Hence, looking at the semiological approach and at Meurant's (2008) study from a semiotic perspective, they share with role-shifting accounts the use of a marker – eye gaze – 'indicating' a viewpoint shift through a break in gaze address (excluding co-occurrences with lexical units in Cuxac's initial proposal, excluding utterance reporting in Meurant's account). They differ from role-shifting approaches in that this marking enables a depictive reading of the signer's intent.

To summarise, approaches to constructed action in signed languages often recognise that depiction (at least sometimes) plays a role in the phenomena under scrutiny. The idea that enactments of specific actions may lexicalise is also uncontroversial. However, disagreements surface when it comes to the semiotic makeup of constructed action beyond its depictive dimension. According to role-shifting approaches, signed languages have evolved grammaticalised bodily actions which indicate a viewpoint shift. In these accounts, this indicating behaviour is the core of the phenomenon (role-shift) and may be paired with depiction. Some approaches appear to narrow down this indicating function to eye gaze behaviour and otherwise attribute a depictive profile to the behaviour of other articulators. In depictive approaches, speakers' and signers' practices of constructed action and dialogue are essentially iconic and it is the recognition of that depictive intent which enables languages to interpret a viewpoint shift.

As early signed language linguists set themselves the task to promote signed languages as fully-fledged languages on a par with spoken languages, constructed action was probably one of the trickiest characteristics of signed language discourse to account for, notably because of its resemblance, explicitly acknowledged in most research, to speakers' visible bodily actions. Working within largely formalist theoretical frameworks, the first linguists to address the phenomenon sought to make constructed action fit within a rule-based model of language that explains a key feature of constructed action, namely the emergence of a new referent's perspective and a shifted interpretation of indexical expressions. These role-shifting accounts propose that signed languages have developed a specific strategy that conventionally indicates that a context or viewpoint shift has occurred. According to these approaches, by moving one's body so as to make it align with a location in space previously associated with a referent, signers let their conversational partners know that the actions and utterances that they produce are to be interpreted not as their own but rather as those of another referent. Though speakers may to some

extent display similar behaviours, these are not to be considered as part of the core of these languages in the way role shift can be considered part of the grammar of signed languages. In addition, these approaches also often distinguish role-shift from some other viewpoint-shifting actions such as the depictive enactment of referents' (non-linguaging) actions. By contrast, constructed action and dialogue in signed languages have become increasingly likened to their analogues in spoken languages in the functional-cognitive literature. More recently, Neo-Peircean approaches have emphasised that both speakers and signers essentially rely on depiction to represent referents' actions and utterances from an internal perspective, though this strategy often occurs in composite utterances where other semiotics also play a role.

3.6 Fleshing out predictions

Now that different models of constructed action have been described, it is important to contrast what they predict about the respective use of the strategy across signed and spoken languages. This section builds on the predictions presented in Vandennitte (2022a). All accounts converge in the recognition that signers recruit depiction to enact referents' actions according to their local pragmatic intent. Depiction constitutes a more improvised type of semiotics, allowing for more flexibility in how frequently it occurs, and which articulators are selected by languagers to enact referents. These enactments may exhibit intra- and interindividual variation. Indeed, the ways in which languagers enact referents is motivated by context-dependent factors like the referential target, its salience in context, individual preferences or stylistic considerations, among others.

According to depictive approaches, this essentially depictive nature largely applies to all of signers' (and speaker's) enacting behaviours, whether they involve languaging or non-linguaging actions. Conversely, some researchers have argued that depiction is only one part of the picture and have focused on what they claim are conventionalised ways to mark for a referent's internal viewpoint and/or utterance reports in signed languages. These approaches predict that conventionalised non-manual markers (often eye gaze) are obligatory or, at least, more frequent for specific meaning domains. Depending on the account, these domains only include the expression of direct reports (e.g., Herrmann & Steinbach 2012), the expression of attitudes more broadly (e.g., Quer, 2013; Steinbach 2021), or the expression of an internal viewpoint outside of direct reports (e.g., Meurant, 2015). Such articulators are predicted to be used in a systematic way and to exhibit conventionalised form-meaning pairings when used for role shift in signed languages, e.g., eye gaze closure or re-direction, a non-depictive head and/or torso movement towards a position in space associated with the enacted referent. This systematicity contrasts both with depictive constructed action or 'action role shift' in signed languages and any form of constructed action in spoken languages.

4. Comparing Constructed Action Across Signed and Spoken Languages

The preceding sections have presented the main frameworks that have been proposed to account for constructed action. In the remainder of this review, studies documenting the phenomenon are presented, together with the support they bring and/or potential challenges they pose for these theories. Several questions that researchers have sought to answer about constructed action are surveyed. Section 4.1 focuses on how often languages make use of constructed action in discourse. Next, Section 4.2 reports on the use of specific articulators and on their respective frequencies. Section 4.3 reviews the literature on the degrees of overtness of constructed action. Finally, Section 4.4 provides an account of how these three aspects of constructed action exhibit variation at several levels, including sub-communities, discourse, and local communicative intents.

4.1 Frequency of constructed action

4.1.1 Signed languages

Since the emergence of signed language linguistics, researchers have stressed the prominence of constructed action in signed language discourse. The phenomenon has indeed been claimed to be very frequent or even necessary in some contexts.

Quinto-Pozos (2007) refers to constructed action as ‘becoming the object’ and asks whether this strategy may be considered an obligatory one in a signed language like ASL. Quinto-Pozos’ use of ‘obligatory’ here refers to whether it is possible for ASL signers to use other strategies than constructed action to convey the same meaning: *“Presumably a claim that becoming the object is, in some instances, a necessary part of producing ASL [...] would suggest that this communicative device is one that takes on a particularly important role in sign languages”* (p. 1289). Quinto-Pozos examines the production of ASL utterances by 10 signers. After being shown filmed vignettes as elicitation stimuli, the signers were asked to retell the content of each vignette to the investigator, who acted as an interlocutor. After freely retelling for the first time, participants were asked to provide a second, more constrained, rendition of each vignette by avoiding one strategy used in the first retelling (e.g., if constructed action was used by a signer in the first retelling, the participant was asked not to use this strategy in the second one). Participants did not always feel that they could perform the second retelling, as Quinto-Pozos reports: *“all participants produced each first-production clip, but half of the participants refused to produce several second- production clips with the absence of an instance of constructed action that was asked to be excluded”* (p. 1292). In the second part of

the study, 18 other participants responded to both versions of some of the vignette retellings elicited in the first part. After viewing the original vignette, these participants saw filmed elicited retellings in a randomised order (for participants and order of production) and were asked to score the productions according to degrees of clarity and correctness. The results show that in a majority of cases, first retellings were rated as more correct and/or clearer: *“This means that more than half (61%) of the clips were seen as different when, in most cases, either constructed action or an example of a polycomponential sign was not used in the second clip while it had been in the first”* (pp. 1300-1301). Quinto-Pozos concludes that the preference for constructed action and the unwillingness to produce a retelling in which this strategy is removed supports the idea that constructed action is an obligatory and/or preferred device in ASL. In addition, the higher correctness and clarity ratings for clips involving constructed action also support this idea. Hence, at least for some ASL signers, constructed action may be seen as obligatory. For virtually all, it is certainly the preferred strategy in specific contexts.

Despite claims that constructed action is pervasive, studies that quantitatively measure the occurrence of the phenomenon are scarce. However, thanks to the use of signed language corpora, a few quantitative investigations of constructed action have provided data supporting the idea that the phenomenon can take a central place in signed discourse. Looking at Auslan text- and picture-based narrative retellings, Hodge & Ferrara (2014) report that constructed action is found in 34% of the discourse time in their corpus. In a later study on Auslan narrative retellings, Hodge et al. (2019a) report that constructed action co-occurs with 39% of discourse time. In both Saunders (2016) and Parisot & Saunders (2019), the authors look at the use of constructed action by LSQ signers in descriptions of short narrative vignettes to a conversational partner. The phenomenon is found in 57% of the time they used to describe the video stimuli. In an analysis of five FinSL narrative retellings of the Frog Story, Jantunen (2017) reports that constructed action co-occurred with 35% of participants’ discourse time on average.

4.1.2 Spoken languages

In comparison, researchers looking at speakers’ behaviour, whether studying quotation, visible bodily action or both seem to have been less preoccupied with the frequency of constructed action or of utterance reports more narrowly. However, scholars carrying out comparative or typological research have sometimes made claims on the use of utterance reporting across different communities. Comparing the use of constructed dialogue in Greek and American English oral narratives, Tannen (1986, p. 325) observes that Greek speakers recruited the strategy more frequently:

The Greek oral narratives studied are about being molested by men. At the same time that I collected those stories, I also collected narratives told by American women about being molested. The reason I did not use them for comparison with these Greek stories is that in all of them I found only one instance of constructed dialogue. I do not believe that this is because the incidents reported by the American women happened not to involve talk, whereas those reported by the Greek women did. Rather, I believe it is characteristic of Greek storytelling conventions to construct dialogue.

In a similar vein, Noonan (2006) describes the use of direct reporting as a particularly prominent rhetorical device in Chantyal, a Tibeto-Burman language spoken in Nepal. Not only does Noonan claim that utterance reports are more frequent in Chantyal than in English but it also seems that, while not strictly obligatory, quotation plays an important role in the community's languaging practices. Noonan describes the effects of hypothetically stripping a Chantyal text of utterance reporting and replacing reports by sequences conveying similar meanings: *While such a discourse would be fully grammatical, it would be [...] decidedly unidiomatic. Part of being a fluent speaker of Chantyal involves knowing how and when to use quotatives. Quotatives constitute part of the 'flavor' or 'style' of the language* (2006, p. 27).¹⁵

More recently, Yatziv-Malibert & Vanhove (2015, p. 118) compare four unrelated spoken languages: "*Beja (Cushitic), Zaar (Chadic), Juba Arabic (Arabic based pidgin) and Modern Hebrew (Semitic)*". The authors use the number of tokens of utterance reporting with respect to discourse time to compare the phenomenon across languages. In Beja, utterance reporting is close to three times as frequent as in Zaar and more than three times as frequent in Juba Arabic. Interestingly, the authors note that these three languages are the ones which do not have a written system. In comparison, in Modern Hebrew, utterance reports are more than ten times less frequent than in Beja. As the authors acknowledge, these results would benefit from a similarly balanced distribution of discourse genres in future research. For instance, the particularly high frequency of utterance reporting in Beja may be a result of the absence of conversations in the corpus for this language.

Rumsey et al. (2023) survey quotational phenomena in Indigenous Australian narratives across different Australian languages. Utterance reports, based on Rumsey et al.'s description, seem to be frequent across narratives in these languages: "[S]o much of the action, and especially so much of the talk, the thought, the feelings and the perceptions, are presented as direct quotation, often in a very lively and dramatic way" (Rumsey et al. 2023, p. 33). The authors compare the frequency of utterance reporting in oral narratives in several Australian languages as well as in two English written texts, a novel chapter and a personal memoir. Using the amount of words that make up quotes, they provide percentages for each language: 37% for Wurla, 6% and 33% for Ngarinyin, 13% and 44% for Murrinhpatha, 33% and 32% for Bininj Kunwok (respectively in the Kune and Kuninjku dialects), 13% for Kayardild, and 42% and 11% for English (respectively in the Australian English novel chapter and the American English personal memoir). While all texts are not directly comparable and factors like discourse medium should be taken into account, these frequencies do show that utterance reporting can be an important part of discourse in spoken languages. Like for Chantyal, further comparative studies would be needed to ascertain that different community-level tendencies exist across the different languages surveyed. In addition, it would be interesting to compare to what extent speakers of these

¹⁵ By quotative, Noonan (2006) refers here to the combination of framing devices and utterance reports. The author explicitly states that all instances of quotatives discussed in the paper include direct utterance reports.

different languages rely on multimodal strategies when enacting referents' utterances, feelings, thoughts, and actions.

Brown (2008) investigates viewpoint expression in manual iconic visible actions in monolingual speakers and bilingual (i.e., acquiring another language) speakers to check for a potential influence of the L2 on the L1. To do so, Brown needs to first establish a baseline of gestural production by monolingual speakers of both the bilingual participants' L1 and L2, namely Japanese and English. This leads Brown to notice a significant difference in viewpoint expression between monolingual English speakers, who used more observer viewpoint gestures, and monolingual Japanese speakers, who used more character viewpoint gestures, for the four motion events that were gesturally encoded by all participants in a narrative retelling task. Hence, this study shows that different speaking communities may have different viewpoint preferences when producing iconic visible actions, making constructed action possibly more frequent in one community than in the other. A broader study encompassing all potential enacting articulators would make this comparison more comprehensive.

4.1.3 Comparing signed and spoken languages

The studies described above have focused on enactment in specific signed or spoken languages. The present section reviews the literature directly addressing similarities and differences between signed and spoken languages, from comparative claims to data-informed and data-based comparisons. Comparing the frequency of constructed action use across signers and speakers, these studies all point to a similar result. In all surveyed language pairs, signers use constructed action more frequently than speakers do.

Signed language linguists have traditionally been the ones to ask to what extent the patterns that they observed could hold for speaking communities too. In the absence of spoken language data, some researchers have relied on their intuitions of speakers' use of constructed action to compare the phenomenon cross-linguistically. For instance, Herrmann & Pendzich (2018, p. 285) claim that it is not possible to “*find the identical frequency of such comparable strategies in spoken language*”. Quinto-Pozos (2007) comments on the comparability of his results on the obligatoriness of construction action in ASL with spoken language data (see Section 4.1.1). Though underscoring that there are many similarities between signers' and speakers' uses of constructed action, Quinto-Pozos notes that there is no support for the idea that constructed action is an obligatory device in spoken languages. He does point to this issue as a fruitful research avenue: “*An important question for future research is whether or not constructed action is obligatory in certain contexts for users of spoken language*” (p. 1306).

Other studies that have made claims on the cross-linguistic occurrence of constructed action are based on both signed and spoken language data. Some studies mostly point out that speakers and signers both use constructed action. For instance, Janzen (2022) provides a qualitative comparison of ASL signers and English speakers' uses of ‘perspective-taking’ in largely spontaneous narrative data (casual

conversations in ASL and interviews or vlogs for English). Overall, Janzen proposes that once a composite and multimodal approach to ASL and English is taken, apart from potential minor articulatory differences, similarities in terms of viewpoint-taking and enactment are striking: “*the experiential basis of language as embodied is fully realized in the ways that speakers and signers evoke past interactions in past spaces and present them in their current discourse as spatially contextualized*” (Janzen, 2022, p. 253). The bulk of the comparative research, however, provides evidence that corroborates the idea that the phenomenon is more prevalent in signed languages than in their respective ambient spoken languages.

Rayman (1999, p. 63) compares ASL and English narrations of ‘The Tortoise and the Hare’. The comparison indicates that ASL signers “*reliably characterized the rabbit and the turtle as cocky and humble, respectively, and maintained this characterization through use of role-shifting throughout the story*”. By contrast, “*English speakers did not enter into the role of either of the characters*” (p. 63). Marentette et al.’s (2004) study on ASL and English retellings of the ‘Pink Panther’ cartoon also reports that constructed action is more frequent in ASL than in English. Similarly, looking at BSL and English retellings of ‘The Tortoise and the Hare’, Earis & Cormier (2013, p. 340) find that “*depicting characters using expressive elements such as co-speech gesture does not always occur in spoken English, but depicting characters [...] appears to be a very important element of storytelling in signed narratives*”. Quinto-Pozos and Parrill (2015) compare ASL signers and American English speakers’ depictive strategies (constructed action and depicting signs in ASL, character and observer viewpoint iconic gestures in English). These strategies were elicited by asking participants to retell specific events in short cartoon clips that were shown to them. Quinto-Pozos and Parrill found that events that were often depicted by speakers by means of character viewpoint gestures were retold by signers using constructed action, i.e., both groups of participants used the same viewpoint expression strategy. By contrast, for events which speakers retold with observer viewpoint gestures, signers not only used the analogue strategy of depicting signs but also enacted referents. Overall, it can be concluded that constructed action was used across more contexts, and hence more frequently, by ASL signers than by English speakers.

More recent comparative studies directly report on the frequencies of constructed action across signed and spoken languages. Parisot & Saunders (2022) compare ‘character perspective shift’ in the Marqspat Corpus, which includes LSQ and Quebec French data. For each language, they analysed three participants’ productions of constructed action. Participants were exposed to sequences of video clips depicting events (that do not involve communication between individuals) and were asked to describe the stimuli. The specific stimuli chosen for their analysis are “*i) a painter painting a still-life scene, which includes two characters, and ii) a fitting in a shoe store, which includes three characters*” (p. 268). These stimuli were presented in two different versions: one that the authors label as ‘descriptive’, i.e., “*factual events containing no emphatic reactions or actions*” (p. 268) and another labeled as ‘narrative’, i.e., involving ‘emphatic’, dramatic events. Parisot & Saunders report on the proportion of discourse time in which participants enact referents. They observe that constructed action is twice as frequent in LSQ (56% of

discourse time) as in Quebec French (28% of discourse time). Quinto-Pozos et al. (2022) study enactment in ASL and English using descriptions of silent vignettes to a conversational partner by 10 ASL signers and 20 English speakers. They report that across all relevant events identified in the stimuli, signers used an average of 30.2 tokens of enactment (per participant) as against 15.17 for English speakers, making enactment twice as frequent in ASL with respect to English.

Hodge et al. (2023) carry out a comparison of constructed action ('quotatives') in Auslan and a spoken language that is not, remarkably, Auslan's ambient spoken language: Matukar Panau. The corpora were elicited using the same stimulus: the 'Family Problems Picture' task (Hodge et al., 2023, p. 89):

During this task, friends and family members look at a series of 16 drawings of characters represented in scenes that deal with alcohol consumption, abuse, imprisonment, redemption, relationships, and reconciliation. In pairs, people first see the picture cards one by one in a set random order. They are asked to describe each picture card to the other person. After describing all the cards, the pair then work together to arrange the cards in an order that makes sense to them. They then tell a narrative of the story to a third person who comes in at the end of the task.

The authors report that Auslan signers use quotatives/constructed action close to three times as often as Matukar Panau speakers do. Though more analyses comparing signed languages with non-ambient spoken languages are needed, this again shows that constructed action is more frequent in signed languages than in spoken languages investigated thus far.

4.2 Orchestrating different articulators

Several articulators or actions have been claimed to contribute to constructed action across signed and spoken languages. In traditional descriptions of the phenomenon, non-manual articulators have been claimed to play a prominent role in signed languages, potentially more so than in spoken languages (Padden, 1986; Bahan & Suppalla, 1995; Poulin & Miller, 1995). Nowadays, nonmanuals are sometimes still described as markers indicating a role shift instead of or in addition to depicting a referent. Quer (2005, pp. 152-153) and Herrmann & Steinbach (2012) propose that the following non-manuals mark for role shift in LSC and DGS utterance reports: "*slight body shift towards the locus in signing space where the author of the reported utterance has been previously located*", "*break in eye gaze contact with the actual addressee*", "*gaze directed towards the purported addressee of the reported context*", "*change in head position*", and "*facial expression (linguistic and affective) associated with the author of the reported utterance*". However, as the following survey of the literature shows, there is no consensus on which articulator(s), if any, necessarily or frequently contribute(s) to taking on the role of a referent in signed languages. It is also far from clear that some articulators, including nonmanual ones, may be specific to signed languages as it will be shown that all of them are also attested in speakers' constructed action practices. Finally,

this survey also looks at potential conventionalised uses of these articulators which may have emerged from enactment practices.

4.2.1 Hands and arms movements

Despite frequent reports in the early literature and some of the more recent research that constructed action – or some of its types – essentially involves non-manual articulators (e.g., Quer, 2011; Herrmann & Steinbach, 2012; Steinbach, 2021), several researchers have argued that signers’ hands may also contribute to constructed action in signed languages (Metzger, 1995; Liddell & Metzger, 1998; Aarons & Morgan, 2003; Quinto-Pozos, 2007; Quinto-Pozos & Mehta, 2010; Cormier et al., 2012, 2013; Ferrara & Johnston, 2014; Cormier et al., 2015; Quinto-Pozos & Parrill, 2015; Ferrara & Halvorsen, 2017; Herrmann & Pendzich, 2018; Tomasuolo et al., 2020; Jantunen et al., 2020).

A referent’s manual actions may also be depictively profiled by recruiting iconic lexical signs which denote actions such as SWIM or SLEEP (Cormier et al., 2012; Ferrara & Halvorsen, 2017) or handling signs, which Cormier et al. (2012, p. 332) describe as “*handshape units that represent the handling or manipulation of or manual contact with an object, i.e. how the hand is configured when handling a particular referent or a part of it*” (these depictive uses of lexical signs were already mentioned in Section 2.3.6.1). Based on the similarity of handling forms and some iconic lexical signs with speakers’ (manual) ‘character viewpoint iconic gestures’, Cormier et al. (2012) argue that handling signs can be paralleled with constructed action as their production also entails the signer’s hands iconically representing the enacted referent’s hands. Hence, they propose that such instances may fall on a continuum from largely improvised enactment (‘character viewpoint gesture’) to more conventionalised iconic lexical signs. Similarly, Ferrara & Halvorsen discuss iconic signs in NTS as being signs ‘with two faces’ depending on context. What are then the specific contexts that determine whether a manual action will be interpreted as part and parcel of constructed action? Cormier et al. (2012, p. 344) propose that cues of depictive readings may include “*the number of articulators used and/or degree to which the various articulators are active, [...] or the degree of iconicity between production and referent*”. In a similar vein, Ferrara & Halvorsen (2017, pp. 383-384) suggest:

[A]n instance of [an iconic lexical sign] will always provide the potential to be elaborated into a depiction. Thus, if a signer produces the sign SWIM and also recruits the active participation of other articulators, a depictive meaning is profiled more strongly than a descriptive meaning. However, if only a few articulators are active along with the hands, a default, lexical reading of the manual sign may be preferred, which mostly functions to describe what happened.

Finally, another way in which hands have been shown to contribute to constructed action in signed languages lies in the use of constructed dialogue. When enacting an utterance, signers notably make use of manual communicative actions, often conventionalised, which are themselves part of a depiction (Clark & Gerrig, 1990; Hodge & Cormier, 2019). Parisot & Saunders (2022) make another distinction

between the enacting signer's use of hands to merely enact a referent's hand(s) and 'manual' prosody to enact one's signing style while producing the enacted utterance: "*This allows us to distinguish between the use of the hands as the character's hand and the use of the hands as the character's voice*" (2022, p. 270).

Unlike for enactments of non-linguaging actions, no study seems to explicitly report on a lexicalisation process of constructed dialogue in signed languages. However, LSFB could have several contenders. For instance, the repetition of the lexical sign QUAND.8 (WHEN.8) may sometimes 'describe' a meaning translatable as 'impatient/impatience', rather than (only) profiling an enacted referent asking something like "*when when when (are we going/doing this)?*". Another potential candidate could be the sign NO, which can be used to enact a referent saying "*no*" (its standard meaning in non-enacting contexts) but which, in some other contexts, profiles a more generic meaning translatable as 'refuse'.

In spoken language research, hands have been a main object of inquiry for gesture studies for a long time. Following McNeill (1992), many analysts have studied the semiotics and affordances of enacting manual actions (Golato, 2000; Sidnell, 2006; Brown, 2008; Streeck, 2008; Park, 2009; Parrill, 2010, 2012; Bavelas et al., 2014a; Müller, 2014; Thompson & Suzuki, 2014; Blackwell et al., 2015; Debras, 2015; Stec et al., 2015, 2016; Frederiksen, 2017; Arita, 2018; Bressemer et al., 2018; Soulaïmani, 2018). Looking at utterance reports in American English personal narratives, Stec et al. (2016) report that speakers' hands contribute to 20.6% of enactment tokens, depicting the reported utterer's manual actions. It is interesting to note that the reporting of emblems, as a manual action performed by speakers, may also be seen as an instance of 'manual' constructed dialogue in spoken languages (Liddell & Metzger, 1998; Marentette et al., 2004). For instance, Liddell & Metzger define constructed dialogue as the "[a]rticulation of words or signs or emblems" (Liddell & Metzger, 1998, p. 672).

Analysing the influence of diachronic and enchronic processes on the use of manual visible actions, several researchers working in cognitive frameworks have described how some forms may lie on a continuum from highly improvised, *ad hoc* form-meaning pairings to more stable ones, like emblems (see Section 3.5.1). Crucially, some forms labeled 'recurrent' gestures exist somewhere in-between both ends of this continuum: "*By merging conventional and idiosyncratic elements recurrent gestures occupy a place between spontaneously created (singular) gestures and emblems as fully conventionalized gestural expressions*" (Müller, 2017, p. 276). According to Müller (2017), these recurrent gestures emerge from repeated embodied practices – actions – that undergo schematisation. These abstract schemas can then be recruited to perform discourse and interaction regulation functions (Harrison & Ladewig, 2021; Müller, 2017). Crucially, the form of such tokens abstracts away from full-blown performed action towards more reduced and repetitive forms. While these recurrent gestures enter a culture-specific repertoire, they remain prototypes whose form still partly varies as a function of context (Ladewig, 2020; Müller, 2017). As noted in Section 3.5.1, some researchers, like Bressemer et al. (2018), argue that enactment forms may show different degrees of abstraction, depending on how many articulators are recruited in the depiction. The

authors argue that cases featuring enactment with one articulator, e.g., a speaker's hand in their example, lie at one end of the continuum (highly schematic) while full-body enactment is found at the other end (highly depictive).

The literature comparing signed and spoken languages has often simply dismissed comparing signers' and speakers' use of manual enactment, focusing on non-manuals instead. In more recent studies that do tackle the comparison, however, interesting differences seem to arise. Parisot & Saunders (2022) report that use of hands is significantly more frequent in Quebec French, where it occurs in 93% of tokens of constructed action, than in LSQ, where it occurs in 55% of tokens. The explanation provided by Parisot & Saunders (2022, p. 283) relates to the many functions of manual actions in signed discourse: "*Lexical material in LSQ is produced with the hands and the hands are also used to present an event from a narrator's point of view. Therefore, it is not surprising to find that CPS corporeal hand markers are used less frequently than in French*". This result is also supported by Hodge et al. (2023). In a recent study comparing Auslan and Matukar Panau, Hodge et al. (2023) use heatmap dendrograms to cluster individual Auslan signers and Matukar Panau speakers according to their combined use of different articulators for constructed action. This exploratory approach enables the authors to use a representation of a data matrix where values, i.e., columns listing the strength of association between the use of distinct articulators and specific participants, are colour-coded. In this type of representation, clusters and the correlation patterns which drive clustering solutions are made apparent. One of their heatmap dendrograms shows an influence of enacting hand movements, whose higher use by Matukar Panau speakers appears to partly lead to the Auslan-Matukar Panau distinct clusters.

4.2.2 Voice

Speakers are known to use their voice to enact words or sentences. This is indeed one of the key aspects of what has been called 'reported speech' or 'quotation' (Clark & Gerrig, 1990). Pascual (2014) argues that the prominence of conversations (and enacted utterances) in the human experience is such that it results in conversation-mediated cognitive and linguistic routines, notably leading to the emergence of lexical items and grammatical constructions. In spoken languages, chunks of enacted utterances (together with prosodic contours) have been argued to become routine-like and conventionalise. For instance, Haiman (1994) points to the existence of cliché utterances with a routinised prosody in American English such as 'Bo-ring' or (fakely outraged) 'Excuse me?!' as well as the use of repetitions for sarcastic assent.¹⁶

In addition, many researchers have noted that speakers rely on prosodic cues to depict what referents sound like and to enact their emotion and attitude while

¹⁶ Support for the recruitment of conversational routines in the crafting of enacted utterances may also be found in the frequent insertion of elements like interjections and PALM-UP in spoken and signed constructed utterances (Bolden, 2004; McKee & Wallingford, 2011; Nikitina et al., 2023), elements that play a central role in the conversational engine (Dingemanse, 2024; Lepeut & Shaw, 2022).

reporting their utterances (Clark & Gerrig, 1990; Holt, 1996; Klewitz & Couper-Kuhlen, 1999; Bolden, 2004; Sidnell, 2006; Blythe, 2009; Park, 2009; Niemelä, 2010; Bavelas et al., 2014a; Thompson & Suzuki, 2014; Debras, 2015; Stec et al., 2016; Arita, 2018; Bressemer et al., 2018; Soullaimani, 2018; Valeiras-Jurado & Ruiz-Madrid, 2019; Rumsey et al., 2023). In addition to a depictive function, prosodic modulations have also been claimed to indicate shifts from one perspective to another, for instance to distinguish oneself from enacted referents or to tease apart different referents in an enacted conversation (Klewitz & Couper-Kuhlen, 1999). Without providing further detail, Stec et al. (2016) claim that more than half (55.3%) of utterance reports in American English personal narratives featured some prosodic modulation to enact or indicate reported utterers. These prosodic changes may be effected through different properties of the acoustic signal such as pitch/pitch range, volume/intensity, and duration, e.g., rhythm or pauses (Klewitz & Couper-Kuhlen, 1999; Mora & Alvarez, 2003; Oliveira & Cunha, 2004; Bolden, 2004; Yatziv-Malibert & Vanhove, 2015; Fine, 2019).

Even outside (direct) utterance reports, speakers may enact referents' emotion or attitude using voice. This is part of what Clark & Gerrig (1990) call 'non-linguistic quotation'. For instance, speakers could use their voice to enact a shout or laughter. In yet other cases, speakers may use enacting prosody on top of descriptive meaning-making. Clark & Gerrig (1990, p. 791) provide the example of an indirect utterance report co-occurring with a depictive use of voice: "*And then Mrs. Dewlap said that he [raising voice] COULD JUST WAIT FOR HIS TURN WITH THE REST OF THEM [lowering voice] and so he did*".

Several conversational and discourse analysts have described the enacting use of voice, notably in utterance reports, as recruiting stereotypical voice registers. According to Sicoli (2015, p. 105), voice registers are "*linguistic registers in which the primary marker is an acoustic quality of the voice layered on a stretch of talk and used in speech situations to predictably define participant roles, stances, and activities*". Such prosodic patterns have been argued to emerge when specific styles, attitudes, or actions become 'enregistered' (Agha, 2005; Johnstone, 2016; Sicoli, 2015). These voice registers can be recruited into enactments to attribute a specific persona to the reported referent. Enacted 'personae' can include constellations of culturally relevant categories such as gender and authority (Archakis & Papazachariou, 2008; Fine, 2019; McConnell-Ginet, 2011; Mitchell-Kernan, 1972; Szczepek Reed, 2007). These forms appear to be recruited as cultural templates which may influence the selected prosodic forms of enacted utterances.

The inclusion of voice as potentially contributing to constructed action has not been systematically considered in comparisons of signed and spoken languages. However, Earis and Cormier (2013) do argue that British English speakers use pitch to enact referents. In a more recent study, Hodge et al. (2023) study the use of voice both to enact 'speech' (the enactment of spoken words and sentences) and 'voice' (the enactment of prosody). Generating a heatmap dendrogram including all articulators, they observe that the presence of voice in Matukar Panau and its absence in Auslan "*resulted in a very clear and expected grouping of Auslan signers and Matukar Panau speakers*" (p. 112). The authors find that most Matukar

Panau speakers seem to monomodally rely on speech whereas Auslan signers' practices do not include voice and are more varied: “[A]ll Matukar Panau speakers – especially the first seven listed – are highly reliant on speech articulations for quotation, whereas Auslan signers use a broader range of strategies, including their face, mouthing, eyes and head” (p. 112). So far, it appears voice plays an important role in the enactment of referents in spoken languages, notably in constructed dialogue.

Recently, one study has explored the use of voice in both a signed and a spoken language. Parisot & Saunders (2022) compare constructed action in LSQ and Quebec French. In their data, they report that Quebec French speakers used vocal prosody in 1% of tokens of constructed action whereas LSQ signers used their voice in 0.5% of tokens. This surprising result may be explained in two mutually compatible ways. First, Parisot & Saunders report that participants mostly enacted referents' actions and 'gestures' and rarely enacted “*events of thought and discourse*” (p. 281). Second, LSQ signers' use of voice for enactment may be explained in several ways. Some signed language corpora simply have not recorded sound in signed interactions during the collection stage, thereby potentially obscuring a phenomenon that researchers have not considered as central in deaf/deaf signed interactions. The marginal presence of vocal enactment in LSQ signals that signers may use voice to enact referents in some contexts (perhaps with hearing addressees or in front of hearing researchers). This aspect deserves more attention in future research.

4.2.3 Eye gaze

Eye gaze is one of the most frequently mentioned articulators in the literature focusing on constructed action in signed languages (Padden, 1986; Lillo-Martin, 1995; Metzger, 1995; Poulin & Miller, 1995; Liddell & Metzger, 1998; Rayman, 1999; Aarons & Morgan, 2003; Cuxac, 2000; Quinto-Pozos, 2007a; Meurant, 2008; Quinto-Pozos & Mehta, 2010; Quer, 2011; Herrmann & Steinbach, 2012; Cormier et al., 2015; Engberg-Pedersen, 2015; Risler, 2016; Saunders, 2016; Kimmelman & Khristoforova, 2018; Herrmann & Pendzich, 2018; Parisot & Saunders, 2019; Puupponen, 2019; Jantunen, Puupponen, et al., 2020). Many accounts report that the phenomenon involves a break in gaze address (e.g., Meurant, 2008; Quer, 2011; Risler, 2016; Haiman, 2020). Sometimes, this break is characterised by a re-direction towards a location in space that is associated with a referent. This would notably be the case in constructed dialogue, as Herrmann and Steinbach (2012) propose, when the said referent corresponds to a constructed addressee. In their study, Herrmann and Steinbach report that 86% of utterance reports occurred with a break in gaze address in DGS elicited data. In a similar study on utterance reports in RSL (Russian Sign Language), Kimmelman & Khristoforova (2018) analyse a corpus of spontaneous narratives and report that only 57% of reports involved changes in gaze direction.

In spoken languages too, languagers can use gaze behaviour to enact a referent as looking towards something or at someone (e.g., Sidnell, 2006; Park, 2009; Fox & Robles, 2010; Niemelä, 2010; Ivanova, 2013; Thompson & Suzuki, 2014;

Blackwell et al., 2015; Debras, 2015; Stec et al., 2015, 2016; Frederiksen, 2017; Stec et al., 2017; Arita, 2018; Bressemer et al., 2018; Soullaimani, 2018; Valeiras-Jurado & Ruiz-Madrid, 2019). Here too, a break in gaze address has been described (Sidnell, 2006; Thompson & Suzuki, 2014; Stec et al., 2016). Stec et al. (2016) report that 71.4% of utterance reports in American English dyadic retellings of personal stories exhibited gaze ‘activation’ for constructed action. These gaze aversion patterns have even been claimed, in a way similar to what has been put forward in signed language linguistics, to help parse enacting and non-enacting segments of discourse (Sidnell, 2006). Interestingly, Thompson & Suzuki (2014) report that speakers may keep looking at their addressees in some instances of constructed action. Their analysis is that in such cases, “*reenactors use gaze as a resource to visually designate their recipients to stand in for characters in the original event*” (p. 841).

To summarise, eye gaze is one of the most frequently mentioned articulators in the literature on constructed action across both signed and spoken languages. Though it has frequently been described as playing a distinctively central role in signed languages, it remains unclear whether some or perhaps all of the functions attributed to eye gaze may be found in spoken languages too. It is also striking that the few corpus studies having reported quantitatively on the phenomenon find enacting eye gaze to be optional rather than obligatory in signed languages.

In comparative analyses, gaze has been described as more systematically used in signed than in spoken languages in early comparisons (e.g., Rayman, 1999; Earis & Cormier, 2013). However, a recent quantitative study qualifies the idea that gaze behaviour shows such significant differences across LSQ signers and Quebec French speakers. Parisot & Saunders (2022) compare informants’ use of constructed action in descriptions of vignettes. The authors observe that gaze is frequently active in both LSQ (97%) and Quebec French (82%) and report that no significant difference could be found between the two language groups. However, Hodge et al. (2023) report that the higher use of eye gaze in Auslan than in Matukar Panau contributes to the grouping of Auslan signers and Matukar Panau speakers in different clusters within their heatmap dendrograms.

4.2.4 Facial expression

The use of facial expression to enact a referent’s emotions or attitudes during constructed action and dialogue has been extensively mentioned in signed languages (Padden, 1986; Engberg-Pedersen, 1993; Lillo-Martin, 1995; Metzger, 1995; Poulin & Miller, 1995; Liddell & Metzger, 1998; Rayman, 1999; Aarons & Morgan, 2003; Janzen, 2004; Meurant, 2004; Quer, 2005; Quinto-Pozos, 2007; Quinto-Pozos & Mehta, 2010; Quer, 2011; Herrmann & Steinbach, 2012; Cormier et al., 2013; Earis & Cormier, 2013; Ferrara & Johnston, 2014; Cormier et al., 2015; Engberg-Pedersen, 2015; Quinto-Pozos & Parrill, 2015; Saunders, 2016; Herrmann & Pendzich, 2018; Parisot & Saunders, 2019; Puupponen, 2019; Quer, 2019; Jantunen et al., 2020; Hodge et al., 2023). In addition to its obvious depictive qualities, face has sometimes been described as one of the key articulators signaling a shift in perspective in signed languages (e.g., Padden, 1986). In their study on

DGS, Herrmann & Steinbach (2012) report that enacting facial expression co-occurred with 98% of the utterance reports in their elicited corpus. More recent studies have started breaking down facial expression into smaller sub-parts in constructed action research. For instance, Hodge et al. (2023) distinguish between using the face to enact facial expression (e.g., frowning or opening one's mouth to express surprise) and the use of one's mouth to enact mouthing (i.e., articulating spoken language words).¹⁷

Several signed language linguists have pondered the nature of non-manual actions like facial expressions, and asked whether some undergo grammaticalisation (Boyes-Braem & Sutton-Spence, 2001; Cuxac, 2000; Johnston, 2018; Johnston et al., 2016; Mohr, 2014; Pfau & Quer, 2010). To give a few examples, there have been questions about the inclusion of some nonmanual characteristics as part of lexical forms on a par with the manual component, notably for lexical signs denoting affect (Fenlon et al., 2017; Sutton-Spence & Woll, 1999). Questions have also been raised about the use of tongue protrusion to denote an attitude of carelessness or clumsiness across several signed languages (Johnston et al., 2016; Lewin & Schembri, 2011; Sutton-Spence & Woll, 1999). Johnston et al. (2016) refer to studies showing that this form is not only found in signed languages and is overall related to the display of physical rejection and, by metaphorical extension, social exclusion (as in 'not caring' about social norms). The authors also point out that the category of mouth actions to which this form belongs shows noteworthy co-occurrence patterns with enactment but are not restricted to enacting contexts (Johnston et al., 2016, p. 32):

It would appear that many adverbial A-type mouth gestures represent expressive or iconic/mimetic mouth enactments that can also be used with some signs when no overt constructed action is actually being performed, rather than being examples in which constructed action has 'co-opted' adverbial A-types. It is not clear to what extent we can consider the above mouth gesture types as specific to any signed language, and it is likely that many form part of a more general semiotic system.

One could ask whether these form-meaning pairings, whose meaning are in some sense 'enregistered' across different cultures, could have been frequently conjured in constructed action in signed languages, and subsequently conventionalised.¹⁸ This conventionalisation should not however be seen as leading to obligatoriness of use. Similarly to Ferrara & Halvorsen's (2017) account of lexical signs, Puupponen (2019) argues that some non-manuals have '*many faces*': "[*t*]ypes for tokens may emerge from iconic and indexical nonmanual cues, and on the other hand, elements which may have a more conventional or schematized form-function connection may be used in gradient and unconventional depiction" (p. 30).

In spoken languages too, facial expression has been mentioned as an articulator used to enact referents, including while constructing an utterance (e.g., Park, 2009; Fox & Robles, 2010; Niemelä, 2010; Bavelas et al., 2014a, 2014b; Debras, 2015; Stec et al., 2015, 2016; Frederiksen, 2017; Stec et al., 2017; Arita, 2018; Bresse

¹⁷ Mouthing has been categorised as one way to construct dialogue in signed languages but has received little attention in research on constructed action.

¹⁸ See also Cuxac (2000) on personal transfer stereotypes.

et al., 2018; Valeiras-Jurado & Ruiz-Madrid, 2019). Stec et al. (2016) report that when constructing utterances in personal narratives told to a friend, American English speakers enacted reported utterers' facial expression in 47.7% of instances.

Facial expression has been attributed key functions in both signed and spoken discourse. One possible difference seems to lie in frequency. Whereas the strategy seems highly frequent in DGS (Herrmann and Steinbach 2012), it is relatively rarer in spoken American English (Stec et al. 2016). However, it would be safer to rely on more directly comparable data as these two studies were conducted with different methodologies. Qualitative comparisons also support the idea that facial expression is more systematically used in signed than in spoken languages (Rayman, 1999; Earis & Cormier, 2013). Two recent quantitative studies also report a higher use of face by signers. In LSQ and Quebec French, Parisot & Saunders (2022) report a significant difference in the use of facial expression. Whereas signers enact referents' faces in 98% of constructed action tokens, this number lowers to 37% for Quebec French. Parisot & Saunders (2022, p. 283) offer a microgenetic explanation for this result: "*The lower frequency of facial expressions by French speakers in the dataset could be explained by the fact that there is competition to use the mouth for facial expressions or to produce spoken narration*". In Hodge et al.'s (2023) comparison, the positive association between Auslan signers and the recruitment of facial expression is shown to contribute to the clustering solution (when only the articulators that both language groups have in common are included). Hence, based on prior literature, it appears that facial expression contributes to constructed action more frequently in signed than in spoken languages.

4.2.5 Head and torso movements

Mentions of enacting head and torso movements are also frequent in studies on signed languages (Padden, 1986; Lillo-Martin, 1995; Metzger, 1995; Engberg-Pedersen, 1993; Liddell & Metzger, 1998; Rayman, 1999; Aarons & Morgan, 2003; Quer, 2005; Pyers & Senghas, 2007; Quinto-Pozos, 2007; Quinto-Pozos & Mehta, 2010; Quer, 2011; Cormier et al., 2013; Earis & Cormier, 2013; Ferrara & Johnston, 2014; Cormier et al., 2015; Engberg-Pedersen, 2015; Saunders, 2016; Herrmann & Pendzich, 2018; Puupponen, 2018; Parisot & Saunders, 2019; Puupponen, 2019; Jantunen et al., 2020). Head and torso movements are described under the same category here because they frequently co-occur to perform constructed action. Puupponen (2018) notes that in 70% of co-occurring head and torso movements identified in a corpus of FinSL narratives, the articulators are both used to enact referents.

Within the 'role shift' tradition, head and torso movements have often been described as conventionally indicating a perspective shift in signed languages (see Section 3.5.2). For instance, Herrmann & Steinbach (2012) report that DGS utterance reports co-occur with the use of head movements and upper body leans in respectively 77% and 48% of instances. In a study on RSL utterance reports in spontaneous narratives, Kimmelman & Khristoforova (2018) report that 84% of quotes co-occurred with head turns whereas torso movements were found in 51%

of quotes. These numbers appear relatively low if one wishes to defend a status of head and body movements as role shift ‘markers’. As Kimmelman & Khristoforova (2018, p. 101) suggest, these frequencies rather support a more flexible account of the phenomenon as reflecting individual and contextual factors: “[t]he optionality of non-manual marking can be explained by the variation in how precise and how expressive the signer decided to be when quoting someone”. This stance is complemented by several reports in the literature on the optionality of ‘body shifting’. For instance, Janzen (2004, p. 152; 2012) argues that ASL signers frequently shift perspective without shifting their own bodies: “signers frequently manipulate the spatially constructed scene in their discourse by mentally rotating it so that other event participants’ perspectives align with the signer’s stationary physical vantage point”. Looking at ASL narratives, Janzen shows how perspective shifts may involve a rotated space, “as if it were on a mental turntable” rather than signers repositioning themselves in a static space (2004, p. 162). Similarly, Quinto-Pozos and Mehta (2010) report that such torso movements do not occur across all contexts and registers, undermining the claim that they are necessary in constructed action tokens.

In addition to the frequency of head and torso movements, some researchers have also provided fine-grained accounts of what types of movements are recruited. Puupponen’s (2018, p. 205) description shows the diversity of form-meaning pairings exhibited by enacting head and torso movements in a corpus of FinSL narratives:

[f]orward torso and head movements [...] were used in dynamic bodily depictions in CA sequences that conveyed meanings such as opening a door, going inside, digging and searching for something, and looking at something. Backward head and body movements [...], on the other hand, were found in depictions of more static positions or states in CA sequences and conveyed meanings such as looking at a snowman from a distance, going to sleep (or sleeping), sitting relaxed, and being amazed. Backward torso and head movements represented dynamic features of referents in contexts such as flinching away from the heat. [...] Compared to simultaneous head and torso movements in the backward-forward dimension, torso and head movements in the left-right dimension performed more varied functions. In CA sequences, head and torso movements to the left and the right convey meanings such as searching, looking for something, and looking around. Such movements also appeared in reference tracking in the discourse: They were directed to previously established meaningful locations in the signing space during CA depictions or other parts of the discourse.

The array of head and torso movement types described in the preceding excerpt shows that the information gathered by focusing on the overall activation or contribution of an articulator remains fragmentary. Research striving towards a better understanding of what these movements convey is therefore warranted.

In spoken languages, head and torso movements have equally been mentioned as being used to enact referents (Golato, 2000; McClave, 2000; Fox & Robles, 2010; Niemelä, 2010; Ivanova, 2013; Bavelas et al., 2014a; Thompson & Suzuki, 2014; Blackwell et al., 2015; Debras, 2015; Stec et al., 2015, 2016; Frederiksen, 2017; Stec et al., 2017; Arita, 2018; Bressemer et al., 2018; Soulaïmani, 2018; Valeiras-Jurado & Ruiz-Madrid, 2019). In Stec et al. (2016), head and body movements are studied as one category of ‘posture changes’. The authors note that in 84.7% of

utterance reports occurring in personal narratives, American English speakers enacted referents' posture.

Head and torso movements seem to serve at least partly similar functions across signed and spoken languages once the linguistics literature is complemented with research in gesture studies. In addition, head and torso movements do not seem to exhibit the obligatoriness often described in accounts defending their grammaticalised status in signed languages. Results of studies directly comparing signed and spoken languages also seem to be problematic for traditional claims. In a recent study, Parisot & Saunders (2022) report that LSQ signers use their head in 100% of tokens of constructed action and their torso in 92% of tokens. By contrast, Quebec French speakers' head and torso movements contribute to constructed action in respectively 86% and 85% of tokens. Contrary to prior studies suggesting that non-manuals may be more systematic in signed languages, the use of enacting head and torso movements seems quite similar across LSQ and Quebec French. In Hodge et al.'s (2023) study, torso movements were reported as infrequently contributing to constructed action in Auslan. In addition, based on the heatmap dendrogram that Hodge et al. (2023) use, it seems that Matukar Panau speakers rely on enacting head movements more prominently than Auslan signers do.

4.2.6 The lower half of the body

Across both signed and spoken languages, the literature mentioning the use of the lower half of the body for constructed action is scarce. In some of the literature on signed language linguistics, the use of legs and/or feet is sometimes described as infelicitous or non-existent (Perniss, 2007; Herrmann & Pendzich, 2018). This goes against several reports of signers of diverse signed languages using their legs and feet to enact referents (Aarons & Morgan, 2003; Quinto-Pozos & Mehta, 2010; Jantunen et al., 2020; Vandenitte, 2021). Research on speakers' use of constructed action mentioning the contribution of the lower half of the body is rare. Bavelas et al. (2014) mention the use of legs for constructed action. In instructional settings such as dance classes, Keevallik (2010) also reports that the lower half of the body may be used to depict and provide examples. Though languagers may rely on the lower half of the body more rarely, speakers and signers alike sometimes use these articulators to enact referents.

4.2.7 Reevaluating claims about articulation differences between signers and speakers

After a traditional emphasis on the use of nonmanual articulators in signed languages, such as eye gaze, facial expressions or torso movements, to express a shift in perspective, studies comparing signed and spoken languages seem to nuance long-held beliefs. First, the very articulators deemed specific to signed languages were found to be used by speakers too when enacting referents, though their use may be less frequent or systematic than in signed languages. In addition to having shown that speakers have a multimodal enacting repertoire at their disposal, recent studies have also downplayed the idea that signers obligatorily use specific

articulators to enact referents and/or indicate a perspective shift. Rather, the choice of articulators that are used to enact a referent depends mostly on more contextual, local choices. Ferrara & Johnston (2014, p. 201), for instance, claim that “*there is not a formal list of features that identify constructed action, because their use depends on what is being enacted in any given instance*”.

In addition to reevaluating claims of signed ‘exceptionalism’ and related claims of obligatoriness of use for some articulators in constructed action in signed languages, more recent studies also rely on broader causal frameworks to explain observed differences. For instance, the higher use of facial expression by signers than by speakers often reported in the literature has been explained in microgenetic terms as competition in the use of the face for constructed action and the articulation of speech (Parisot & Saunders, 2022). Similarly, the use of hands for non-enacting signing in signed languages may compete with the use of manual articulation for constructed action (Parisot & Saunders, 2022; Hodge et al., 2023). After reviewing each articulator in detail, it is also important to consider their coordination.

4.2.8 A global picture of constructed action: Coordinating articulators

To have a more comprehensive picture than an articulator-specific outlook on constructed action, researchers have attempted to describe how different articulators may combine. This approach was already discussed in Hodge et al.’s (2023) use of heatmap dendrograms. In addition, researchers have also operationalised a new variable related to the number of articulators used within tokens of constructed action. Yet other researchers have noted that, at least in signed languages, one can use distinct body parts for different purposes, including the enactment of different referents.

Seeking to quantify the phenomenon by adding up the number of articulators used for each token of constructed action, researchers have been able to extract mean measures for individual participants or language groups.¹⁹ For instance, Stec et al. (2016) devise an ‘articulator count’ to measure how many articulators are used on average during constructed dialogue. The authors report that American English participants used an average of 2.8 articulators when reporting utterances in their personal narratives. This attests to the multimodality of utterance reporting and leads the authors to liken the phenomenon to signed languages even though they assume that signed enactment may recruit more articulators on average: “*This coordination is similar to role shift practices in sign. While overall fewer articulators than in sign are used, some kind of viewpoint shift does occur*” (Stec et al. 2016, p. 12). Hodge et al. (2023) also propose a similar measure for Auslan and Matukar Panau: the expressivity index. They report that Auslan signers used an average of 2.41 articulators whereas Matukar Panau used an average of 1.68. Hodge et al. also stress that interindividual variation was substantial in their sample with some Matukar Panau speakers exhibiting an expressivity index closer to those found for Auslan signers. Because of their being measured in different contexts

¹⁹ See also Bresse et al.’s (2018) notion of semiotic complexity based on the number of enacting articulators.

(constructed dialogue exclusively for Stec et al. 2016 as against constructed action more broadly in Hodge et al., 2023) and due to their different typologies of articulators, the average numbers in these two studies cannot be easily compared. Future studies, however, may lead to a better global understanding of constructed action by systematically using the same measures across comparable contexts.

Several researchers have noted that signers sometimes orchestrate different body parts to simultaneously enact two referents (e.g., Engberg-Pedersen, 1993; Dudis, 2004). Dudis (2004) coins this phenomenon ‘body partitioning’ and proposes that the signer’s hands and face play a particular role in the phenomenon (2004, p. 229). For instance, if a signer is telling about someone punching someone else in the face, two options are available in SASL: either the signer’s whole body – face and hands included – may be enacting the attacker or, using body partitioning, the signer may map the assailant’s hands on their own hands and the victim’s body on their own body, in particular their face. In this alternative instance, the signer directs the demonstrated punch towards their own space, using different body parts to simultaneously enact two referents.

As has been shown, analysing constructed action requires going beyond the analysis of individual enacting articulators to look more globally at how they form multimodal ensembles and are sometimes used distinctly to enact different referents.

4.3 Using different degrees of constructed action

Throughout the years, the literature on constructed action in spoken and signed languages has emphasised that signers’ forms of enactment may be located on a continuum whereby some forms are considered to exhibit stronger or milder instances of enactment. The criteria used in typologies of such degrees, however, are not fully agreed upon in the literature.

4.3.1 Spoken languages

The well-known continuum labelled ‘Kendon’s continuum’ by McNeill (1992) already distinguishes between phenomena comparable to constructed action based on, among other criteria, whether or not they occur with speech. The continuum involves the following elements, in the order proposed by McNeill (1992, p. 37): “*Gesticulation* → *Language-like Gestures* → *Pantomime* → *Emblems* → *Sign Languages*”. McNeill’s ‘gesticulations’ include what he also calls character viewpoint iconic gestures. This end of the continuum is characterised by individual sequences of gestures that are most likely to co-occur with speech. Pantomime, by contrast, does not require accompanying speech and may feature sequences of gestures depicting actions. A typology of enacting behaviours is further pursued in Gullberg’s (1998) proposed expansion of Kendon’s continuum. Gullberg (1998) notably compares Swedish and French speakers’ use of constructed action in their L1 and L2 according to three categories: ‘mimetic iconic gesture’, ‘highly mimetic

gesture’, and ‘true mime’. This typology is largely based on the use of specific articulators: mimetic iconic gestures involve mostly the speaker’s hands whereas in highly mimetic cases, they would additionally rely on more articulators. Finally, Gullberg proposes that true mime involves the use of one’s head to enact.

A similar typology is proposed by Bressemer et al. (2018) for the use of constructed action (excluding the use of speech). The authors argue that constructed action forms exist on a continuum between more schematised, less richly iconic tokens where a single articulator is used and more richly iconic, pantomimic tokens of constructed action in which three or more articulators are used to enact referents (as mentioned in Section 3.5.1). In Bressemer et al.’s terminology, the number of articulators corresponds to variable degrees of semiotic ‘complexity’: “*Based on the observation that character viewpoint gestures involve more body parts in the mimetic representation of actions, we pursue the matter of whether these depictions may show different ranges of semiotic complexity*” (Bressemer et al., 2018, p. 226).²⁰ A reasoning similar to that of Gullberg and Bressemer et al. is used in the early research addressing degrees of constructed action in signed languages.

4.3.2 Signed languages

Lentz (1986) paints a picture of enactment (‘role-shifting’) as displaying different degrees. In some cases, a signer may enact a referent using only facial expression. In others, they may report a referent’s utterance. The former scenario is described by Lentz as minimal role-shifting whereas the latter one corresponds to a maximal instance. Liddell (2003, p. 315) summarises Lentz’ reasoning: “*in maximal role-shifting, more of the signer’s body is involved*”. Herrmann and Steinbach (2012), like Lentz, claim that utterance reports may fall on a cline from minimal to maximal marking depending on the number of articulators being activated. Though they explicitly acknowledge that constructed action falls on a continuum, Quinto-Pozos & Mehta (2010) use similar criteria to categorise constructed action as falling into three main types or degrees: ‘slight’, ‘moderate’, and ‘exaggerated’. These types are best described as the extent to which an enacting movement is noticeable or striking (Quinto-Pozos & Mehta, 2010, p. 568):

“Slight” refers to constructed action that is primarily subtle in nature such as a noticeable – but minimal – shifting of the torso to depict a character’s movement or a “shocked” facial expression that displays only a narrow opening of the mouth. “Exaggerated” can be described as the opposite of “slight”: constructed action that appears overly dramatic and emphatic. As such, a torso shift to depict how a character turns to one side or a wide opening of the mouth to demonstrate a character’s sense of shock would be categorized as “exaggerated”. “Moderate” lies between the two extremes and captures examples of constructed action that are obvious but that do not appear overly emphatic or dramatic.

Their typology is based on the kinematic magnitude of articulator use rather than on the number of articulators or on co-occurring material (though when signers use their hands to enact, the manual articulators will often not be available to produce

²⁰ Bressemer et al.’s use of the phrase ‘semiotic complexity’ does not refer to the combination of different types of semiotics but rather to the recruitment of several articulators to depict a referent.

other material).²¹ This means that even if several articulators are involved, a token of constructed action may still be categorised as ‘slight’ provided these articulators show subtle enacting movements.

Other authors seem to locate constructed action on a continuum based on the extent to which it co-occurs with other material in signed languages, in a way similar to McNeill’s distinction between ‘gesticulation/gesture’ and ‘pantomime’. For instance, Metzger (1995) notes that constructed action can be described as falling on a continuum from using exclusively constructed action to using it subtly. Constructed action may occur on its own or with little use of lexical items (‘direct action’), in a more limited fashion with more conventional semiotics (‘simultaneous direct and indirect action’), or even be subtle with respect to other co-occurring meaning-making strategies (‘indirect action’). Sallandre (2007, p. 108) also discusses different types of ‘personal transfer’ based on the co-occurrence of the phenomenon with depicting signs or fully-lexicalised material in LSF (see also Section 3.5.2):

These types of extremely iconic structures can be divided into different transfers of person arranged along a continuum, starting from a high to a low degree of embodiment: ‘personal transfer’ [...] is a complete role playing; ‘double transfer’ (DT) combines simultaneously a personal transfer for acting and a situational transfer for locative information or for a second character; and ‘semipersonal transfer’ is partial role playing, accompanied by brief frozen signs. There are in fact around twenty different transfers of person [...] but these three categories are the most common in LSF discourse.

Meurant (2008) also stresses that ‘personal transfer’ structures need not involve all bodily articulators in LSF, where the phenomenon is shown to co-occur with more conventionalised meaning-making such as lexical signs. However, unlike Cuxac (2000), Meurant argues that both full-body personal transfers and their ‘partial’ analogues (which co-occur with other referential strategies) exhibit the same gaze behaviour and result in the iconic interpretation that the signer takes on a referent’s perspective. Therefore, these seemingly different types of personal transfer warrant a unified treatment without sub-categories (2008, pp. 106-109).

Cormier et al. (2015) use several criteria listed above, including the number of articulators, kinematic characteristics (e.g., movement amplitude) and co-occurrence with other material to propose a measure of the degree of constructed action as reflecting the relative prominence of the referent being enacted with respect to the ‘narrator’s (i.e., enacting languager) role or perspective. They argue that the identification of roles is important inasmuch as it can help examine whether the use of specific articulators exhibits enactment or is driven by a different referential or interactional goal. Another reason why identifying roles is important to Cormier et al. is that this approach enables one to capture instances where a character role is present but not necessarily prominent. Cormier et al. distinguish between primary and secondary role (‘Role 1’ and ‘Role 2’ in their proposed annotation guidelines). If no constructed action occurs, ‘Role 1’ was annotated

²¹ As pointed out in the literature review, however, iconic lexical signs may fall on a continuum between productive, depictive uses and more conventional ones.

using the value ‘narrator’ (i.e., the signer’s primary role is themselves). If constructed action was identified during a stretch of discourse, either ‘Role 1’ or ‘Role 2’ have to take the value ‘character’ (i.e., enacted referent). Several cases are presented by the authors.

When several articulators are identified as contributing to constructed action and the signer produces no lexical material (from a ‘narrator’ point of view), the signer is considered to take on one single role, namely that of the enacted referent. In such cases, Role 1 is annotated as ‘character’ (and no value is used for Role 2). By contrast, if a signer uses few articulators to enact a referent, the signer’s primary role is annotated as ‘narrator’ while ‘character’ is used on the Role 2 tier. Because of potential cases of multiple roles being simultaneously enacted (see Section 4.2.8 on body partitioning), they note that both Role 1 and Role 2 may potentially be coded as ‘character’, with the more prominent role (for instance, in terms of number of recruited articulators) being coded as Role 1. The criteria used to determine role prominence include the presence of “*simultaneous elements involved such as lexical material or entity classifiers, and also by the number of CA articulators used and the extent to which the CA articulator tiers were active*” (Cormier et al., 2015, p. 188).

Looking at the combination of values annotated for Role 1 and Role 2, they note that different prototypical ‘degrees’ emerge. First, when no constructed action occurs, the primary role is that of ‘narrator’ as the “[s]igner [is] narrating with no elements of CA” (p. 198). In addition to no constructed action (and role being annotated as ‘narrator’), three abstract points on a continuum of constructed action can be singled out: ‘overt’, ‘reduced’ and ‘subtle’ constructed action. Overt constructed action is characterised by the absence of narration (i.e., material produced from the enacting signer’s perspective) and by a high number and/or intensity of articulators contributing to constructed action.²² In overt constructed action, the signer is perceived to fully take on the enacted referent’s perspective. In reduced constructed action, the signer is deemed to be mostly adopting the enacted referent’s perspective, as cued by the use of many articulators for constructed action. However, the occurrence of some ‘narrative’ material means that the enacting signer’s perspective is present too. Finally, in subtle instances of constructed action, the kinematic contribution is weak and/or characterised by fewer articulators with a possible occurrence of simultaneous material produced from the enacting signer’s viewpoint. Though the enacted referent’s perspective is present, it is the enacting signer’s that is prominent.

Several studies have analysed the distribution of degrees or types of constructed action as a dependent variable. In a study on register- and audience-related variation, Quinto-Pozos and Mehta (2010) found that children-directed discourse exhibited less ‘slight’ constructed action than the other settings. Also, formal settings were the least likely to trigger the use of ‘exaggerated’ constructed action. Saunders (2016) reports that LSQ signers used constructed action in 57% of discourse time while telling about four video vignettes which they had just watched.

²² But see Puupponen et al. (2022) for a discussion of cases where a static referent is enacted and lack of/use of weak movement can be found in overt constructed action.

Using a slightly different terminology, Saunders uses a similar typology to the one proposed by Cormier et al. (2015). Within the 57% of discourse time in which constructed action occurred, 16% of discourse time was used to produce full (i.e., overt) constructed action, 38% for partial dominant (i.e., reduced) constructed action, and 3% was used to produce partial non-dominant (i.e., subtle) constructed action. Puupponen et al. (2022) compare the use of constructed action by 6 younger FinSL signers and 6 older FinSL signers while performing two tasks: conversations about their daily activities and narrative retellings. Puupponen et al. show that the same distributional hierarchy of degrees of constructed action is found in FinSL stories and conversations: overt constructed action is the most frequent type. Next, subtle constructed action is the second most frequent degree. Finally, the least frequent type is reduced constructed action. Their results show an influence of age and discourse genre on the distribution of degrees of constructed action. First, though overt forms are the most frequent ones in both narrative and conversational data, they are significantly more prominent in stories. Second, focusing on narratives, the authors note that the frequency of overt enactment is significantly heightened in older signers who use it twice as often as younger adult FinSL signers.

It is important to note that the proposed annotation scheme was developed to analyse data in which no utterances are enacted. Cormier et al. do propose an alternative coding scheme that applies to ‘quotative’ constructed action. Like in the procedure developed for non-quotative constructed action, they propose that even when signers quote (instead of producing material from the signer’s perspective), one may distinguish between subtle, reduced and overt quotative constructed action based on the number and intensity of articulator activation and the (resulting) intuition of role prominence. This extension may be seen as contradictory with the authors’ definition of constructed action as including the enactment of utterances. Though it is true that highly conventionalised signs are often used in utterance reports, they may be seen as integrated within the whole depictive act (Clark & Gerrig, 1990). This is also supported by the widespread claim that direct quoting involves taking on the reported utterer’s perspective (see Section 3.4.1). Therefore, it may be more coherent to treat instances of direct reports as cases of overt constructed action.

Another revision of Cormier et al.’s proposed guidelines is argued for by Jantunen et al. (2020). The authors used motion capture of head and upper torso movements to kinematically evaluate FinSL data already annotated for degrees of constructed action. They analysed storytelling by standing signers and kept only the constructed action type annotation cells that were found in the second and third quartiles in terms of duration (as they believed long and short instances would skew the results). Analysing mean values for a series of parameters including “*horizontal movement area as well as the speed and acceleration of the head and upper torso*” (p. 79), they observe both that head and torso movements are faster and occupy a larger horizontal area in reduced and overt constructed action than in the subtle type or when there is no constructed action. Jantunen et al. also observe that not all differences reach significance levels: ‘regular narration’ is not significantly different from ‘subtle constructed action’, nor is the ‘reduced’ type with respect to ‘overt’ constructed action. As a result, they argue that there may be no need for a

tripartite typology and propose distinguishing ‘strong’ and ‘weak’ constructed action.

4.3.3 Comparing signed and spoken languages

Quinto-Pozos et al. (2022) also compared ASL signers’ and English speakers’ distributions of degrees of enactment. This study adopts the method used in Quinto-Pozos & Mehta (2010) to code for degrees of constructed action. Importantly, each individual token of constructed action (corresponding to an annotation cell) received only one degree value, as opposed to considering that there may be degree variations within single tokens of constructed action. This means that the presence of any (even just one) articulator exhibiting exaggerated enacting behaviour led to the annotation of the whole token as ‘exaggerated’. In the same vein, if multiple articulators were active but were used in subtle ways, the token of constructed action was coded as ‘subtle’. ‘Exaggerated’ enactment was used in 14% and 36% of enactment tokens in English and ASL, respectively. ‘Moderate’ enactment shows an inverse tendency as English speakers used it in 65% of tokens, as against 40% in ASL. Finally, ‘slight’ enactment was used at a similar frequency in ASL (24%) and English (21%). The authors point to several factors that drove these differences. First, there was considerable inter-individual variability (e.g., less than half of English speakers used exaggerated enactment and a few participants for both languages concentrate most tokens of this kind). Second, this different distribution of degrees, notably the higher use of exaggerated forms in ASL, may be related to signers’ rarer use of simultaneity with respect to speakers: speakers more frequently combined conventionalised meaning-making (in speech) with constructed action whereas signers less frequently combined constructed action with lexis or depicting signs.

As seen in the preceding discussion of degrees of constructed action, there is no consensus in the literature about the criteria used to identify different degrees of constructed action. For some researchers, the degree of overtness may strictly correspond to the number of articulators used (Lentz, 1986; Liddell, 2003; Herrmann & Steinbach, 2012; Bressemer et al., 2018). This conception could be likened to Stec et al.’s (2016) and Hodge et al.’s (2023) measures discussed in Section 4.2.8. For other researchers, degrees of constructed action may correspond to the observation that one or several articulators are used with comparatively little or increased effort and intensity to enact referents (Quinto-Pozos & Mehta, 2010; Quinto-Pozos et al., 2022). Finally, degrees of constructed action have also been considered as degrees of prominence of the enacted referent’s perspective with respect to the enacted signer’s one, which becomes apparent through the use of co-occurring material described as ‘lexicalised’ or ‘narration’ (Metzger, 1995; Cormier et al., 2015; Saunders, 2016; Puupponen et al., 2022). The wide variety of approaches means that few comparisons can be made across studies.

4.4 Nuancing impressions of uniformity

The preceding discussion shows that there is no consensus as to which articulators are central to the performance of constructed action in signed languages, nor whether some of these body parts are necessary in some contexts, e.g., utterance reports/constructed dialogue. However, there does seem to be a widespread assumption that signers of diverse signing communities essentially rely on the same strategies and articulators to enact referents and that these strategies partly overlap with those used by speakers when performing constructed action. However, as discussed in Section 2.3.6.3, our understanding of cross-linguistic diversity is limited. This section presents studies qualifying the assumption that signing and speaking communities exhibit systematically distinct patterns of enactment (that would be cohesive within each group).

Janzen (2012, pp. 159-160) points out that too little is known about constructed action and the potential grammaticalised use of loci for role shifting to make sweeping generalisations:

Even though this use of space – with designating loci around the signer’s space as spatial placeholders for referents in the signer’s narrative discourse and body shifts towards these loci to align with and portray actions (including linguistic action) from their various vantage points – appears to be pervasive, we cannot conclude that its use, with this function in particular, is universal among signed languages [...] [P]erspective marking and perspective shift mechanisms have not been described for the majority of signed languages in use worldwide, so there is at present no way of knowing whether all signed languages use this mechanism to at least some degree. Second, some signed languages appear to use body shifts to located referents to a much lesser extent than has been reported for ASL – for example, in Swedish Sign Language [...] – and [...] perspective marking in Danish Sign Language includes a body shift as only one possibility.

Quinto-Pozos (2014) discusses constructed action across different signed languages and proposes that “[d]ata from multiple sign languages attest to cross-linguistic constructed action use” (p. 2163). However, Quinto-Pozos also rightly points out that “it is useful to ask whether its use appears obligatory across signed languages and whether it is used for the same purposes and if it takes on the same form (i.e., whether the same body parts are involved in the production of constructed action)” (p. 2166). A study comparing constructed action in ASL, BSL and LSM which was presented in two conference talks appears to indicate that the strategies were similar across these three signed languages (Quinto-Pozos et al., 2006, 2009). More recently, Vandenitte et al. (2022) presented a preliminary comparative study of constructed action across FinSL and LSFb narratives. Though additional and more comparable data is needed to confirm these results, it appears that FinSL and LSFb signers used bodily articulators at very similar frequencies. In addition, a similar distribution of overt (‘strong’) and non-overt (‘weak’) constructed action was observed. However, a slightly more frequent use of constructed action (as measured in the proportion of discourse time in which it occurs) in LSFb than in FinSL was observed. Broadly speaking, the above-mentioned studies seem to corroborate the assumption of uniformity across signing communities. Nevertheless, some studies have claimed that substantial differences may exist across signing communities.

Pyers & Senghas (2007) also observe that most analyses of ‘referential shift’ in signed languages assume that the phenomenon is expressed in the same way cross-linguistically, i.e., across signed languages. The authors, however, suggest that if the bodily signals that index a referential shift find their roots in visible actions as used by the broader community (e.g., at the regional or national level including the non-signing community), there should be variation across signed languages too. Looking at constructed action and dialogue in vignette retellings by 10 ASL signers, they propose that a lateral body shift, a head tilt (towards a location in space associated with a referent) and the use of gaze or facial expression contribute to constructed action in ASL. Comparing the ASL renditions with the vignette retellings by 16 ISN (Nicaraguan Sign Language) signers (8 from both observed cohorts), the authors note some differences. Like in ASL, ISN signers use eye gaze to enact referents. However, unlike in ASL, body movements are characterised by “*turning the body on its vertical axis, instead of shifting the shoulders laterally to a new location*” (p. 290). In addition, ISN signers would rely less on diagrammatic space, i.e., the establishment and use of stable loci associated with referents. The researchers, however, did not provide quantitative support for their claims.

In speaking communities, researchers seem to have assumed both a similar distribution of depictive visible bodily action, including constructed action, as well as a uniform outlook of the strategy cross-linguistically. Though recognising that language-specific conventions may have some influence, McNeill (1997, p. 201) suggests that iconic ‘gestures’ across spoken languages have much in common:

A remarkable thing about iconic gestures is their high degree of cross-linguistic similarity, making possible meaningful comparisons across languages. When semantic content is controlled, very similar gestures occur and accompany linguistic segments of equivalent type, despite major lexical and grammatical differences between the languages. This similarity suggests that the gesture emerges at a level where utterances share a common starting point in different languages – thought, memory, and imagery.

However, as discussed in Section 4.1.2, Brown (2008) reported that character viewpoint iconic gestures were more frequently used by Japanese speakers whereas American English-speaking participants tended to favour observer viewpoint. In addition, several studies referred to in Section 4.1.2 also point to potentially different frequencies and/or prominence of utterance reporting in speaking communities (Brown, 2008; Noonan, 2006; Rumsey et al., 2023; Tannen, 1986; Yatziv-Malibert & Vanhove, 2015).

To summarise, the paucity of research directly comparing different signed and spoken languages means that it is still unclear to what extent the strategy is similarly instantiated across different languaging communities. Reports that different speaking communities may exhibit different uses of constructed action seem to have gone unnoticed in signed language linguistics. Carrying out systematic analyses enabling quantitative comparisons (in parallel with more fine-grained, qualitative ones) is certainly an avenue for future research. In the meantime, one should be mindful of these uncertainties to avoid making strong statements about how signing communities and speaking communities ‘do’ constructed action without specifying which communities one is talking about. So far, our discussion has mostly adopted

a macroscopic view distinguishing between signed and spoken languages and subsequently asking whether individual signed and spoken languages exhibited variation. This approach overlooks that ‘named’ communities or languages are to some extent constructs (e.g., Palfreyman & Schembri, 2022). Therefore, one needs to also consider that they may exhibit internal variation at many levels. In their comparison of direct utterance reports in different Australian languages and in English, Rumsey et al. (2023, p. 36) emphasise:

It would be wrong to regard the narrative use of quotation as something that is equally common, either across different Australian Indigenous languages or across different speakers of the same language, or even within the speech of one person across different genres or texts. Nor is it by any means unique to Indigenous Australian languages or narrative styles, or to oral as opposed to written narrative.

Similarly, contemplating possible explanations for variation in the use of constructed action in Auslan narrative retellings, Hodge & Ferrara (2014, p. 388) consider a broad range of factors:

We hypothesise that this variation could result from any number of factors, ranging from idiosyncratic preferences, storytelling experience, and sociolinguistic effects such as age and education, to the degree of social intimacy with their interactant (e.g., the more familiar and comfortable one is with one’s interactant, perhaps the easier it is to relax and perform), and how they were feeling on the day of the task.

In the following sections, several factors that influence whether languagers opt for constructed action are described. Though they are rarely completely detached from each other (e.g., proximity with one’s interlocutor also entails common ground and modulates information status), the sections will address these social, individual, and more local, discourse factors.

4.4.1 Communities within communities

One example of a potential different use of constructed action across different sub-communities is found in the comparison of the phenomenon in White and Black ASL.²³ Metzger & Mather (2004) studied natural ASL conversations by Black and White ASL signers. In their comparison, they identified a total of 68 instances of constructed action, 25 tokens of constructed dialogue and 54 tokens in which both categories merged. Metzger & Mather note that Black ASL male signers appear to have used more tokens of enactment overall, even though they never produced constructed dialogue alone in the analysed sample. McCaskill et al. (2020) interpret Metzger & Mather’s result as potentially indicating a difference between Black and White ASL. Dividing the two groups between younger and older signers of Black

²³ See also Mitchell-Kernan’s (1972, p. 176) proposal that ‘marking’ is a typical discourse strategy of African-American communities:

A common black narrative tactic in the folk tale genre and in accounts of actual events is the individuation of characters through the use of direct quotation. When in addition, in reproducing the words of individual actors, a narrator affects the voice and mannerisms of the speakers, he is using the style referred to as marking (clearly related to standard English ‘mocking’). Marking is essentially a mode of characterization.

and White ASL, they analysed 24 elicited cartoon narratives and 21 free narratives for (overt) constructed action and dialogue as well as more specific cases such as when the two categories merge or when constructed action co-occurs with ‘descriptive’ meaning-making attributed to the enacting signer’s, i.e., non-overt constructed action. Comparing the number of tokens, McCaskill et al. report no difference between Black and White ASL signers overall. However, looking at older signers, they note that different categories of enacted actions are unevenly distributed across Black and White ASL signers: McCaskill et al.’s results contrast with Metzger & Mather’s inasmuch as older Black ASL signers used more tokens of constructed dialogue than signers of White ASL, who use more tokens of constructed action (excluding enacted utterances) than Black ASL older signers. However, when using the proportion of time spent on constructed action in the narratives instead of the number of tokens, the authors report that across both age categories, Black ASL signers seem to spend more time producing constructed action and dialogue than White ASL signers. Because of significant individual variation, however, further research is needed to confirm this observation. Another potential difference in their dataset relates to age rather than to Black or White identity.

4.4.2 Age

McCaskill et al.’s study finds that in free narratives both White and Black ASL older signers use more ‘simple narrative’ (i.e., text without constructed action) than younger signers. However, the authors note that this may simply be related to the longer duration of older signers’ narratives. Without relative metrics, it is hard to measure and compare the use of constructed action. In a recent study, Puupponen et al. (2022) show that older FinSL signers’ narratives feature significantly more constructed action than younger ones do (respectively an average of 48.57% vs 29% of discourse time). Like in McCaskill et al.’s analysis of ASL, however, the same does not apply to these groups’ use of constructed action in free conversations (with averages of 5.4% and 4.14% respectively). Puupponen et al. (2022) and Puupponen et al. (2024) propose that these differences may be related to distinct educational experiences, attitudes towards the strategy (and its being potentially considered more ‘gestural’ in nature than more conventionalised strategies), as well as different degrees of exposure to both FinSL and Finnish across generations.

4.4.3 Interindividual differences

Looking at the frequency of constructed action (or sometimes, more specifically, utterance reports) in a community, researchers have often reported major interindividual differences. Quinto-Pozos & Mehta (2010) analyse the use of constructed action across different genres. In addition to reporting on the impact of text type, they also show that the distribution of constructed action in their data is partly a consequence of inter-individual differences: one signer seems to use constructed action more frequently than the other. This is also the case for corpus studies that have addressed the phenomenon in signed languages with larger samples. McCaskill et al. (2011, p. 124) report a high level of inter-individual variation:

[A]mong the free narratives produced by the older Black signers, the number of constructed action units varies from a low of only 1 to a high of 15. The range among the units of constructed dialogue is even greater (6 to 41). We have a similarly large range among the White signers. One older White signer, for example, supplied no instances of constructed action in her free narrative; the free narrative of another signer contained 26 constructed action units.

Ferrara (2012) and Ferrara & Johnston (2014) stress that there is substantial inter-individual variation in the use of constructed action across Auslan signers. A similar claim is made by Hodge & Ferrara (2014, p. 388): “*Individual signers varied widely in the time they spent re-telling each identified event and their use of enactment throughout these events, even when re-telling the same narrative*”. A similar uneven distribution of constructed action use across individuals is also reported for FinSL by Jantunen (2017), as the individual share of time spent on doing constructed action ranged from 16 to 53%. This claim is reiterated in Jantunen et al. (2020), leading the authors to conclude that constructed action is a largely optional strategy.

A similar observation has been made for spoken languages. Whether or not a speaker opts for enactment in some circumstances may largely depend on their individual languaging style. For instance, Rumsey et al. (2023, p. 68) stress that the patterns observed in their datasets are largely influenced by individual behaviours: “*Quotation was used in all of our samples, albeit at widely varying rates [...]. The differences [...] appear to reflect the stylistic preferences of individual speakers/writers, rather than differences between languages, genres or written vs spoken medium*”. One example of this variation is found in their comparison of two Ngarinyin traditional dreamtime stories by two different individuals who used direct utterance reports in 6 and 33% of the texts respectively. In addition to the relative share of constructed action, individual traits may also impact how languagers enact referents, including the kind and number of articulators that contribute to enactment. As noted by Genetti (2011, p. 73) for utterance reporting in spoken languages, whether or not a speaker uses vocal prosody often boils down to individual preferences: “[*O*ne needs to consider inter-speaker variation in style. Speakers vary in their interest and proficiency in storytelling and in the degree to which they use a performative style.”

Hodge et al. (2023) also report on individual variation in their comparison of the articulators that contributed to constructed action in Auslan and Matukar Panau. In their clustering analysis, they observe that some Auslan signers, for instance, enacted referents using facial expression to a greater extent than other informants using Auslan while others exhibited a comparatively higher use of enacting eye gaze, head movements, or English mouthings. Similarly, some Matukar Panau speakers relied more on specific articulators, like the head or the hands, than others. Another interesting pattern in the Matukar Panau data was that some speakers exclusively relied on speech (i.e., the words being reported) and voice (prosody). In addition to which articulators they use, participants in Hodge et al.’s (2023, p. 111) study also exhibited inter-individual variation in the number of articulators which contributed to enactment (a measure that they call ‘expressivity index’):

We also see that we cannot make sweeping generalisations about deaf Auslan signers always using more articulators in their quotations compared to hearing Matukar Panau speakers. For example, Table 4 indicates that signer ASF_JRB has a low expressivity index compared to ten other Auslan signers and also four Matukar Panau speakers. On the other hand, speakers MJK_TK and MJK_JB both have higher expressivity indices than most of the Auslan signers.

In addition to idiosyncratic and social characteristics, languagers have been shown to adapt their use of constructed action to diverse communicative contexts.

4.4.4 Text type and discourse genre

First, it seems that text type has an influence on the frequency of constructed action. Enactment has been shown to be pervasive in storytelling (e.g., McNeill, 1992; Hodge & Ferrara, 2014). However, as most of the research on the phenomenon has focused on narrative retelling tasks, little is known about how constructed action patterns across diverse discourse genres. There have been a few studies on the occurrence of constructed action in non- or less-narrative settings. Ferrara (2012) reports that clause-like units combining enactment and depicting signs are six times less frequent in conversations than in narratives in Auslan. In addition, Ferrara also notes that constructed action and constructed dialogue are relatively rare in conversations, with respectively 4.9% and 8.7% of clause-like units containing these strategies. Similarly, using a sample of the FinSL Corpus (2 hours 30 minutes), Puupponen et al. (2022) compare the proportion of discourse time spent on constructed action by 12 adult FinSL signers across narratives and conversations. Their results show a significant effect of text type: constructed action occurred in about 39% of the FinSL narrative discourse sample whereas it was only found in approximately 5% of conversational discourse time. Hence, it seems that constructed action is comparatively much rarer in natural, conversational interaction than in narratives.²⁴

In some text types, it appears that constructed action may even be nearly absent. Ferrara & Ringsø (2019) study, among other strategies, the use of constructed action by 12 NTS signers in free conversations with a researcher. During the interactions, the researcher purposefully prompted space-related conversation such as “*how the participants had travelled to the place of the data collection, routes from one location to another or the interiors of their apartments, cabins, or vacation homes*” (Ferrara & Ringsø, 2019, p. 586). 179 instances of spatial language were identified in the video recorded conversations (84.5 minutes). Only one instance of constructed action is reported in the dataset, dramatically contrasting with the reported pervasiveness of this strategy in signed narratives. Sallandre et al. (2019) compared the occurrence of ‘*transfert personnel*’ across four discourse genres in data retrieved from the LSF corpora ‘Corpus Colin’ and ‘Creagest’. They find that, while constructed action occurs across all genres (e.g., recipe instructions,

²⁴ Though Puupponen et al. do acknowledge that this picture should be nuanced by stating that free conversations often include personal narratives.

argumentative text type, and conversation), constructed action and dialogue are distinctly prominent in narrations.

In their comparison of LSQ and Quebec French, Parisot & Saunders (2022) observe that constructed action is more frequently found in the participants' filmed explanations of narrative than descriptive vignette stimuli. While retelling narrative vignettes, LSQ signers and Quebec French speakers respectively used constructed action in 63% and 41% of discourse time, as against 48% and 16% when they retold descriptive vignettes. This shows that the narrative vignettes yielded more use of constructed action (in terms of time proportion) than descriptive ones in both LSQ and Quebec French. In addition, this effect appears to be stronger for French speakers. However, Parisot & Saunders report that when using another measure of constructed action frequency in both genres, the cross-linguistic difference is no longer significant. Indeed, the authors compare the distribution of constructed action tokens (i.e., the number of segments regardless of their duration) across LSQ and Quebec French retellings of descriptive and narrative vignettes. In LSQ, 66% of tokens occurred in retellings of narrative vignettes, while the descriptive ones yielded the remaining 34% of identified tokens. In French, 76% of tokens occurred as a response to narrative vignette stimuli while 24% of the tokens were found in retellings of descriptive vignettes. Hence, while different studies converge on reporting that the proportion of time spent on constructed action seems higher in narrative settings, it might be interesting to include other measures of constructed action frequency (e.g., considering the number of tokens rather than their duration only).

Yet another proposal that text type influences the use of constructed action is provided by Janzen (2012). While body shifts towards locations in space associated with referents have been described as grammaticalised in role shift approaches, Janzen argues that the phenomenon rarely occurs in ASL narratives, in which “*signers consistently use mentally rotated space conceptualizations*” (p. 160). Body shifts in the use of a static space are rather confined to comparative discourse frames, where compared abstract referents are associated with contrastive areas in the signing space.

4.4.5 Referential target and communicative ‘complexity’

One way to unpack the effect of task or text type is by examining how a referential target may trigger the use of constructed action. For instance, a narrative text is likely to involve one or several animate characters. It is well-known that specific referents or specific referential needs are more likely to trigger the use of constructed action. These contexts are described in the following paragraphs.

Quinto-Pozos (2007a, 2007b, 2014) proposes that animacy increases the likelihood that a referent will be enacted because the use of the human body on a ‘large scale’ offers the full potential to carry out “*isomorphic portrayals of the animate referent*” (2014, p. 2165). However, it is also possible to enact an inanimate entity, sometimes to endow it with animate- or human-like properties for pragmatic intent. Johnston

(2019) provides an example in Auslan featuring the enactment of an egg thrown in water to be boiled (see also Sutton-Spence & Napoli, 2010). Hodge et al. (2019a) investigate reference in several narratives from the Auslan Corpus. This is the first corpus-based study to show that a referent's level of animacy (i.e., inanimate object > animal > human) correlates with the use of constructed action to denote it: “[R]eferents that are not origo-guided are more likely to be depicted and/or indexed [...] ‘away’ from the signer’s body [...], particularly once referents have been introduced and signers need less time and effort to reference them” (p. 49). In other words, the less animate the referents, the likelier it is that they will be referred to by placing and/or depicting them in the surrounding signing space rather than by enacting them.

Parrill (2010) analysed the gestural productions of 46 American English speakers in a cartoon narrative retelling task. The study results lead Parrill to argue that some event types systematically lead speakers to use iconic character viewpoint gestures, namely “those that involved handling [...], those that involved some kind of emotional state or affect [...], and those that involved some use of the torso [...] that cannot be readily depicted from an observer’s point of view” (p. 661). Like for animate referents, it seems that events that centrally feature a human-like body are likely to be enacted. One reason for this is the obvious one-to-one mapping between the referent’s and the languager’s bodies. In a somewhat trivial way, a human body is the best affordance to provide an isomorphic depiction of referents with a human(-like) form. A similar reasoning is also found in Puupponen (2019, p. 25), who puts the emphasis on the semiotic versatility of articulators:

This *semiotic versatility* [...] is a feature that is evident in the communication and interaction of speakers as well as signers. Hands convey information regarding shape and size better than speech, while the face is well suited for expressing feelings and attitudes. [...] [I]t is important to discuss the potential differences in the pivotal features of these sign mediums (hands, face, head, body).

A similar drive for communicative efficiency is put forward by Slonimska et al. (2021). Analysing whether LIS signers used enactment when describing 30 images depicting events in a director-matcher game task with two animate referents with varying levels of information density, they observe that constructed action was more frequently used to communicate higher information density. The authors also argue that more articulators may be involved in enactment to better exploit their affordances (including their potential to indicate in addition to depicting, i.e., ‘diagrammatic iconicity’) and/or perform body partitioning. Their analysis is thus that more ‘overt’ constructed action not only (and not necessarily) makes a token of enactment livelier, but it also enables one to increase information density and communicative efficiency. However, non-overt tokens, as they combine ‘descriptive’/lexical meaning-making and constructed action, are also seen by the authors as efficient in communication. This proposal echoes several observations on the central role of constructed action in communicating key aspects of meanings in different signed languages (see, e.g., Section 2.3.6.2).

The above-mentioned phenomena have in common that the human body and its multimodal affordances provide a good solution to depict via enactment rather than

using other semiotics and/or different depictive strategies. Clark & Gerrig (1990, p. 793) already note the advantage of ‘demonstrating’ as a solution to ineffability, which, one may argue, increases in the situations mentioned above (e.g., comprehensively describe a human being and human actions, refer to complex actions involving different referents):

Many things are easier to demonstrate than describe. Imagine trying to describe how to tie a shoe, parry a lunge in fencing, or knit purl. These you are almost forced to demonstrate. It is also generally easier to demonstrate: emotion, urgency, indecision, and sarcasm in tone of voice; gestures, facial expressions, or other body actions; level of formality; and disfluencies. If speakers and addressees try to minimize effort in communication, as generally assumed [...], whether speakers describe or demonstrate an aspect should depend, all else being equal, on which is easier. Ineffability is a strong reason for quoting instead of describing.

In addition to factors related to communicative efficiency, languages can also have local, intersubjective motives (not) to use constructed action. Though constructed action is often a very efficient tool to denote an animate referent, its potential ambiguity without framing means that a referent’s referential accessibility and discourse status may often impact whether a referent will be enacted.

4.4.6 Cohesive discourse strategies: Using constructed action to track referents

It is well known that a referent’s accessibility in discourse significantly impacts the kind of forms or strategies that will be used to denote it (e.g., Chafe, 1976; Ariel, 1985). Cormier et al. (2013, p. 123) sum up a few factors which drive referential accessibility: *“the distance between explicit identification of the referent and the referring expression, the prominence of the referent in the discourse, and other referents that are competing with the intended one”*. Overall, research shows that less easily available referents are denoted with more informative referring expressions whereas more readily available referents are designated with less informative expressions (e.g., ‘heavy’ lexical noun phrases as against pronominal forms). A more specific link between visible meaning-making and discourse status has also been established in both signed and spoken utterances.

4.4.6.1 Use of constructed action across different information status contexts

In signed languages like Auslan and BSL, the use of constructed action has been shown to occur more frequently in referent maintenance contexts (Cormier et al., 2013; Frederiksen & Mayberry, 2016; Hodge et al., 2019a; Ferrara et al., 2022) as well as when referents are reintroduced (Hodge et al., 2019a).²⁵ McNeill (1992) already proposed that information status, as one of the factors that influence the course of communication, predicts whether or not a gesture will co-occur. Indeed, less accessible reference is more likely to co-occur with visible bodily actions in

²⁵ See Omardeen et al. (2021) for a description of the role of constructed action in introduction contexts in PISL (Providence Island Sign Language).

spoken languages. Hence, mentions of (re-)introduced referents are more likely to co-occur with visible action than older ('maintained') information is (e.g., Levy & McNeill, 1992). However, looking more specifically at the use of constructed action (instead of visible bodily action), Debreslioska et al. (2013) show that in German narratives, maintained referents are more likely to be paired with character viewpoint iconic gestures, as against reintroduced ones which are more likely to trigger observer viewpoint iconic gestures. Hence, though more research might be needed to compare signed and spoken languages, it does seem that information status may influence whether a referent will be denoted by means of constructed action.

4.4.6.2 *Spatial referent-tracking: Placing enacted referents*

Because discourse cohesion can be achieved multimodally, the referent-tracking system may exploit body position to index referents. For instance, this can be done by spatially *placing* referents in specific areas throughout discourse (So et al., 2009). Such strategies have been widely described for constructed action across signed languages, notably when several referents are sequentially enacted, e.g., 'contrastive role shift' (Padden, 1986; Winston, 1991) or 'shot/reverse shot structures' (Meurant, 2008). In role-shifting approaches, this use of space has even been claimed to constitute a major aspect of perspective shifting (see Section 3.5.2). However, the occurrence of placing behaviours in naturalistic signed discourse may be limited (e.g., Janzen, 2004; Hodge et al., 2023).

While further research on signed languages may be warranted, there have also been reports that placing enacted referents may be more frequent in signed than spoken languages. Permiss & Özyürek (2015) compare the use of visible referent-tracking strategies in German and DGS vignette descriptions. Extending the analysis from referential expressions denoting animate beings to include lexical handling predicates and handling gestures (i.e., manual constructed action), they first analysed the sign and speech-gesture ensemble of DGS and German for referential context as either maintained or reintroduced reference (first introductions being excluded from the analysis). Second, the authors specified which strategies were used (e.g., enactment or pointing), and checked whether these strategies were purposefully placed at specific locations and whether that spatial placement was consistent. In their results, the authors note that "*DGS signers perform Enactment predicates depicting manual manipulation [...] at the location associated with the referent performing that action nearly half the time. [...] In contrast, German co-speech gesturers very rarely localize these types of Enactment predicates*" (p. 51). Hence, if confirmed in further studies, these results undermine an obligatory status for placing in signed languages but do show that this strategy is more frequent in signed than spoken language use.

4.4.6.3 *Reformulating through constructed action*

As already mentioned in this section devoted to referent-tracking strategies, referents may be expressed through different means and constructed action has often been reported to be favoured in maintenance contexts. The strategy has also

been studied for a more specific discourse function, namely the act of reformulation where the same or a similar referent is expressed through different means. This discourse context is an interesting one because it shows how the occurrence of constructed action may also be driven by local choices made by the languaging individual. As Meurant et al. (2022, p. 324) propose, reformulation can be considered “*as a window to the way the locutors engage in and actively adjust their expression in discourse*”. Cuxac (2007) addresses the phenomenon of reformulation through the French semiological approach where the two kinds of communicative intents (telling ‘with’ or ‘without showing’) take a central place. According to Cuxac, it is possible to conceive of these different intents as sometimes used to reformulate or express a referent by means of diverse semiotic strategies.

Meurant & Sinte (2016) build on Cuxac’s proposal and analyse the use of reformulation by seven LSFb signers in dyadic interactions across three genres (narration, explanation, conversation). They note that, though this strategy is rare compared to more conventional meaning-making strategies, constructed action is used as a reformulation strategy in LSFb. Indeed, constructed action constituted 7% of such strategies in conversations, 12% in explanations and 15% in the narrative genre. Meurant et al. (2022) expand on this line of inquiry by comparing the forms used in reformulation sequences across LSFb and (multimodal) Belgian French. Comparing reformulation sequences by 4 LSFb signers and 4 Belgian French speakers across the same genres as Meurant & Sinte (2016), they single out reformulations that are explicitly marked and analyse them in semiotic and articulatory terms. Overall, they find that depiction is found in 87% of reformulation pairs (i.e., the two equivalent forms that denote the same referent in diverse ways) in LSFb, as against 62% in French. Though their analysis revolves mostly around macro-categories of descriptive and depictive meaning-making, the authors do provide examples where constructed action is the depictive strategy under scrutiny and is selected as a reformulation strategy. Meurant (2022) goes back to the LSFb data analysed in Meurant et al. (2022). By providing a fine-grained picture of some functions fulfilled by reformulation, Meurant describes how depiction – including constructed action – cues signers’ interactional investment, i.e., their “*attitude [...] in relation to the unfolding discourse and interaction*” (p. 148). By putting emphasis on reformulation strategies as a window into interaction mechanisms, Meurant’s study shows that such local choices go beyond mere norms of discourse progression and reflect languagers’ enchronic decisions in their management of social interaction.

4.4.7 Constructed action as a social action

Referential and discourse factors have been shown to impact the occurrence of constructed action, the articulators which contribute to these depictions and the degrees to which the enacted referent’s perspective comes to the fore. However, since the strategy is grounded in language use, one would expect for the phenomenon to be influenced by social-interactional factors. These functions have been well-studied by researchers working in frameworks such as anthropology or conversational analysis, mostly focusing on the use of constructed dialogue in spoken interaction. Like Hodge & Ferrara (2022, p. 15), several analysts have

recently made a plea for research on the social uses of constructed action: “[*W*]hat is the social role of iconicity, and what power does it afford? As with all other aspects of language and communication, it is necessary to consider the broader socio-functional dimensions of iconicity in addition to the semantico-referential ones.”

Constructed action has been described by numerous researchers as an improvised and creative strategy (Tannen, 1986; Metzger, 1995). The idea of such depictions as languagers’ constructs has echoed Clark & Gerrig’s (1990) proposal that quotations are selective depictions whereby speakers choose which aspects of the referential target will be enacted (see also Palfreyman, 2020). More recently, other researchers have also discussed the phenomenon in terms of “*metonymy, a semiotic process that reduces a whole [i.e., the enacted referent] to its parts*” (Hall et al., 2016, p. 81) or as ‘figure composition’ (Zuckerman, 2021). One aspect foregrounded by these terms is that, in addition to semantic and discourse factors, key social-interactional mechanisms lead to the occurrence of constructed action and shape its form. Vandelanotte (2023, p. 2) captures many ways in which utterance reporting is deeply rooted in human sociality, and this may apply to constructed action more broadly:

A lot of what people talk and write about concerns the words and thoughts of others or of themselves, whether real or imagined. This is true across a broad range of text genres and contexts of interaction: novelists, newscasters, lawyers, students and scholars, professionals of all stripes and everyday conversationalists all report on what was said or thought in order to provide access to viewpoints, build on existing authority, contest ideas, spice up conversation, dramatize events narrated, and so much more.

In the following section, a non-exhaustive picture of these social uses of constructed action is provided. It will be shown that this dimension may often take centre stage when it comes to explaining why and how constructed action and dialogue are used.

4.4.7.1 *Vividness and rhetorics*

The use of constructed action, as a depictive strategy making referents visible and audible, is well-known to happen in storytelling. This partly explains the extensive focus on the narrative genre in studies addressing constructed action. In addition, the ‘face-to-face’ culture (often called ‘oral’ culture for speaking communities) attributed to signing communities has also been raised as a potential reason why the strategy might be so frequent in signed languages (Ladd, 2003; Earis & Cormier, 2013; Hodge & Ferrara, 2014). As pointed out by several researchers (e.g., Earis & Cormier, 2013; Hodge & Ferrara, 2014), whether languagers are used to storytelling or feel comfortable delivering such performances can have an impact on the use of constructed action. In a similar vein, the target recipients also play a key role as different audiences and contexts are likely to trigger variability in the need to enact referents or heighten engagement. Quinto-Pozos & Mehta (2010) studied the use of constructed action by two ASL signers across different contexts to assess the extent to which constructed action is shaped by audience design and register. The authors compared two individuals across the same contexts: a classroom setting with a few children, a more formal event with many attendants, and an informal setting with

other adults. Their results support the idea that register is a factor that shapes the use of constructed action. They found both inter-individual variation across the two signers as well as differences across contexts (possibly due to different settings and/or audiences). Children-directed discourse exhibited less ‘slight’ constructed action than the other settings. Also, formal settings were the least likely to trigger the use of ‘exaggerated’ constructed action. In addition, Quinto-Pozos & Mehta report that arm/hand and torso movements occurred in all settings but more emphatically so when the audience was made up of children. They also note that the use of the lower half of the body occurred with children or adults in the informal context but not in formal contexts. It is thus clear that the narrative power of constructed action and signers’ experience and willingness to use it may impact the occurrence of the phenomenon. It would however be inadequate to describe the ‘narrative’ function of constructed action as specific to signing communities.

Similar observations have been reported for speaking communities. Speakers of diverse languages frequently enact referents in their stories (Tannen, 1986; McNeill, 1992; Verstraete, 2011; Stec et al., 2016). The high attention to constructed action in some speaking communities is noticeable in Nikitina’s discussion of the Wan community’s concerns about the waning of traditional storytelling: “*Special discourse reporting strategies are commonly used in narrative performance, and they become endangered when occasions for such performance become rare. [...] New generations of speakers are considered unable to act out characters properly*” (Nikitina, 2018, pp. 204-205). In addition to storytelling, constructed action is also frequently reported to occur in everyday interaction (which admittedly often consists of conversational narratives) to heighten participants’ involvement by dramatising reported events (Tannen, 1986; Thompson & Suzuki, 2014). In parallel to the lively multimodal strategy used to keep addressees engaged, constructed action is also often used as a tool to communicate stance.

4.4.7.2 *Layering of viewpoints and stance: positioning oneself and others*

Du Bois suggests operationalising stance with a broad definition capturing key features reported in the literature (2007, p. 163): “*Stance is a public act by a social actor, achieved dialogically through overt communicative means, of simultaneously evaluating objects, positioning subjects (self and others), and aligning with other subjects, with respect to any salient dimension of the sociocultural field*”. Research on stance has covered various linguistic features (Goodwin, 2007; Gray & Biber, 2014), including multimodal displays of stance involving vocal prosody, gestural mimicry, head and upper-body movements, and manual actions (Stivers, 2008; Debras & Cienki, 2012; Jehoul et al., 2017; Shaw, 2019; Ferrara, 2020; Brown & Prieto, 2021; Lepeut & Shaw, 2022). In addition to these dimensions, constructed action and in particular constructed dialogue have been shown to convey stance.

Indeed, their stance potential lies in the viewpoint configuration involved in such stretches of discourse as different stances are presented and, sometimes, contrasted. In addition to the reported utterer’s perspective that is directly conveyed, the reporting utterer’s stance is often recognisable too. This is because, though such

reports are presented as near first-hand experiences, they really are performances by reporting utterers who decide what to convey and how. As an example, Günthner (2007) discusses an utterance produced by an interviewer and later reconstructed by the interviewee. Relying on vocal prosody, the interviewee enacts the interviewer's tone by making them sound "*exaggerated, inappropriate, and arrogant*" (Günthner, 2007, p. 423). An addressee witnessing this report, according to Günthner, not only recognises the interviewer's perspective, foregrounded by the report, but also perceives the reporting speaker's negative assessment of the interviewer: "[S]everal voices are superimposed on one utterance: The reported speech of the character blends with the narrator's negative evaluation" (p. 423, see also Holt, 2000). The phenomenon illustrated in Günthner's example is well-known and has been described as polyphonic and dialogic because of the layering of viewpoints or 'voices' that it involves (Günthner, 1999; Niemelä, 2010). A parallel could also be drawn with Dancygier's (2012) concept of 'stance-stacking' (as proposed by Andries et al., 2022) or Dancygier & Vandelanotte's (2016) 'viewpoint networked configurations'. Several recent papers, of which a few have been selected here, have delved into the social-interactive functions of such a use of constructed action for stance effects.

Research using conversational analysis has established that direct utterance reporting can be used as a tool for expression of one's position with respect to objects and others. One first way in which direct reports are used consists in using a report to indicate the source of some communicated information and/or lay claim to epistemic authority (Clift, 2006, 2007; Shaffer, 2012) or to distance oneself from a reported utterance (Goffman, 1981). In a similar vein, enacting referents has been argued to be a persuasive rhetorical strategy, for instance in investigative public hearings or conference presentations (Unuabonah, 2018; Valeiras-Jurado & Ruiz-Madrid, 2019). Yet another example of this social use of constructed dialogue relates to sequences in which language users express their evaluations with respect to referents' actions and utterances, be it by presenting referents in a positive light, e.g., self-reports used to build one's credibility (Kuo, 2001) or by mocking or criticising (Besnier, 1991; Riccioni et al., 2023; Trimaille, 2007). Several researchers have shown that constructed dialogue may set up a 'reporting space' where initial recipients can actively take part in the enacting activity to express alignment by producing subsequent sequences of constructed action and/or dialogue (Holt, 2000; Niemelä, 2010; Guardiola & Bertrand, 2013; Cantarutti, 2021; Riccioni et al., 2023; Vandennitte, 2022b). The multimodal dimension of utterance reporting already described here is also highly relevant to the communication of stance. For instance, in Debras' (2015) analysis of British English constructed dialogues, speakers maintained their gesturing style to signal affiliative positioning whereas wider and faster enacting movements signalled a caricatural interpretation of the enacted utterance and a negative evaluation of the reported utterer. Hall et al. (2016) and Goldstein et al. (2020) show that the phenomenon does not necessarily involve enacting utterances. As the authors demonstrate through several examples, Donald Trump frequently used his body to mock political adversaries and critics by enacting them. Hence, it should be stressed that it is constructed action broadly speaking, not just utterance reporting or constructed dialogue, that involves such a layering of viewpoints.

In addition to moulding referents in specific ways to express local and individual stances, languagers may also call on stereotypes to make a referent appear as performing a typical action or as belonging to a specific social group. Such an idea was already formulated by Cuxac (2000) for LSF ‘personal transfer stereotypes’: using facial expressions, manual actions and upper body movements while depicting a referent, a signer can stereotypically signal the enacted referent’s attitude. According to Cuxac, as they rely on typified behaviours, these instances involve partly bringing ‘back’ the enacting languager’s perspective: “*on assiste à une irruption du sujet énonciateur dans le cadre d’une structure de transfert personnel*” (2000, p. 75) (“*one witnesses the uttering subject making an incursion in a ‘personal transfer’ structure*”). In so doing, languagers may also indicate their own position with respect to the enacted referent and/or group. Günthner (2007) likewise argues that languagers use constructed dialogue to “*construct their own identities by [...] positioning themselves in opposition to characters animated in their narratives*” (Günthner 2007, p. 419). Günthner provides several examples that this ‘identity work’ is performed by conjuring “*social types or [...] representatives of social groups, such as ‘foreigners’, ‘innocent children’, ‘snobs’, ‘machos’, etc.*” (p. 419). Hence, languagers may typify referents to evaluate them.²⁶ Fine (2019) demonstrates how similar stereotypical representations invoked in Kodiak Alutiiq constructed dialogue involve both a social role and the enacted referent’s stance. Fine reports that several prosodic characteristics may be systematically used to enact recognisable personae – members of a social group with a specific attitude. As an example, “*an increase in average F0, an increase in F0 range, rising-falling intonation, and modal voice*” are exploited by Kodiak Alutiiq speakers to depict “*young women expressing epistemically weak stances [e.g., uncertainty]*” (2019, p. 11).

Because language is an important identity marker throughout communities, it should come as no surprise that researchers have devoted much attention to constructed dialogue and its social-interactional affordances. Indeed, utterance reports constitute a fitting habitat for language attitudes to transpire through the enactment of languaging events. Fine (2019) exemplifies the use of the ‘American Valley girl’ accent by a Kodiak Alutiiq teacher for comical effect (see also Zuckerman, 2021). In signed languages too, similar phenomena have been reported. As Palfreyman (2020, p. 99) observes, “[*o*]ne notable feature of CA is that it becomes possible for a signer to recruit certain variants into the enactment instead of others, and capture the delivery style of an utterance as well as the content”. In Kusters (2020), enactment is shown to be used to convey positive and affiliative stances about the use of a specific language. Kusters (2020) discusses language ideologies across generations of AdaSL (Adamorobe Sign Language) signers. Younger AdaSL signers described AdaSL as ‘sweet’, compared to GSL (Ghanaian Sign Language). Kusters’ report of how they motivated this evaluation shows that AdaSL informants recruited depiction, through metalinguistic quotation, constructed action, and constructed dialogue to ‘show’ what sweet AdaSL (and its culture) looked and felt like to them (p. 62):

²⁶ See also D’Errico & Poggi (2016) for a discussion of (deep) parody as distorted imitation that involves recategorising the enacted referent.

When I asked in group interviews with youths what it meant that AdaSL was sweet, they started demonstrating it rather than explaining it. They rhythmically recited core lexicon (woman, man, farm, snail, okra); performed how people talk to children (i.e., asking “Where is your mommy?” “Where is your daddy?” “Went to the farm?”); demonstrated how people talk about illness, funerals and political parties; explained and enacted how particular traditional dishes are prepared; and parodied the way other people dance, sign or argue, imitating people’s distinctive facial expressions and movements.

Fischer & Kollien (2016) analyse the use of constructed dialogue by DGS deaf signers to portray enacted utterers pejoratively. This is notably the case when the signing style of enacted referents exhibits influence from spoken language. These forms include “*gestural [constructed dialogue]*”, “*explicitly spoken [constructed dialogue] plus signed German*”, “*condensed [constructed dialogue] for spoken language/mouth-gesture*” (2016, p. 338). Palfreyman (2020) similarly reports on BISINDO (Indonesian Sign Language) signers’ use of specific lexical or grammatical variants in constructed dialogue. Which variant is selected is influenced by social meanings that the signers wish to foreground, thereby indexing their stance. For instance, Palfreyman studies the distribution of two signs, TIDAK and TIDAK-BISA (both used to negate predicates), across sequences of constructed dialogue enacting deaf and hearing referents. Deaf signers are more likely to be enacted as using the latter (which can be traced back to another BISINDO lexical sign) whereas hearing reported utterers are likely to be depicted as using the former (which has gestural roots and is therefore seen as connected to ‘hearing’ culture).

In the preceding paragraphs, a broad picture of some key social-interactive functions of constructed action and dialogue has been presented. Because the phenomenon involves improvised form-meaning pairings, enacting languagers can use it to mould referents in ways that make their own viewpoint emerge. Such portrayals may provide evidential information and may be exploited for their epistemic consequences – claiming authority or distancing oneself from a quoted utterance – as well as evaluative ones whereby languagers index their position with respect to the enacted referent by endorsing or rejecting the depicted behaviour or utterance. This highly intersubjective tool can also be exploited to liken enacted referents to social groups and stereotypical characteristics attributed to them in order to perform identity work. Finally, we have seen that such identity work often involves enacting diverse languaging forms, a key identity marker, in constructed dialogue.

5. Taking Stock: Drawing Conclusions from the Literature on Constructed Action

In the preceding chapter, past studies on the use of constructed action in signed and spoken languages have been described, together with studies comparing the phenomenon across signed and spoken languages. This chapter builds on this description to provide a critical discussion of conceptual and methodological shortcomings that have hindered a better understanding of constructed action.

5.1 Broadening the definition of language and linguistic causal frameworks

Over time, research on spoken languages has gradually incorporated a situated understanding of spoken language use and distanced itself from script- or speech-centric perspectives. Hence, after early comparisons likened signed discourse to speech alone, and later to multimodal speech-visible bodily action ensembles, recent investigations adopting a modality-agnostic perspective compare signed and spoken languages as all actioned by three methods of signaling: description, depiction, and indication. Nevertheless, some of the ways constructed action is viewed nowadays might still result from conceptual biases inherited from the study of spoken languages and of their writing systems. The traditional understanding of spoken language use has led to an overstatement of differences between signed languages, seen as occurring in the visual-kinesic modality, and spoken languages, deemed languages of the aural-oral modality. These narrow definitions are paired with a limited account of differences between signed and spoken languages as originating in modality effects.

A consequence for research on constructed action is that the phenomenon, rightly described as crucial to the description of signed language use, has a tradition of being aprioristically distinguished from speakers' enacting actions, despite the growing recognition that signers and speakers both use constructed action. The separation is often justified by invoking that the phenomena differ in terms of frequency and that they exhibit different degrees of conventionalisation in terms of form, since the contribution of some articulators, often nonmanuals, is claimed to be more frequent or even obligatory in signed languages. This difference has been explained in terms of a semiotic shift away from depiction for some instances of constructed action (in particular, 'attitude role shift' or 'role shift'). When a causal account has been provided for this semiotic shift, it has often involved modality effects, a microgenetic factor, and grammaticalisation, a diachronic one. Since signed languages are seen as languages of the visual-kinesic modality, they are

claimed to grammaticalise what pertains to the peripheral domain of gesture in spoken languages. Section 2.4 has shown that, together with new perspectives on speakers' and signers' communicative actions, broader causal frameworks have begun to be used to explain similarities and differences across signing and speaking communities. These new kinds of accounts include microgenetic factors but specifically focus on signers' and speakers' different sensory experiences and resulting uses of modes or articulators rather than modality. In addition, enchronic explanations, such as social-interactional and cultural differences in how well-accepted constructed action is within a given community and within specific contexts, have also been invoked.

I have argued that the adoption of a broader conceptual framework is needed to avoid automatically resorting to modality effects to explain differences between signers and speakers. Moving on from these narrow definitions of signed and spoken discourse requires leaving old assumptions about concepts like language or gesture behind and adopting a comprehensive picture of languaging where both signers and speakers communicate through varied modes (or articulators) using different means of signaling, including depiction. Working with modality-free concepts enables an empirical reevaluation of the phenomena at hand. However, it will now be shown that better data is also needed to improve our (cross-linguistic) understanding of constructed action.

5.2 Methodological issues: towards more reliable research on constructed action

In this section, I draw on methodological insights provided by Stefanowitsch (2020), Fenlon et al. (2015), and Fenlon & Hochgesang (2022b). These publications advocate a corpus approach to language research, which, I will argue, is timely for the analysis of constructed action across signed and spoken languages. Relying on a previous review of methodological issues in the (comparative) literature on constructed action (Vandenitte, 2022a), I will highlight several aspects of data collection and analysis that should be improved to sketch a satisfactory picture of the phenomenon.

5.2.1 Criteria for data collection and selection

Stefanowitsch (2020) shows how the development of linguistics has meant that intuition data, such as elicited grammaticality judgments, has sometimes been preferred to the documentation and analysis of usage data:

The reasons for this defensive stance can be found in the history of the field, which until relatively recently has been dominated by researchers interested mainly in language as a formal system and/or a mental representation of such a system. Among these researchers, the role of corpus data, and the observation of linguistic behavior more generally is highly controversial.

(Stefanowitsch, 2020, pp. 1-2)

Stefanowitsch's comments echo theoretical developments in the field of linguistics discussed earlier in this review (see Section 2.3) that have largely affected not only spoken language linguistics, but also, crucially, the then emerging disciplines of gesture studies and signed language linguistics. The idea that language could be understood as a self-contained grammar, i.e., a system of rules, has meant that the study of speakers' visible bodily actions was deemed a phenomenon largely peripheral to language. As for signed languages, it meant that signed language linguists first attempted to make signers' communicative actions fit into the dominant framework. Over time, however, some have argued for the need of a different kind of approach to language research, leading to a renewal of spoken language corpus linguistics and the emergence of signed language corpus research. Why corpus linguistics, then? Both Stefanowitsch (2020) and Fenlon & Hochgesang (2022a) put forward several characteristics of corpus linguistics that make it an appealing method for (signed) language research. These characteristics can be seen as criteria that have been developed over time and towards which some important spoken and signed language corpora have aimed.

One first criterion is that of authenticity. For several decades, a growing number of researchers have adopted the view that, instead of or in addition to introspective judgements or elicitation tasks, linguists should analyse data collected in conditions that reflect the ecologies in which naturalistic language occurs (Hou et al., 2020; Stefanowitsch, 2020; Fenlon & Hochgesang, 2022a). In other words, linguists should focus, at least partly, on language *use* as it happens 'in the wild'. This is a challenging task as it involves collecting data that was "*spoken, written, or signed for some purpose other than being included in a corpus*" (Fenlon & Hochgesang, 2022a, p. 4). For research requiring some degree of control on varied parameters of language use or aiming to collect large samples of data, this may be impossible as language data may have to be collected directly for research purposes, whereby data collection takes place in research laboratories (Schembri et al., 2013; Fenlon & Hochgesang, 2022a). In such conditions, it is obviously not possible for language users to ignore their status as language informants, potentially leading to what Labov (1972) called the observer's paradox, whereby informants monitor and alter their productions. This awareness may even be heightened for research analysing multimodal spoken language and signed language uses due to the presence of cameras. However, one may mitigate this bias by attempting to reproduce naturalistic conditions in the laboratory. One important consideration in this respect is that the natural and most frequent locus of language use is conversation. Collected data could therefore consist in conversations between different informants who are familiar with each other and are asked to spontaneously interact or, at least, perform linguistic tasks that are akin to language use as it occurs outside the laboratory.

Early and recent research on constructed action has not always investigated authentic language use, relying instead on introspection or judgement elicitation. Furthermore, even in studies that have focused on language use, methodological choices have sometimes undermined the authenticity of datasets (Stec et al., 2016; Vandennitte, 2022a). For instance, some investigations may not be characterised as relying on dialogic and spontaneous language data. In Earis & Cormier's (2013)

study on BSL and British English, participants told stories in front of a camera instead of a conversational partner. This may be problematic as monologues have been shown to feature less depiction than dialogues (Bavelas et al., 2014a). In a similar vein, it is likely that addressing the researcher, a potentially less familiar and more authoritative interlocutor, rather than a familiar addressee like in Rayman's (1999) study could lead to reduced authenticity. In some research, the spontaneity of collected data may also be questioned. For instance, participants in Earis & Cormier's (2013) comparison prepared their narrative productions and were provided with a summary of the story that they were asked to retell ahead of data collection. Perhaps one of the most common issues related to authenticity in constructed action research relates to the tasks performed by language informants. Probably for comparability purposes or in order to favour the occurrence of the phenomenon, most research on the topic has relied on highly controlled tasks such as narrative retelling or description tasks, often elicited using visual stimuli such as cartoons or vignettes (McNeill, 1992; Rayman, 1999; Marentette et al., 2004; Earis & Cormier, 2013; Perniss & Özyürek, 2015; Quinto-Pozos & Parrill, 2015; Parisot & Saunders, 2022, Vandennitte 2023). Less controlled settings, like free conversations or personal narratives, prove more informative about how language users use constructed action in everyday life (e.g., Puupponen et al., 2022; Shaw, 2019; Stec et al., 2016).

A second issue raised in both Stefanowitsch (2020) and Fenlon & Hochgesang (2022a) is that of representativity. It is often hard for a corpus to be able to capture a snapshot of language as it is used by a whole language community (unless that community has a small number of language users). Therefore, corpora can be designed using sampling methods and criteria that ensure that relevant variation within a given community will be reflected in the collected data. Stefanowitsch points out that it is nearly impossible to reach real representativeness. Rather, the next best option is that of diversity. The need for diverse representation in corpora bears particular relevance for research on deaf signing communities. Schembri & Johnston (2012), Fenlon & Wilkinson (2015), and Fenlon & Hochgesang (2022a) emphasise that signing macro-communities are indeed very heterogeneous ones. One reason for this is that few signers acquire a signed language from birth. Mitchell & Karchmer (2004) assess that native ASL signers, those who are exposed to ASL by their caregivers, make up about five to ten percent of the ASL community. A large majority of signers in macro-communities then acquire a signed language at a later age. Another factor leading to the diversity of signed language use is that signers are part of both a signing community and a larger one, the community that uses the (majority) spoken language. This contact context means that signers are exposed, to varying degrees, to spoken language use, "*lead multilingual lives [...] and can vary in the extent to which they mix languages*" (Fenlon & Hochgesang, 2022a, pp. 7-8). To address this diversity, sampling methods may specifically target variation patterns deemed relevant within a given community and its languaging practices. Fenlon et al. (2015, pp. 160-161) flesh out several sampling criteria which have been identified for signed language corpora:

[P]articipants are selected as part of a quota sample, according to a set of demographic variables (e.g., gender, age, region, ethnicity, socioeconomic class, and age of SL acquisition) that are considered relevant to deaf communities. Although the resulting data

set may or may not be representative of the wider deaf community [...], recruiting participants via a quota sample with these demographic variables does take us some way towards capturing the full range of variability in the deaf community.

Beyond informants' profiles, Fenlon et al. (2015, p. 164) also describe text type as a domain in which attention to diversity is warranted as "*there is a clear consensus among projects that different genre types should be sampled in order to maximize representativeness*". Summing up, researchers building corpora have emphasised the need for including diverse languages and languaging practices.

Comparative research on constructed action reflects the challenging nature of representativeness and diversity (Vandenitte, 2022a). First, when it comes to informants' languaging profiles, native signers seem to have been the most represented group in comparative studies. Some investigations have exclusively focused on native signers. Other publications also include signers whose exposure to a signed language dates back to their (later) childhood (Marentette et al., 2004; Quinto-Pozos & Parrill, 2015; Quinto-Pozos et al., 2022; Hodge et al., 2023; Vandenitte, 2023). Including signing informants with diverse acquisition backgrounds is important for constructed action research. Indeed, there is some evidence that deaf signers and hearing learners of a signed language, whose first language is a spoken language, use constructed action to a lesser extent than deaf native and early signers (Saunders, 2016; Gulamani et al., 2020).

Second, research on constructed action reflects the generally high degree of representation of the narrative discourse genre in signed language corpora (as observed by Fenlon et al., 2015; Slonimska et al., 2021; Puupponen et al., 2022). Most comparative studies have analysed the use of constructed action in narratives based on stimuli such as written text, picture books, cartoon clips, or film (Rayman, 1999; Marentette et al., 2004; Earis & Cormier, 2013; Quinto-Pozos & Parrill, 2015; Quinto-Pozos et al., 2022; but see Janzen, 2022 for a study based on personal narratives). Some other studies have looked at constructed action beyond narration. Parisot & Saunders (2022) use two types of stimuli for informants to 'describe': narrative and descriptive stimuli. Whereas a narrative stimulus included "*emphatic elements*", its descriptive counterpart was made up of "*factual events containing no emphatic reactions or actions*" (p. 268). Hodge et al.'s (2023) methodological set-up also includes more than a narrative retelling task. In pairs, informants in this study had to first describe picture stimuli cards and arrange them in a way that felt logical before telling the resulting story to a third party. Hence, the number of studies comparing signers' and speakers' uses of constructed action outside narratives is limited.

In a similar vein, several studies explicitly acknowledge that some participants in their samples are known to be skilled storytellers (Rayman, 1999; Earis & Cormier, 2013; Hodge et al., 2023). In some cases, this might reflect community members' varying degrees of cultural appreciation for storytelling, potentially enhancing representativeness or diversity (e.g., Hodge et al., 2023). However, Earis & Cormier (2013) select exclusively skilled storytellers to be their English informants in the sample. Their goal is to ensure that English speakers' storytelling skills match BSL signers' assumed stronger storytelling culture. However, this may also be seen as

reducing representativeness as it is unclear to what extent the participants' use of constructed action reflects wider community practices for English speakers. Investigating constructed action in narratives is relevant as this genre is a prominent one in interaction, perhaps even more so in signing communities than in some speaking communities (Ladd, 2003; Hodge & Ferrara, 2014). However, the focus on storytelling in research so far means that little is known about how constructed action is used across diverse text types in signing and speaking communities.

Finally, a corpus often includes a reasonably large amount of language data. Dataset size may correlate to a certain extent with representativeness and diversity as it allows for more variation to emerge (Stefanowitsch, 2020). Large-scale investigation of constructed action could help disentangle inter-individual variation from potential patterns that emerge at the community level (Barth et al., 2021). This aspect has been recognised as crucial, notably for deaf signing (macro) communities given the heterogeneous nature of their language practices. Fenlon et al. (2015, p. 158) argue that this constitutes one of the major strengths of corpus approaches to signed language linguistics:

[I]t is often difficult even for native signers to be certain about what is and is not an acceptable construction in their language. [P]rocessing [...] large amounts of annotated texts can reveal patterns of language use and structure not available to everyday user intuitions, or even to expert detailed analysis.

Hence, a larger dataset is likelier to provide many instances of constructed action and inform researchers about variability across different languages or text types.

Because constructed action research involves analysing video data through a lengthy manual annotation process, this often means that sub-corpora of a smaller size are selected for the study of the phenomenon. It is however worth asking whether prior analyses were conducted on large enough datasets for their results to be generalisable. Indeed, most comparisons of signers' and speakers' use of constructed action have been fine-grained analyses performed on small-scale datasets. For instance, several studies have focused on a small number of informants for each language in the comparison: 2 for both BSL and English (Earis & Cormier, 2013), 3 for LSQ and Quebec French (Parisot & Saunders, 2022), 3 for ASL and 4 for English (Janzen, 2022), 4 for both LSFB and Belgian French (Vandenitte, 2023), and 5 for ASL and English (Rayman, 1999). Other studies have compared larger datasets including more informants for both language pairs: 8 for ASL and English as well as DGS and German (Marentette et al., 2004; Perniss & Özyürek, 2015), 10 for Auslan and 12 for Matukar Panau (Hodge et al., 2023), 10 for ASL and 20 for English (Quinto-Pozos et al., 2022), and 10 for ASL and 23 for English (Quinto-Pozos & Parrill, 2015). While small-scale studies are a starting point and have already advanced our understanding of constructed action, their results should be interpreted cautiously, notably because of the issue of diversity in such samples.

The issues underscored here reflect wider problems in signed language linguistics, which may be assumed to have occurred in multimodal spoken language linguistics too. Fenlon & Hochgesang (2022a, pp. 8-9) summarise why current models or theories may need revising:

Since much of signed language description has focused on small, elicited datasets and judgments, knowledge of signed languages may be based on structures that are relatively infrequent, or researchers may have made generalizations on the basis of a small amount of data. Larger datasets of spontaneous data from a range of signers are needed to test claims made in existing language descriptions, much of which have traditionally been made using smaller datasets that tend to be based on privileged groups (predominantly white, Deaf or Deaf, who have access to higher education and the time and ability to participate in such work).

In order to uphold these three qualities of corpus approaches – authenticity, diversity, and size – and to ensure good comparability of datasets (Hodge et al., 2019b), traditional assumptions rooted in different approaches to constructed action could be revisited as testable hypotheses in future research (Johnston, 2018; Stefanowitsch, 2020; Fenlon & Hochgesang, 2022a).

5.2.2 Data analysis and enrichment

Two types of operationalisation issues have affected comparability of results in research on constructed action. First, because of different definitions of the phenomenon, it is unclear to what extent claims made in specific studies can be generalised. For instance, some researchers have taken a broad approach to constructed action as including constructed dialogue (e.g., Hodge & Ferrara, 2014; Johnston, 2019; Puupponen et al., 2022; Hodge et al., 2023) whereas others have focused more specifically on utterance reporting or, by contrast, instances of constructed action that exclude the enactment of languaging (e.g., Herrmann & Steinbach, 2012; Stec et al., 2016; Herrmann & Pendzich, 2018; Kimmelman & Khristoforova, 2018).

Second, by narrowly focusing on specific articulators assumed to play a central role in the identification of constructed action, some instances of the phenomenon and the use of other modes may have been downplayed or ignored (as noted by Hodge et al., 2023). Spoken language linguistics has traditionally ignored the multimodality of speakers' communicative actions, focusing on speech. It is also clear that gesture researchers have significantly studied manual actions but other body parts have received less attention (e.g., Frederiksen, 2017). In some analyses of signed languages, some types of constructed action have been defined as the use of nonmanuals (e.g., Padden, 1986; Pfau & Quer, 2010; Herrmann & Steinbach, 2012). This means that signers' hands, now generally accepted to contribute to constructed action in sometimes non-trivial ways (Cormier et al., 2012, 2015; Ferrara & Halvorsen, 2017), have been ignored in such studies. Conversely, a similar issue has been argued to occur with studies treating constructed action as a holistic phenomenon, i.e., identifying general stretches of constructed action with less attention for which articulators contribute to the enacting behaviour. This methodological choice may have left some instances of constructed action unaccounted for (Ferrara, 2012; Ferrara & Johnston, 2014; Jantunen, 2017). In particular, Cormier et al. (2015), Jantunen et al. (2020) and Puupponen et al. (2022) note that this may have skewed analyses towards focusing on more overt forms of constructed action, potentially excluding more subtle instances of the phenomenon.

To summarise, diverse definitions and operationalisations of constructed action make it difficult to compare results across studies.

Even when similar conceptions of constructed action are adopted, different operationalisations or methods to analyse them undermine one's ability to assess and compare reported results. For instance, the overall frequency of constructed action and/or dialogue has been operationalised in different ways. Frequently, in signed language corpus studies, frequency of constructed action is measured using the proportion of discourse time in which the phenomenon is found to occur (Ferrara, 2012; Hodge & Ferrara, 2014; Jantunen, 2017). However, other measures have also been proposed. For instance, in their study comparing LSQ and Quebec French, Parisot & Saunders (2022) also compare the distribution of the number of tokens of constructed action across two genres. Finally, Rumsey et al. (2023) compare the presence of utterance reporting across different texts by measuring the proportion of words that make up reports within each text.

In the same vein, the articulators contributing to constructed action have also been analysed in different degrees of detail. Indeed, different taxonomies have been adopted across studies. Some signed language linguists have adopted Cormier et al.'s (2015) guidelines to tag enacting behaviour of several articulators, i.e., eye gaze, facial expression, head movements, torso movements, left and right hand and/or arm movements. However, other researchers have lumped some of these articulators together. For instance, Stec et al. (2016) do not distinguish between head and torso movements and simply analyse 'posture changes'. In other cases, researchers have made finer distinctions: Hodge et al. (2023) further distinguish between the contribution of facial expression and spoken language mouthings as well as between enacting manual actions and 'sign' (the enactment of conventionalised meaning-making).

Degrees of constructed action have also received very different measurements and interpretations. In Cormier et al.'s (2015) framework, degrees are based on the prominence of the enacted referent's perspective (as cued by number and intensity of articulator use and co-occurrence with descriptive material or 'narration' from the enacting signer's perspective). In Quinto-Pozos & Mehta (2010) and Quinto-Pozos et al. (2022), the authors use overall intensity of articulator use as the main criterion for degree of constructed action. Yet another difference between these two approaches lies in the unit of analysis. In Cormier et al.'s methodology, one and the same token of constructed action may be subdivided into segments exhibiting different degrees over time. By contrast, Quinto-Pozos et al. (2022) attribute a single degree value to each token of constructed action, regardless of its length.

This literature review has shown that past literature on constructed action may need revising in light of several theoretical and methodological developments in the field. On the one hand, some traditional assumptions about the phenomenon seem not to be supported by empirical evidence, such as that provided by corpus research. In addition, for studies which do address constructed action empirically, issues of size, authenticity, and representativeness of investigated datasets as well as methodological differences in the definition and operationalisation of the

phenomenon (including its frequency, the contribution of articulators, and its degrees) mean that results cannot be easily compared across studies. The general picture provided by the literature review is therefore a blurred one. On the other hand, the shift to a modality-agnostic operationalisation of comparative concepts leads to a broadening of traditional research objects and questions to account for multimodality and semiotic complexity. Phenomena traditionally labelled as 'reported speech', 'role-shift', 'constructed dialogue', 'action role shift' or 'character viewpoint gestures' can and should now be compared without a priori distinctions. Whether there are indeed differences is a question that should be approached empirically. In addition, adopting causal frameworks that go beyond the traditional focus on modality differences may bring new interpretations of comparisons between signing and speaking communities.

6. Methodology

In this chapter, I present the research questions that will be tackled in this dissertation and the methods used to approach them. Section 6.1 states the research questions asked in this study. Section 6.2 motivates a corpus analysis as a suitable approach to answer the research questions, presents the criteria used for the selection of the FRAPé and LSFB sub-corpora analysed and describes the annotation protocol used to enrich the corpus videos. Next, in Section 6.3, the results of a consensus measurement carried out with two annotators who use LSFB and Belgian French as their dominant languages respectively are presented. Finally, Section 6.4 is devoted to the methods used to extract data from the enriched corpus videos.

6.1 Research questions

Given the theoretical and methodological issues raised in the literature review, it appears that research on constructed action needs more direct comparisons of signed and spoken languages. Such an endeavour should go back to a basic description of the phenomenon that attempts to be maximally inclusive of signers' and speakers' communicative practices while avoiding biases identified in prior studies. Constructed action has been shown to be a key meaning-making strategy in signed languages but its frequency in spoken languages and its variation across text types remains unclear. Next, the articulators recruited to enact referents seem to overlap extensively across signed and spoken languages but claims of systematic differences warrant more research. Finally, signed languages have been shown to exhibit different degrees of constructed action. Little research has addressed this issue for spoken languages, despite the question's relevance to how signers' and speakers' combined use of different semiotics and/or of viewpoint strategies differ. This comparison of constructed action will thus ask three main questions:

- How frequently do LSFB signers and Belgian French speakers use constructed action?
- How frequently are different articulators recruited to enact referents across LSFB and Belgian French?
- How frequently do LSFB signers and Belgian French speakers recruit overt, reduced, and subtle types of constructed action?

In addition, this thesis will also study how the preceding measures vary as a function of participant, language group, and task. The methodology used to answer these research questions will now be described.

6.2 A cross-linguistic approach to constructed action: the LSFb-FRAPé directly comparable corpora

As shown in Chapter 5, corpus methods lend themselves well to analyses of constructed action and may enable researchers to avoid common issues in research on the phenomenon. Spoken language corpora have existed for a long time already but corpora that capture the multimodality of spoken language use have only recently emerged. Several signed language corpora have been collected in the past two decades. However, the development of corpora that enable a direct comparison of signed and spoken languages is a very recent innovation in the field.

By comparing signed languages with multimodal data of spoken languages, researchers can now avail themselves of tools that do not *a priori* exclude any form of communication as irrelevant to the comparison. Some of these corpora have been specifically built to balance and maximise sample size, diversity, and authenticity. The first corpus in this tradition is the Auslan-Australian English archive, the first directly comparable corpus of Auslan and its ambient spoken language, Australian English (Hodge et al., 2019b). This dissertation uses a similar dataset to study constructed action in LSFb and in Belgian French. The LSFb analysis uses data retrieved from the LSFb Corpus (Meurant, 2015). This corpus is the first large, open-access dataset of LSFb dyadic conversations between signers from Wallonia and Brussels with diverse signing profiles performing varied language tasks. A corpus of Belgian French designed to be directly comparable with the LSFb one is being collected (Lepeut et al., 2024). This corpus aims to document Belgian French with the same methodological criteria as for the LSFb Corpus, from the physical environment to the linguistic tasks performed. Both corpora are filmed using three cameras within a laboratory setting, a central camera filming both participants from a side angle and the other cameras facing each corpus informant more closely. In addition, the FRAPé Corpus collection also involves the use of two standing microphones placed next to the informants and directed towards them.

Some LSFb Corpus tasks of special relevance to the LSFb community were modified to fit the specificities of French-speaking Belgium when collecting the FRAPé Corpus. For instance, Task 04 in the LSFb Corpus aims to elicit conversations about what it means to be deaf or hearing to the informants and how the relations between deaf and hearing people are experienced by the participants. Task 04 is described as follows on the LSFb Corpus website (Meurant, 2015):

The moderator asks the signers to give their opinion on the advantages and disadvantages of being deaf or hearing. The moderator can give them a page from the comic *That Deaf Guy* and ask them whether the story told in the comic strip corresponds to their personal experience, whether the story is true or false, and say why.

In the FRAPé Corpus, this was replaced by a question on the relations between the Walloon and/or more broadly French-speaking community with the other large linguistic community in Belgium, namely the Flemish community in the North of the country.

6.3 Sampling constructed action use in the LSFb and FRAPé corpora

Two sub-corpora of the LSFb and FRAPé datasets were selected, each including ten participants as they performed two tasks. In what follows, criteria used to select these datasets are described.

6.3.1 Participants' profiles

This sampling was done for the LSFb corpus first by selecting participants who fit several criteria related to their acquisition history, gender, and age categories.

Table 2. Informants of the LSFb and FRAPé corpora

Participant code	Age category	Gender	Acquisition	Corpus
S028	16-25	F	native	LSFB
S029	16-25	F	near-native	LSFB
S030	26-45	F	native	LSFB
S031	26-45	F	native	LSFB
S059	16-25	F	native	LSFB
S052	26-45	M	near-native	LSFB
S060	16-25	M	native	LSFB
S075	26-45	M	native	LSFB
S076	26-45	M	native	LSFB
S097	16-25	M	native	LSFB
L001	16-25	F	native	FRAPé
L002	26-45	F	native	FRAPé
L020	26-45	F	native	FRAPé
L021	16-25	F	native	FRAPé
L022	16-25	F	native	FRAPé
L015	16-25	M	native	FRAPé
L019	26-45	M	native	FRAPé
L027	16-25	M	native	FRAPé
L029	16-25	M	native	FRAPé
L030	16-25	M	native	FRAPé

First, the study was restricted to signers who acquired LSFb from their caregivers since infancy (labeled as 'native' signers in the LSFb Corpus) or in their early childhood, typically in school (labeled as 'near-native' signers). This goes against the criteria of representativeness and diversity but is motivated by the comparison with native French speakers. Second, the study aimed at a gender-balanced representation. Hence, each sub-corpus was balanced for (binary) gender. Third, as

age has been shown to influence the frequency of enactment, the age range was reduced to signers who were between 16-25 and 26-45 years of age. The FRAPé data was sampled to match the same criteria. Therefore, previously recorded participants who matched the criteria were selected and additional sessions were recorded. Table 2 shows the participants' age group, gender, and acquisition history.

6.3.2 Task selection

Data from two tasks in the LSFb and FRAPé corpora was used for the analysis. The choice to take two different tasks was motivated by the diversity criterion and the lack of research on text types that are not narrative. The first is Task 05 (entitled 'Good signing' in the LSFb Corpus and 'Good French' in the FRAPé corpus). In Task 05, the corpus moderator asks the participants to converse about their language attitudes. The participants are prompted by questions such as: 'What is it that makes you think 'I like how that person signs!' or 'What do you think constitutes good French?'. They are encouraged to discuss several aspects of variation such as regiolects, accents, and diachronic differences. This task was selected for two reasons. First, it is more conversational in nature than other tasks in the corpus. As conversations are a poorly documented text type in constructed action research, this constitutes an improvement in terms of authenticity and diversity. Second, it was expected that the participants would discuss languaging events in their conversations, potentially prompting them to enact utterances.

The other task that was analysed was Task 12, 'Long story'. In this narrative task, corpus participants were asked to retell (part of) a story to their conversational partner. The end of the story is then retold, as imagined, by the conversational partner. One participant in each dyad went through the picture book *Frog, Where Are You?* (Mayer, 1969). The other one watched the silent animated film *Paperman* (Kahrs, 2012). Even though elicited narrations prompt less authentic productions, this choice of task was motivated by the robust observation that constructed action is frequent in storytelling across both signed and spoken languages. In addition, the narrative genre, particularly *Frog, Where Are You?*, has been used as an elicitation material in many studies, thus enhancing comparability of the results with those of prior studies.

6.4 Corpus enrichment

The corpus selected was analysed using the multimodal annotation software ELAN (Crasborn & Sloetjes, 2008; Max Planck Institute for Psycholinguistics, The Language Archive, Nijmegen, The Netherlands, see <http://tla.mpi.nl/tools/tlatools/elan>). ELAN enables researchers to analyse sound and image materials by carrying out time-aligned description on several levels thanks to a series of 'tiers', i.e., horizontal lines on which separate annotations can be carried out. The annotation procedure used for the present study was largely inspired by Cormier et al.'s (2015) guidelines for the annotation of constructed action. Cormier et al.'s proposal enables researchers to explore different aspects of

constructed action. These include the general occurrence of the phenomenon, the bodily articulators which contribute to it, and the degree or type of constructed action. In the following section, the ways in which Cormier et al.'s guidelines were used and modified to analyse the LSFB and FRAPé corpora are described.

6.4.1 Operationalising key concepts for the annotation protocol

Hodge & Crasborn (2022) stress that the very act of commenting on a corpus by choosing a specific annotation scheme is mediated by the researcher's theoretical assumptions. However, the authors also propose that annotations can be carried out in a way that is as little theory-laden as possible (Haspelmath, 2007), making the corpus useable for a larger pool of researchers, irrespective of the theoretical frameworks they work in. Therefore, as they propose, good annotation practices involve being explicit about one's theoretical framework and research goals, as well as publishing the guidelines to the annotation procedure that has been selected to enrich the corpus. The annotation procedure chosen for the analysis of constructed action in LSFB and Belgian French draws on this line of thought. Constructed action research forms a dense conceptual and terminological network in which different approaches are paired with diverse assumptions. For instance, while researchers from different traditions are aware of the considerable overlap in their research object, e.g., construction action, utterance reporting, or role shift, there is no consensus about how the phenomenon should be delimited. Therefore, as stated earlier, an analysis of constructed action that takes as little as possible for granted is warranted. In the explanation and motivation of the annotation protocol, I will argue that Cormier et al.'s (2015) proposal is a good starting point for an analysis of the phenomenon that is as theory-neutral as possible.

In the following sections, the definition and operationalisation of different concepts for the annotation process are explained and motivated. As Sections 3.1 and 3.2 have shown, diverse approaches seem to agree on some basic facts about what constructed action is. All definitions or operationalisations seem to agree that the phenomenon involves the adoption of the enacted referent's perspective and that this is accompanied by the use of the body for both speakers and signers as well as the use of voice for speakers. As seen in the critical discussion of the literature review, there are several pitfalls identified in prior research that should be avoided. These include assuming that there are clear-cut distinctions between speakers' and signers' uses of the phenomenon as well as between the enacting of languaging events and that of other actions. Another issue has to do with the use of specific articulators to define and identify constructed action. Hence, what is needed is what Haspelmath (2010) calls a comparative concept (see Section 2.2). This concept should be broad enough to accommodate both speakers' and signers' communicative practices comprehensively and should therefore be maximally inclusive of modalities. As the review has shown, the extent to which specific modes/articulators contribute to constructed action remains an important empirical question. Therefore, one should avoid using one or a few specific body parts, as has sometimes been done in signed language linguistics, to identify constructed action. Instead, one should try and capture any potential instance of the phenomenon by including as many articulators as possible.

Cormier et al.'s (2015, p. 167) proposed definition of constructed action seems to be well-suited to the preceding requirements, at least for signed languages:

Sign languages are known to make use of a representational device where one or more bodily articulators [...] are used to represent the utterances, thoughts, feelings and/or actions of one or more referents.

This definition includes all functional domains identified in Section 3.2 and does not strictly tie the phenomenon to the activation of necessary articulators. It is assumed that any articulator may contribute to and 'activate' constructed action. Several extensions could however be applied to fine-tune this definition. First, while the notion of a shift to a referent's internal perspective is present in part of the definition (e.g., when discussing thoughts and feelings), this aspect could be made more explicit to avoid confusion. For instance, one may think of the use of bodily articulators to represent actions or utterances from an external perspective in prototypical uses of depicting signs or in indirect utterance reporting. Second, for the purpose of comparing signed and spoken languages, one needs to add that voice is used in addition to bodily articulators in spoken languages. Hence, constructed action may be redefined as the strategy used across signed and spoken languages whereby one or several bodily and/or vocal articulators are used to refer to a referent's actions, including their utterances, thoughts, and feelings from a referent-internal perspective. This is in line with Hodge & Cormier's (2019, p. 185) recent proposal to use 'enactment' as a comparative concept based on function '*while making no assumptions about how these practices formally manifest within different language ecologies*'.

In the following sections, the application and adaptation of Cormier et al.'s (2015) protocol to the LSF and FRAPé datasets is explained and illustrated. This section will include an explanation of how local annotations of each enacting articulator and of constructed dialogue delimit the identification of global annotations of constructed action. In addition, this section will also address how uncertainties were dealt with in the annotation phase and how measures of consensus with other annotators were obtained.

6.4.2 Identifying participants' turns

The timing of each signer's contribution to the conversation was annotated on a separate tier ('Turn') based on their conversational turns, as in Puupponen et al. (2022). The participant's contribution was considered to start with the opening of their turn, i.e., their first sign, word, or turn-opening visible bodily action. Backchanneling, unless it included a token of constructed action, was not included in the participants' turn annotations.

6.4.3 Identifying stretches of constructed action: the ‘CA:summary’ tier

Using Cormier et al.’s (2015) annotation guidelines, the present analysis tagged for the general use of constructed action on a tier labeled ‘CA:summary’. Using Cormier et al.’s proposal, a token of constructed action is a segment in which the strategy is continuously used. The annotation of a token of constructed action is based on the continued contribution of at least one articulator to enact the same referent. Crucially, this articulator need not be used throughout the whole token as “[w]ithin a stretch of CA annotated in the CA summary tier, individual articulators marking CA could alternate” (p. 179). The beginning of an annotation cell on the ‘CA:summary’ tier corresponds to the time at which the first articulator starts enacting. The annotation ends when the last recruited articulator is no longer considered as contributing to enacting the referent. Annotation cells on the CA:summary tier start with ‘CA:’ and are followed by a brief description of the enacted referent or of the action that is profiled by the strategy. As in Cormier et al., the articulators that are considered for LSF are eye gaze, face, head, torso as well as the use of signers’ hands and arms. The respective contributions of these articulators were identified on different ‘CA:articulator’ tiers: ‘CA:gaze’, ‘CA:face’, ‘CA:head’, ‘CA:torso’, ‘CA:hands_arms’. Because this dissertation aims to compare the use of constructed action in a signed language and in a spoken language, the use of voice was also included as a potential articulator contributing to constructed action in Belgian French on an additional ‘articulator’ tier labeled ‘CA:voice’. This tier was dedicated to the use of prosodic cues to enact referents, e.g., the use of a higher pitch to enact a child.

In addition, the ‘CD:summary’ tier identified the occurrence of utterance reporting or constructed dialogue in both languages. This tier, like ‘CA:articulator’ tiers, also contributes to the overall identification of constructed action. Though enacted utterances are not actual articulators, two reasons motivate the use of a separate tier for constructed dialogue. First, it enables a specific identification of utterance reporting, a meaning domain which has been extensively studied in spoken language linguistics but less so in signed language linguistics. In addition, not enough is known about the frequency of constructed dialogue across different contexts, such as its use in different communities or text types (see, e.g., Puupponen et al., 2022, p. 31). Tagging for the occurrence of constructed dialogue also enables potential comparisons with prior studies or claims focusing specifically on utterance reporting. Second, it may be argued that, though relying on articulators already represented in the ‘CA:articulators’ tiers, constructed dialogue works in a somewhat different way. Indeed, most of the descriptive meaning-making that makes up utterances relies on signers’ use of their hands and speakers’ use of their voice. Hence, these articulators are indeed the ones also used to enact constructed or reported utterances. However, in this specific case, the communicative acts they contribute to are “*depictions of prior [or made up] acts of description*” (Hodge & Cormier, 2019, p. 188). Hence, like in Hodge et al. (2023), these uses of hands and voice are distinguished from other uses of these articulators.

The flexibility of Cormier et al.'s (2015) protocol is illustrated in Figure 13 and Figure 14. In these excerpts, several articulators contribute to enactment at different times, but the depiction of a referent remains uninterrupted. In Figure 13, the FRAPé Corpus informant enacts the female protagonist in the *Paperman* story holding a sheet of paper which had flown away and expressing her relief after managing to retrieve it. Throughout most of the annotation, the speaker's hands are recruited to enact the 'holding' action. By the time the use of hands stops, the speaker is already enacting the character's utterance. Enacting uses of gaze and head were also identified during two portions of this sequence. In Figure 14, the signer enacts the male protagonist in *Paperman* as he thinks about a solution to get the attention of a woman in the building opposite. To do so, the signer recruits all articulators with varying frequency and duration. Gaze, for instance, is often redirected towards the addressee. However, because other articulators are still deemed active, the token of constructed action continues uninterrupted.

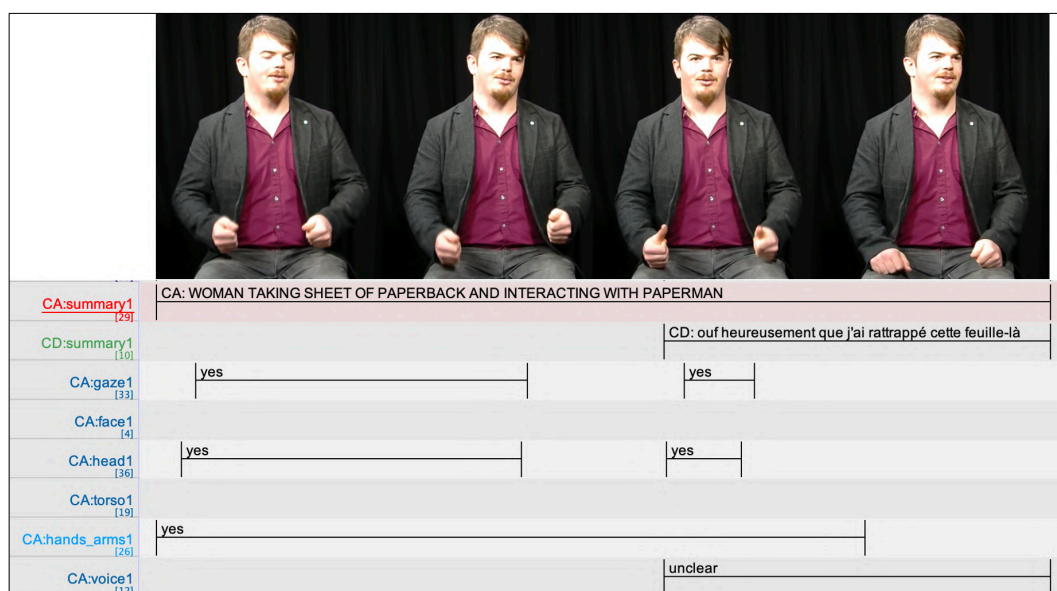


Figure 13. Annotation on the CA:summary tier in the FRAPé Corpus

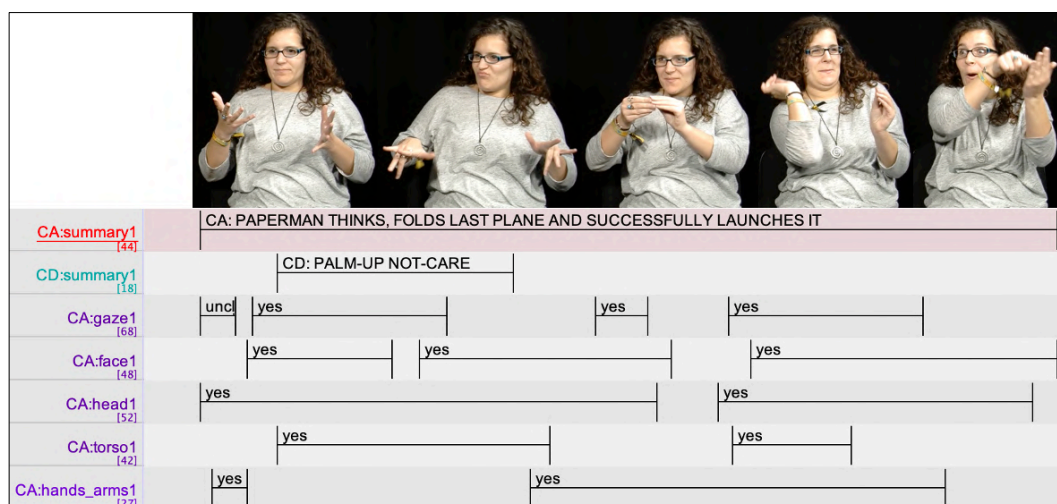



Figure 14. Annotation on the CA:summary tier in the LSFb Corpus

In the procedure adopted here, instances in which it is unclear whether a segment constitutes enactment are explicitly signaled on the ‘CA:summary’ tier (Hodge & Crasborn, 2022). Whenever such doubts occur, the annotation cell content is prefixed with a question mark ‘?’. This approach is useful since annotating is a highly subjective activity and the context-dependent form-meaning pairing involved in constructed action means that one may not always ascertain the occurrence of the phenomenon. This is notably the case when few articulators contribute to constructed action and/or when they do so by means of slight rather than prominent movements. Figure 15 and Figure 16 provide two examples felt to be uncertain cases of constructed action in Belgian French and in LSF.

In Figure 15, the Belgian French speaker is retelling a story. The speaker explains that a man is standing on a platform and that a woman runs past him. The woman’s motion path is depicted with the speaker’s hands by means of an O-VPT iconic visible action sweeping from left to right. Simultaneously, the speaker reorients his head and gaze direction to the right, following the O-VPT manual action. The use of these two articulators may be interpreted in two ways. First, the speaker may be enacting the story character observing the woman as she runs past him. Second, these movements may simply be indicating ones, whereby the speaker ‘points’ with his gaze and head to signal the woman’s trajectory and/or its representation on the speaker’s hand. Instances in which it is unclear whether head, torso, and gaze movements enact or simply indicate were frequent and are likely to constitute the bulk of uncertain cases in the annotated dataset.



CA:summary1 [29]	?CA:MAN LOOKING AT THE WOMAN RUNNING?
CD:summary1 [1]	
CA:gaze1 [41]	unclear
CA:face1 [11]	
CA:head1 [36]	unclear
CA:torso1 [22]	
CA:hands_arms1 [17]	
CA:voice1 [2]	

Figure 15. Uncertain annotation of constructed action in the FRAPé Corpus

In Figure 16, the LSF signer explains that she is less drawn to some signing styles. Prior to that utterance, the informant discusses the diversity of signing styles one

encounters in the deaf (LSFB) community. The signer mentions several profiles, including signers who frequently mouth French words while signing and signers who use ‘signed French’. In that stretch of discourse, the participant indexes these signing profiles to her right side. The utterance shown in Figure 16 occurs afterwards. During this stretch of discourse, the signer slightly leans her head and torso towards the location that was indexed earlier (second still). It is hard to determine whether the signer hereby enacts herself being drawn to these signing profiles or merely re-indexes these signing profiles using her head and torso. Because of this uncertainty, this token was annotated as unclear by prefixing it with a question mark ‘?’.

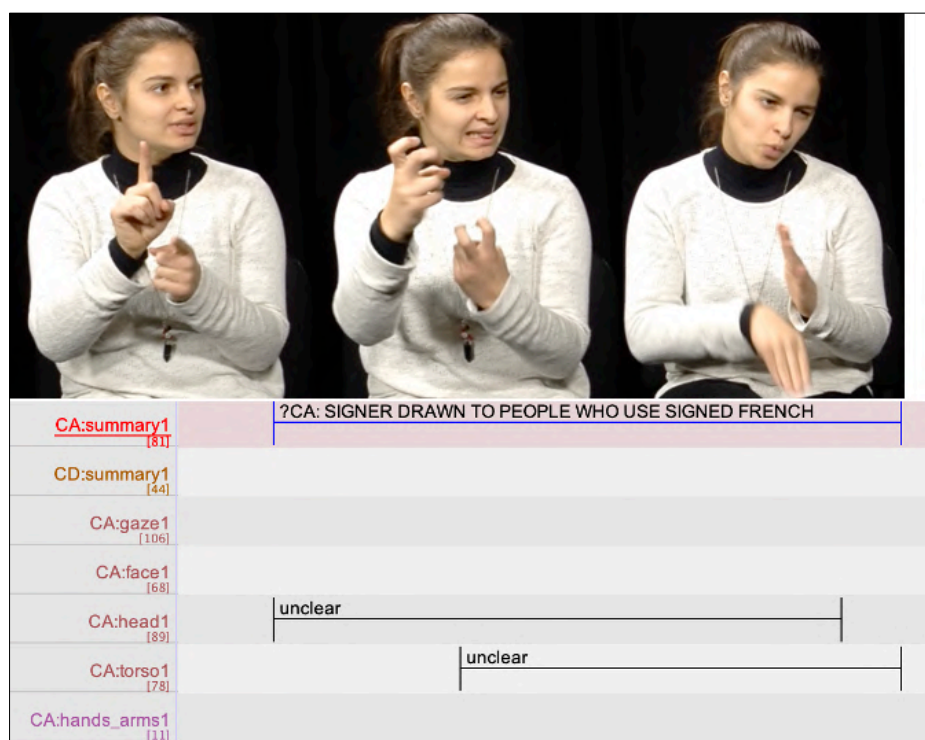


Figure 16. Uncertain annotation of constructed action in the LSFB Corpus

The following section delves into the annotation of constructed dialogue, of the different bodily articulators and of voice. As explained earlier, these annotations enable the delimitation of annotations on the ‘CA:summary’ tier which has been presented in the preceding pages.

6.4.4 Identifying articulator contribution to constructed action

As mentioned and shown in the illustrations, the ‘CA:summary’ tier annotations rely on the annotation of enacting articulators. The following tiers were devised and annotated for the analysis of articulators in the selected dataset: ‘CA:gaze’, ‘CA:face’, ‘CA:head’, ‘CA:torso’, ‘CA:hands_arms’, ‘CA:voice’. In each of these tiers, an annotation indicates that the articulator is felt to contribute to constructed action. Because an articulator can be deemed activated even in the absence of movement (Puupponen et al., 2022), e.g., when enacting a static referent, this enacting use of articulators was also included as articulator activation in the present

analysis. In the remainder of this subsection, the annotation procedure is detailed for each articulator.

Following Cormier et al. (2015), eye gaze was annotated as active when the participant's gaze was deemed to enact the referent's gaze behaviour. Enacting eye gaze behaviour included gaze (re-)direction as well as changes in gaze aperture such as blinking. Note that this differs from other studies, such as Puupponen et al. (2022), where only the depiction of gaze direction was annotated on the 'CA:gaze' tier. In that study, enacting eye blinks, for instance, were identified as enacting facial expressions and were therefore annotated on the 'CA:face' tier.²⁷ In the present study, enacting facial actions are annotated on the 'CA:face' tier. This tier tracked for changes in different parts of the face, such as participants' eyebrows, nose, cheeks, and lips.

Head movements that were deemed to be used for constructed action were annotated on the 'CA:head' tier. Participants used their heads in diverse ways to enact referents. Though the literature most frequently reports on head rotation and tilting or leaning movements, other types were also considered. As Puupponen (2018, p. 181) shows, these also include "*flexion/extension*" ("*nod, nodding, chin-up, chin-down*") and "*protraction/retraction*" ("*thrust, pull*") movements. Therefore, all kinds of head movements deemed to contribute to constructed action were included. Enacting torso movements were annotated on the 'CA:torso' tier. Here too, the literature often mentions torso enacting movements as upper body leans to the side or rotations. However, as noted by Puupponen (2018, p. 181), torso movements also include "*flexion/extension*" ("*lean forward, lean backward*") as well as "*elevation/depression*" ("*shoulders up, shoulders shrugged*") movements. Accordingly, any enacting torso movement was included in the annotation process.

Hand and arm enacting movements were annotated on the 'CA_hands_arms' tier. Instances in which the participants' hand(s) and arm(s) were felt to stand for the referent's hand(s) or arm(s) are tagged on this tier. This also includes cases in which LSFBS signers exploit the depictive potential of iconic lexical signs denoting manual actions (e.g., LS [SL], ESCALADE [CLIMBING], DÉSHABILLER [UNDRESS], NAGER [SWIM]).

In addition, the enacting use of voice was annotated in the FRAPé Corpus. An annotation was added for each stretch of discourse in which prosodic properties of the participant's voice were deemed to be enacting those of a referent. This notably occurred when French speakers constructed dialogue but an enacting use of prosody was also found co-occurring with discourse which could be characterised as 'serious' in Clark & Gerrig's (1990) terms. For instance, while retelling that a child

²⁷ It may be argued that changes in gaze aperture may often involve changes in facial expression too. For instance, Puupponen et al. (2022) provide an example of a signer enacting a referent closing their eyes because of a bright light. It is not unlikely that this signer also performed eyebrow movements to squint. Therefore, other things being equal, this difference in annotation procedure may have more impact on the frequency of eye gaze contribution – which may be slightly increased in the present study – than on that of facial expression.

is saddened without using utterance reporting, a speaker could adopt a lower vocal intensity and/or heighten their pitch.

Finally, several indices were used to identify instances of constructed dialogue, like framing devices, e.g., verbs of saying or thinking or pointing actions indicating enacted utterers, shifts in indexical reference (e.g., pointing actions, time and place indexicals), or more general contextual cues. Like in ‘CA:summary’, annotation cells on the ‘CD:summary’ tier start with ‘CD:’ and are followed by the descriptive material that makes up the constructed utterance. It is worth pointing out that the definition of constructed dialogue used in this analysis is more conservative or narrow than that used by Puupponen et al. (2022). Indeed, in their study, the authors include the enactment of ‘language events’ in which no conventional signaling is constructed or reported. For instance, this includes instances in which participants enact the action of shouting but not the shouted utterance. Such cases were treated as instances of constructed action (involving facial expression) but not dialogue in the present analysis.

Apart from ‘CD:summary’, the same controlled vocabulary was used to fill in the annotation cell on all articulator tiers. This controlled vocabulary provided two options, either ‘yes’ or ‘unclear’. The former was used whenever an articulator was confidently felt to contribute to constructed action. The latter option was used whenever it was unclear whether an articulator contributed to constructed action.²⁸ Like for the ‘CA:summary’ tier, the annotation procedure enables annotators to signal when it is unclear whether a segment is an instance of utterance reporting on the ‘CD:summary’ tier by prefixing the annotation cell content with a question mark ‘?’. Several researchers, across both spoken and signed languages, have indeed pointed to the difficulty in teasing apart the language user’s regular utterances and sequences of reporting. This has been called ‘narrator-character indeterminacy’ by Rumsey et al. (2023). The same issue has been identified by signed language linguists. When signers enact referents, their hands may produce conventionalised material whose ‘seriousness’, to use Clark & Gerrig’s (1990) term, may sometimes be hard to determine. In such cases, two interpretations are often possible: the signer may either be (seriously) commenting on the enacted sequence as often happens in reduced or subtle constructed action or the signer may be enacting the referent’s utterances or thoughts. Perhaps an additional reason for this ambiguity is that it is far from uncommon for clauses to be very short in signed languages, with core meaning aspects being inferable rather than conventionally encoded (Hodge & Johnston, 2014; Jantunen, 2013, 2017; Johnston, 2019; Johnston et al., 2007). Therefore, Cormier et al. (2015, p. 170) note that “*it is often unclear whether the signer reconstructs [...] the utterances, emotions, feelings or thoughts of the character or if the signer is giving a commentary (providing narration) while in the role of that character*”.

²⁸ When all articulators of a given segment of constructed action were tagged as ‘unclear’, the ‘CA:summary’ tier was attributed a ‘?’ prefix.

6.4.5 Body partitioning: Overlapping tokens of constructed action

Because participants sometimes simultaneously produced different tokens of constructed action by recruiting different bodily articulators to enact each referent, there were two versions of all the above-mentioned tiers. Hence, the annotation template included both ‘CA:summary1’ and ‘CA:summary2’ as well as corresponding ‘CA:articulator1’ and ‘CA:articulator2’ tiers, e.g., ‘CA:gaze1’, ‘CA:gaze2’, ‘CA:head1’, ‘CA:head2’, ‘CD:summary1’, ‘CD:summary2’. This method proposed in Cormier et al. (2015) enables one to deal with overlapping tokens of enactment by annotating distinct tokens and partitioned enacting articulators on separate tiers.²⁹

6.4.6 Annotation of degree of constructed action: the ‘role’ and ‘CA:type’ tiers

As proposed by Cormier et al. (2015), the roles taken on by the participants in discourse, notably when enacting referents, were annotated. First, two role tiers (‘Role1’ and ‘Role2’) are created to tag the perspectives that are deemed to be more prominent (the enacted referent and/or the enacting participant). When no constructed action is used, ‘Role1’ is annotated as ‘narrator’ (N) and ‘Role2’ is annotated as ‘None’. When participants used enactment, ‘Role1’ or ‘Role2’ had to be annotated as ‘character’ (C). In cases in which no lexical material is used in addition to enacting actions, Cormier et al. propose annotating ‘Role1’ as ‘character’ and ‘Role2’ as ‘None’. When some lexical material is used in addition to constructed action, ‘Role1’ and ‘Role2’ should feature both a character and a narrator role. Which of these ends up being the primary or secondary role is decided based on the perception of which perspective is deemed more dominant. When dealing with the simultaneous expression of two viewpoints, the language’s and the enacted referent’s, the relative dominance of these perspectives was informed by trying to compare the weight/information load provided by enacting and non-enacting material.³⁰

While there is no definite criterion, different clues were found to guide subjective evaluations of which perspective was considered dominant or secondary. A higher number of articulators contributing to constructed action or a stronger intensity of articulator use/higher movement amplitude tended to lead to an impression of a more overt constructed action token. When tokens of constructed dialogue occurred, Role 1 was always coded as ‘*character*’ whereas Role 2 was coded as ‘*None*’. This means that all instances of constructed dialogue were analysed as ‘*overt*’ instances of the phenomenon in terms of degrees. Indeed, this is because the

²⁹ CA:summary1 and CA:summary2 are merged as the CA:summary0 tier to answer our first research question. This tier captures the duration of constructed action in the discourse better than merely adding duration measures of CA:summary1 and CA:summary2 since these tiers are designed to annotate instances of distinct but overlapping tokens.

³⁰ In the rare cases of body partitioning in which two different referents were simultaneously enacted, the coding of roles was either ‘Role 1 = character, Role 2 = character’ (when no additional descriptive or *telling* material occurred) or ‘Role 1 = character, Role 2 = narrator’ (when additional descriptive material occurred).

manual or speech actions that make up what is reported enact some languaging event that involves descriptive meaning-making. Hence, due to their primarily depictive status, they were considered as contributing to constructed action.³¹

The remaining tier, i.e., CA:type, was generated based on the different kinds of overlap between Role1 and Role2 annotation cells. When Role1 was annotated as character and overlapped with a ‘None’ annotation on Role2, CA:type was automatically annotated as ‘overt’. When Role1 was annotated as ‘character’ and Role2 as ‘narrator’, CA:type was annotated as ‘reduced’. Finally, when Role1 was annotated as ‘narrator’ and Role2 as ‘character’, the ‘subtle’ annotation was used on the CA:type tier. As is the case in other types of annotations, the procedure for the annotation of roles and types of constructed action included the coding of uncertain instances. Uncertain roles and types were prefixed with ‘?’’. To extract type annotations from Role1 and Role2 tiers, the tier space which had not been filled with annotation cells in the Role2 tier was filled using the ‘Create Annotations from Gaps’ ELAN function. All these generated cells on the Role2 tier were automatically annotated with the ‘None’ value. Next, relying on the ‘Create Annotations from Overlaps’ ELAN function, the overlap of the different combinations of annotations in the Role1 and Role2 tiers was used to generate new tiers. Merging these newly created tiers into a new one – CA:type – using the ‘Merge Tiers’ function led to a single tier tracking degrees of constructed action in different stretches of discourse, indicating to which extent the corpus participants’ and the enacted referents’ viewpoints or roles were active and co-occurred in the data. Table 3 summarises the coding procedure for role dominance and the subsequent generation of type sequences.

Table 3. Annotation of roles and CA types

Annotation of Role 1	Annotation of Role 2	Generated CA type tiers
C	None	overt
C	C	overt
?C	None	?overt
?C	?C	?overt
C	N	reduced
N	C	subtle
?C	?N	?reduced
?N	?C	?subtle

³¹ This procedure applied to instances in which constructed dialogue was the only material being manually expressed. When this was not the case (e.g., if a non-enacting pointing action co-occurs with an enacted utterance), the enacted referent’s perspective was attributed a primary role.

Lastly, to ease the extraction of metadata linked to types of constructed action, metadata tiers that were time-aligned with the ‘CA:type’ tier were also generated by using the ‘Create Annotations from Overlaps’ function.

6.4.7 Summary of annotation protocol

The tier structure used for the analysis is summarised in Table 4.

Table 4. Tier structure in ELAN

Tiers	Annotation cell content
CA:summary(1/2)	(?)CA: <i>enacted referent and/or process</i>
CD:summary(1/2)	(?)CD: <i>enacted utterance</i>
Role1, Role2	(?)C, (?)N, None
CA:gaze(1/2)	Controlled vocabulary: yes/unclear
CA:face(1/2)	
CA:head (1/2)	
CA:torso(1/2)	
CA:HA(1/2)	
CA:voice(1/2)	
CA:type	
Turn	NA (empty annotation cell)

6.5 Analytical subjectivity and inter-annotator consensus measures

As previously noted, the study carried out in the LSFB and FRAPé corpora is subjective in several ways. First, the measures that were generated, e.g., proportion of discourse time spent on constructed action or frequency of contribution of an articulator, are the product of an individual annotator. As Hodge & Crasborn (2022) note, “[a]ll annotations are effectively a product of introspection, interpretation, and analysis. Annotating is therefore always at least partly subjective” (p. 71). Second, the form of the phenomenon under scrutiny – enactment – is subject to context-dependent factors. In other words, because there is no fixed and categorial form-meaning pairing, the referential target profiled by a token depiction is inferred rather than decoded. An annotator, who may not have been the moderator of the recorded session, is unlikely to have access to all of the contextual information, including the common ground shared between pairs of informants. Hence, the effects of the subjective nature of annotating may be heightened when studying highly context-dependent semiotics like constructed action.

This subjectivity is partly addressed in the coding procedure by explicitly indicating when the annotator felt less confident about the use of an articulator, role

dominance, or the presence of constructed action (Hodge & Crasborn 2022, p. 73). Another measure taken to tackle analytical subjectivity was to have part of the annotations checked by two annotators (Hodge & Crasborn 2022). The annotators, with a respective lifelong experience of LSFb and French, checked a portion of the LSFb and FRAPé annotations. Each annotator had strong metalinguistic skills acquired as a linguist (for the FRAPé co-annotator) and through professional experience as a teacher of LSFb-Belgian French bilingualism and as an annotator of the LSFb Corpus (for the LSFb co-annotator). Each annotator was provided with guidelines to indicate their agreement, disagreement, or uncertainty about the identification of constructed action, the enacting use of articulators, and role dominance. Whenever the annotators disagreed or felt uncertain about these aspects, they were asked to provide a comment in dedicated tiers.

Of the 924 *CA:summary* annotations in LSFb, 771 (83.44%) were categorised by myself as certain while 153 (16.56%) were prefixed with an interrogation mark to tag them as uncertain. Of the 418 annotations in French, 330 (78.95%) were categorised as certain while 88 (21.05%) were categorised as uncertain with a ‘?’ prefix. Aiming for a check of $\pm 10\%$ of the first annotator’s analyses, the total number of annotations for each corpus (LSFb = 924, Belgian French = 418) was divided by 10 (LSFb = 92.4, Belgian French = 41.8). To select a balanced mix of annotations initially tagged as confident and unconfident, these numbers were rounded to the closest multiple of 2, i.e., 92 for LSFb (9.96% of LSFb annotations), 42 for Belgian French (10.05% of French annotations). Hence, 46 certain and 46 uncertain annotations were provided to the LSFb co-annotator whereas 21 certain and 21 uncertain annotations were checked by the Belgian French co-annotator. The study annotations on the *CA:summary* tiers, which had all received a numeric identification code, were randomly selected for consensus measures by creating four lists: *French_certain*, *French_uncertain*, *LSFb_certain*, and *LSFb_uncertain* (see the Appendix for the code used to randomly select annotations to be checked).

6.5.1 Results of the inter-annotator consensus measures: Identification of constructed action

As Figure 17 shows,³² both co-annotators largely agreed with the *CA:summary* annotations tagged as confident ones, i.e., those which were not prefixed with a question mark (‘presence’ in Figure 17). One of these annotations (1/21, 4.76%) was tagged as ‘unsure’ by the FRAPé co-annotator. Similarly, the LSFb co-annotator only indicated disagreement with one of the confident annotations (1/46, 2.17%) and uncertainty with respect to another (1/46, 2.17%). There was much more disagreement and/or uncertainty about annotations tagged as less confident (‘possible presence’). The French co-annotator only agreed that one annotation was unclear (1/21, 4.76%), expressed uncertainty with respect to seven ‘unclear annotations’ (7/21, 33.33%), and disagreed with the ‘uncertain’ tagging of thirteen annotations (13/21, 61.9%). The LSFb co-annotator only agreed with five

³² Unless otherwise indicated, all data visualisations provided in this thesis were generated with the R package *ggplot2* (Wickham, 2016).

‘unconfident/unclear’ annotations (5/46, 10.87%) and expressed disagreement with the tagging of forty-one annotations as ‘unclear’ ones (41/46, 89,13%).

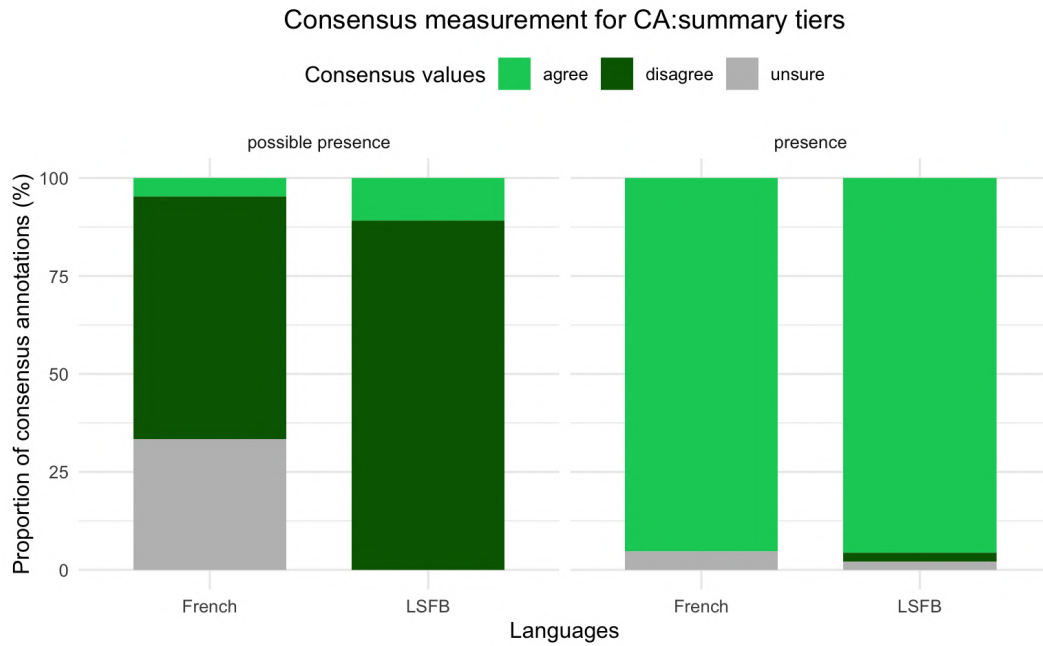


Figure 17. Bar plots for consensus measurement ('CA:summary' tiers)

Comments provided by co-annotators provide a better understanding of why there seemed to be so much disagreement with the tagging of annotations on the ‘CA:summary’ tier as ‘unclear’. The co-annotators’ comments were categorised to identify the source of disagreement. As shown in Figure 18, three causes accounted for co-annotators’ disagreement. First, the co-annotators commented that over half of the unclear annotations should have been tagged as confident instances, i.e., without a question mark prefix. This motivation for disagreement – ‘certain CA’ in Figure 18 – amounted to 23 out of 42 of the LSFb co-annotator’s comments (54.76%) and to 8 out 13 (61.54%) of the FRAPÉ co-annotator’s disagreements.

Second, the co-annotators disagreed with the ‘unclear’ tagging of some constructed action tokens because they felt that there was no enactment during the annotated sequence (‘No CA’). The LSFb co-annotator expressed this type of disagreement in 15/42 (35.71%) comments, as against 5/13 (38.46%) for the FRAPÉ Corpus co-annotator. Finally, The LSFb co-annotator also expressed disagreement about the timespan of 5 annotations (4/41, 9.52%) tagged as unclear. In these cases, the co-annotator indicated that they were confident about the presence of constructed action but disagreed with the beginning and/or end of the annotation cell.

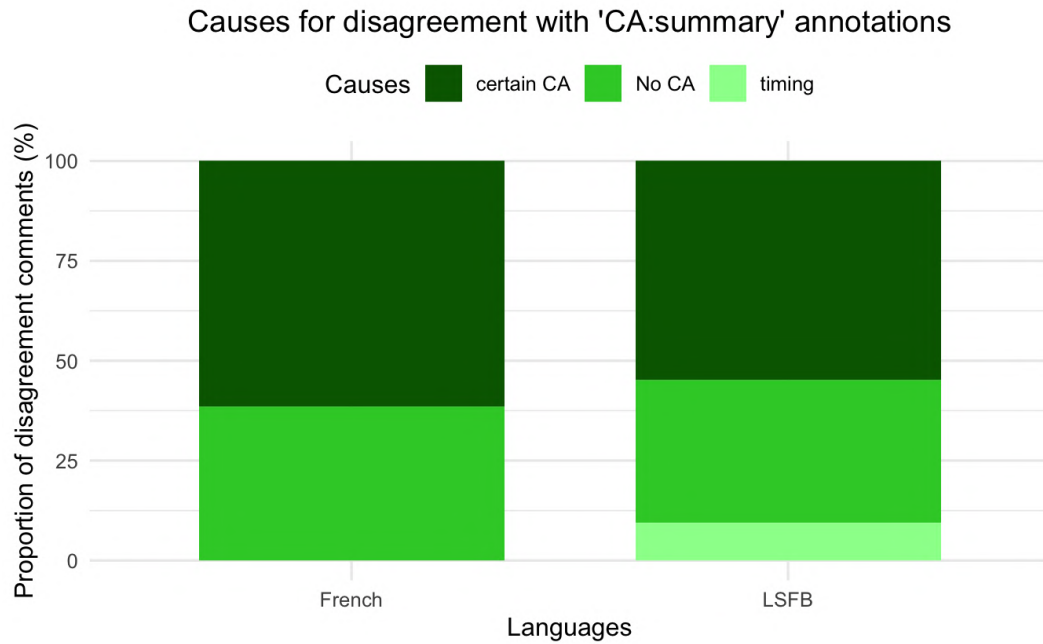


Figure 18. Bar plots of causes for disagreement with 'CA:summary' annotations

To sum up, annotations tagged as clear cases in LSF and Belgian French were nearly always validated by the co-annotators. By contrast, the co-annotators largely disagreed with unconfident annotations. In over half of these cases, they felt that these tokens should have been annotated as clear instances of constructed action (with some potential adjustments of their timespan in LSF). Remaining disagreements corresponded to the co-annotators' impression that annotated sequences exhibited no enactment.

6.5.2 Results of the inter-annotator consensus measures: Identification of enacting articulators

Turning to the annotation of articulators contributing to enactment, co-annotators were asked to indicate their agreement, disagreement, or uncertainty with respect to existing confident and unconfident articulator annotations or potentially missing articulator annotations found within the randomly selected list of CA:summary annotations. Here too, the co-annotators explained what the source of a disagreement or uncertainty was in a dedicated comment tier. These motivations were grouped into several categories. Figure 19 shows the respective proportions of consensus measures (and disagreement sub-categories) for confident and unconfident annotations across the LSF and FRAPé corpora.

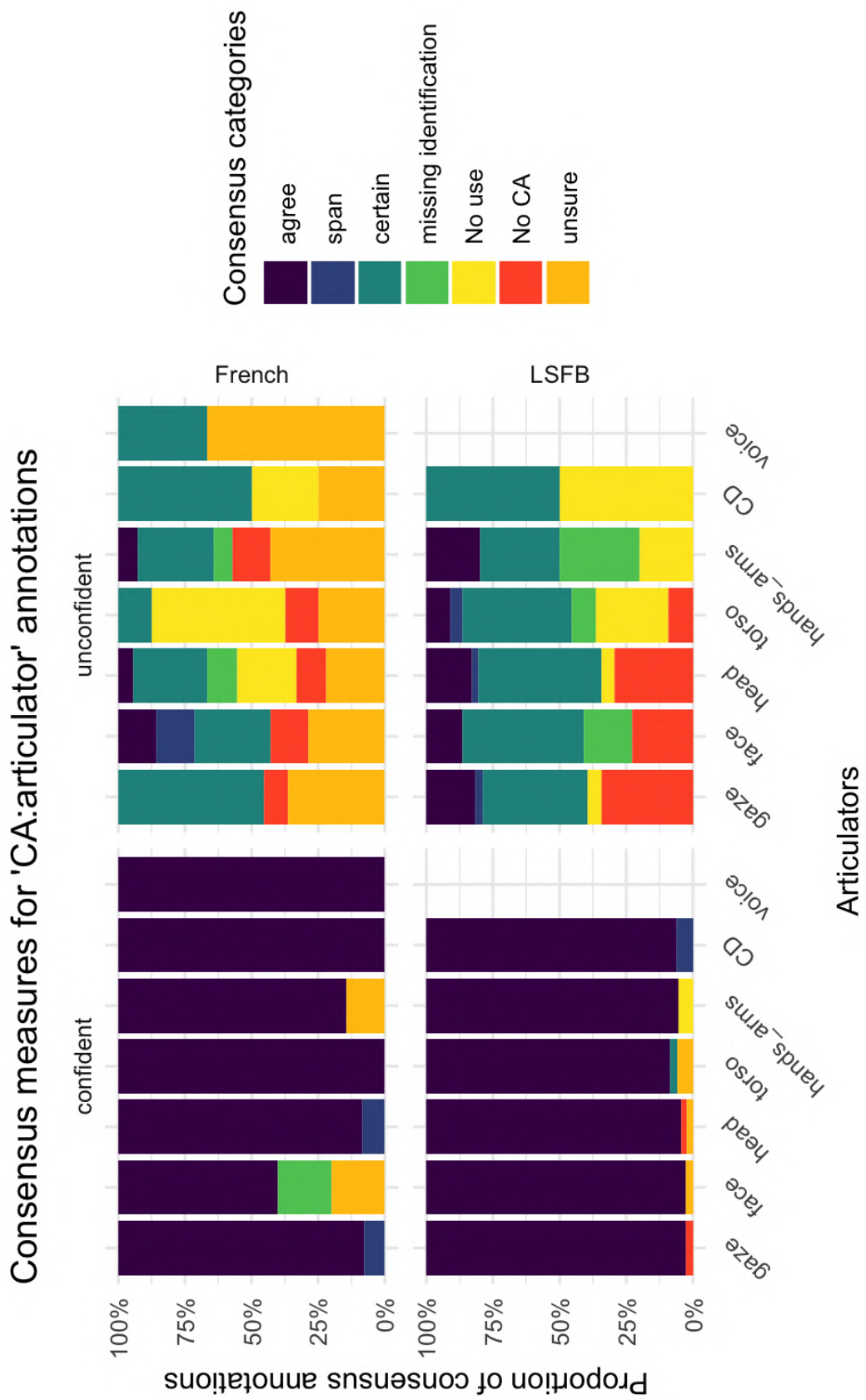


Figure 19. Consensus measures for articulator contribution

Co-annotators showed high agreement with confident annotations of articulator contribution to constructed action. The FRAPé Corpus co-annotator agreed with between 85.71% and 100% of confident annotations for gaze, head, torso, hands and arms, constructed dialogue, and voice. The agreement rate was lower (60%) for facial expression, with the remaining 40% of consensus annotations equally divided between the co-annotator's uncertainty and disagreement due to unidentified enacting facial expression. The LSFb co-annotator showed high agreement (between 91.43 and 97.44% of consensus annotations) with the confident annotations of all enacting articulators.

As was the case for the CA:summary tiers, co-annotators showed little agreement with the unconfident annotations of enacting articulators (between 0 and 14.29% in the FRAPé Corpus data and between 0 and 20% for the LSFb data). This means that the co-annotators frequently disagreed that the contribution of these articulators should be annotated as 'uncertain'. As Figure 19 shows, several motivations underlie this high disagreement rate.

A first obvious cause for these disagreements was that if co-annotators disagreed with the overall presence of constructed action (in the CA:summary tiers), they automatically disagreed with the 'uncertain' presence of enacting articulators ('No CA'). Second, the co-annotators also disagreed with the 'unconfident' articulator annotations because they believed that these should have been confidently annotated ('certain'). Third, co-annotators sometimes simply disagreed with the specific articulator annotation. In such cases, they believed that the articulator was confidently enacting but disagreed with the timespan of that contribution ('span'). They could also disagree because they felt confident that an articulator was not enacting ('No use') or because an enacting articulator had not been identified ('missing identification'). Finally, the French co-annotator also frequently marked their uncertainty and opted for neither disagreement nor agreement when checking unconfident annotations (between 22.22 and 66.67% depending on the articulator).

To summarise, whereas the co-annotators largely agreed with confident annotations, they showed much lower agreement rates with unconfidently annotated uses of articulators. As was the case for CA:summary annotations, the bulk of these disagreements included both instances in which the co-annotators felt more confident than the main annotator and instances in which they believed that no constructed action was taking place or that a specific articulator was 'certainly' not recruited to that end.

6.5.3 Results of the inter-annotator consensus measures: Identification of role dominance

As Figure 20 shows, the LSFb and Belgian French co-annotators agreed with confident annotation pairs on the Role1 and Role2 tiers in 95.28% and 76.32% of annotation time. The remaining annotation time corresponds to instances in which the co-annotators disagreed (4.72% of annotation time for LSFb, 8.48% for Belgian French) or expressed uncertainty (15.2% for French) about the confidently annotated role pairs. The co-annotators mostly disagreed with the unconfident

annotations of role dominance (63.74% of unconfident annotation time for French, as against 76.21% for LSFb) or indicated that they felt uncertain (36.26% for French). The LSFb co-annotator agreed with the uncertainty of role dominance for 23.79% of the unconfident annotation time.

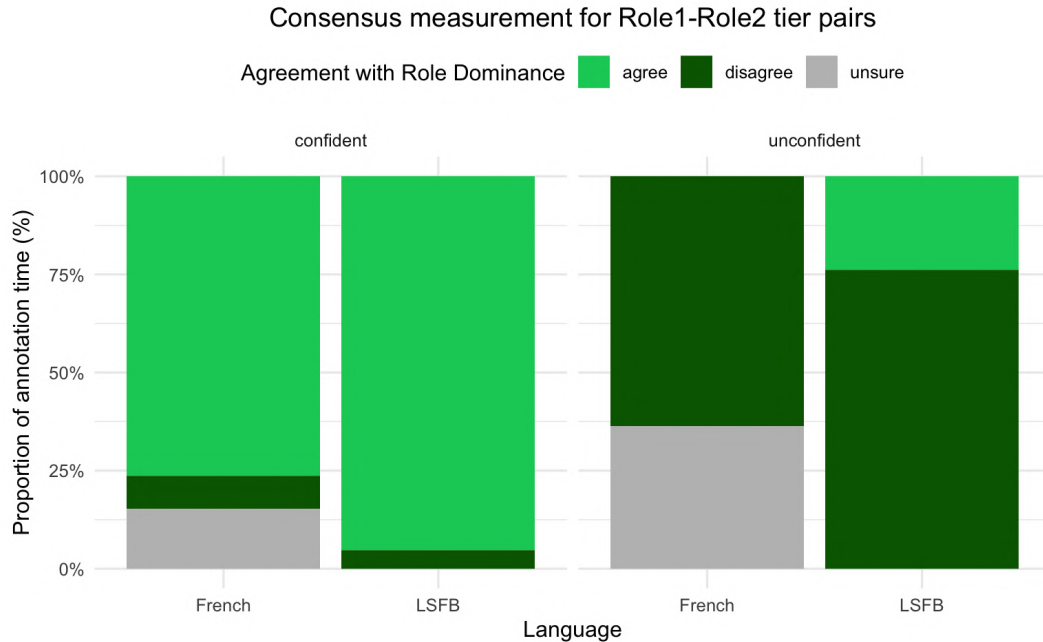


Figure 20. Consensus measurement for Role1 – Role2 pairs

Figure 21 provides a closer look at the motivations for co-annotators' disagreements. The first motivation for disagreement regarded unconfidently annotated role dominance pairs which the annotators indicated they would have confidently tagged (49.93% of disagreement time in LSFb, as against 43.41% in French). A second cause for disagreement was that annotating for role was irrelevant because the co-annotators disagreed with the presence of constructed action in the first place (33.52% of disagreeing annotation time in LSFb, as against 16.68% in French). Third, the two co-annotators also disagreed with the annotated role dominance and suggested the opposite one (11.79% of disagreeing annotation time in LSFb, as against 33.4% in French). Finally, the LSFb co-annotator also indicated that a few lexical signs had been wrongly annotated as enacting uses of hands. These instances initially contained 'C' (character) as Role1 and 'None' (as Role2). The co-annotator hence suggested to add 'N' as Role2 (11.27% of disagreeing annotation time in LSFb: 'missing N in Role2').

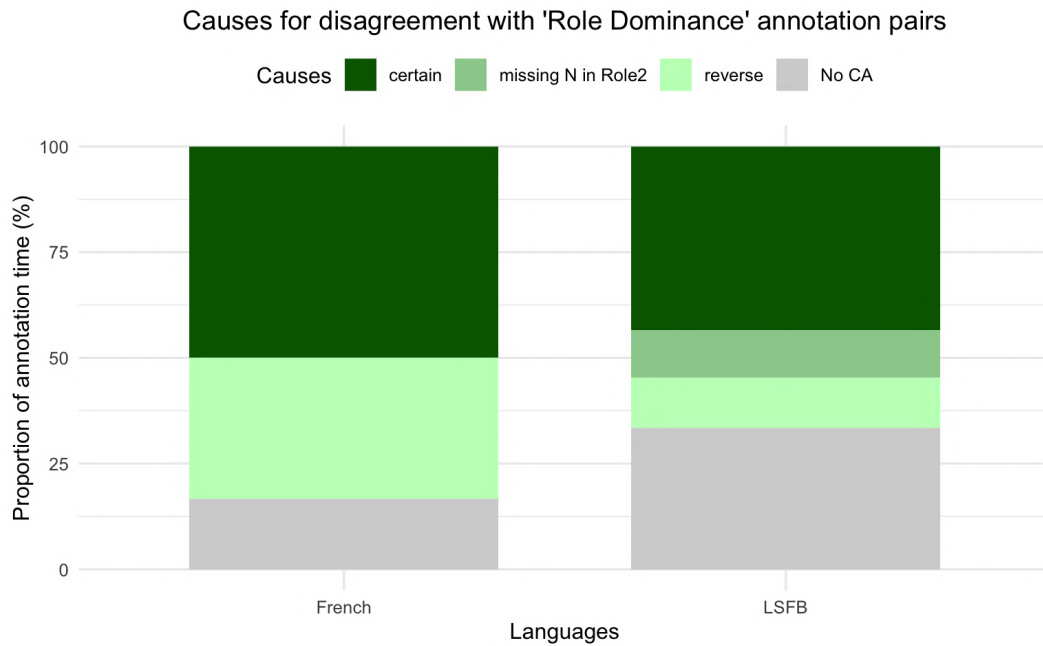


Figure 21. Causes for disagreement with 'Role Dominance' annotation pairs

In short, the co-annotators showed a high agreement for confidently annotated role dominance pairs (though with more uncertainty for the French co-annotator). Disagreements stemmed from different reasons. In some instances, annotating for role dominance was deemed irrelevant because the co-annotators did not think that the annotated sequence contained constructed action. In most other cases in which co-annotators disagreed, they suggested a confident instead of an unconfident annotation. Finally, the co-annotators also simply disagreed with the annotated dominance or, more rarely, observed that a narrator role was missing from Role2 annotations.

6.5.4 Inter-annotator consensus: Discussion

The results of consensus measures show a good agreement rate with the confident identification of constructed action overall (CA:summary tiers), of enacting articulators (CA:articulator tiers), and of role dominance (Role1 and Role2 tiers). The high agreement rates support the idea that confident annotations are reliable sources to answer the research questions tackled in the present study. By contrast, co-annotators showed much more disagreement (and, to a lesser extent, uncertainty) with unconfident annotations. The causes underlying this disagreement varied and seemed to have been balanced between a. cases in which the co-annotators believed the main annotator had been too cautious, b. cases in which the co-annotators disagreed with the main annotator's intuition. In this second scenario, the co-annotators disagreed with the presence of enactment or the timespan of its occurrence, the use (or lack thereof) of an articulator and its timespan, and the annotation of role dominance. Because at least part of the unconfident annotations were reanalysed as 'certain' cases by the co-annotators, the results to each research question are presented for two versions of the dataset in Chapter 7, one in which

unconfident annotations are included and another in which unconfident annotations are discarded.

6.6 Data extraction and preparation

The annotations carried out in ELAN were exported to the statistical analysis software R (R Core Team, 2023). Several data frames were exported from ELAN using all ‘eaf’ files as a source domain. Next, the generated data was filtered in R to include only those columns which contained information relevant to the research questions. The two steps used for each type of extracted file are described in the following sections.

6.6.1 Overlap information between ‘turn’ and ‘summary’ tiers

First, information about the overlap between the ‘Turn’ tier and the ‘summary’ tiers was extracted to gather information about the proportion of discourse time (as measured in the ‘Turn’ tier) spent on performing constructed action (as measured on ‘CA:summary0’ tier). This information is useful to answer the first research question, i.e., how frequently do LSFB signers and Belgian French speakers use constructed action?

This information was obtained by using the following ELAN commands: ‘File > Export Multiple File as > Annotation Overlaps Information’. The tiers that were selected for overlap calculation were: ‘Turn’, ‘CA:summary0’, and metadata tiers. Based on the information documented in these tiers, a data frame containing the total discourse time and the time spent on constructed action for each participant in both tasks could be created. This data frame was then used to compute the proportion of time spent on enactment by all participants in each task.

6.6.2 Overlap information between ‘summary’ and ‘articulator’ tiers

Second, information about the overlap between ‘summary’ tiers and ‘articulator’ tiers was gathered to answer the second research question: How frequently do different articulators contribute to constructed action across LSFB and Belgian French? First, data frames with information about the overlap between ‘CA:summary’ tiers (CA:summary1, CA:summary2) and related articulator tiers (e.g., CA:gaze1, CA:face1, CA:gaze2, CA:face2) were generated. This data was extracted using the following ELAN commands: ‘File > Export Multiple File as > Annotation Overlaps Information’. The following overlaps were used to generate two data frames:

- CA:summary1 with CA:articulators1 tiers (CD:summary1, CA:gaze1, CA:face1, CA:head1, CA:torso1, CA:hands_arms1, CA:voice1)
- CA:summary2 with CA:articulators2 tiers (CD:summary 2, CA:gaze2, CA:face2, CA:head2, CA:torso2, CA:hands_arms2, CA:voice2)

The two generated data frames were merged into one, which was used to gather information about articulator contribution in each token of constructed action, i.e., whether or not an annotation on the ‘CA:summary’ tier overlapped with a ‘yes/unclear’ value in the articulator tiers. The data frame was structured so that each row represented information about an annotated constructed action token, with dedicated columns (suffixed with ‘.ov’ for ‘overlap’) containing a value of ‘1’ in instances of overlap and ‘0’ if an articulator had not been annotated as active during that token. Finally, several columns also included metadata information for each annotated token (language, task, and participant code). Adding the values in each row yielded the articulatory index measure, i.e., the number of different articulators which had been recruited to produce a specific token of enactment.

6.6.3 Exporting the information found in CA:type and related metadata

In order to answer the third research question – How frequently do LSFBS signers and Belgian French speakers rely on overt, reduced, and subtle types of constructed action? – the information gathered on the ‘CA:type’ tier was exported, together with time-aligned information found on its related metadata tiers (CA:type_language, CA:type_task, CA:type_participant). Selecting these tiers, the data extraction was carried out using the following R commands: ‘File > Export Multiple Files as > Tab-delimited text’. This operation yielded a data frame including duration and metadata information for each type annotation which was then summarised as the amount of time spent on all types of constructed action for each participant across both tasks. Adding up all durations, the total duration (the same as in ‘CA:summary0’) was obtained, making it possible to compute proportions of discourse time spent on each type by participant, task, and language group.

7. Results

Before addressing the results for each research question, I introduce the enriched bilingual corpus by presenting the number of identified tokens of constructed action in Section 7.1. The results obtained from the processing of the enriched corpus are then presented in the order of the three stated research questions. In Section 7.2, I address LSFb signers' and Belgian French speakers' frequency of enactment. Next, Section 7.3 reports results obtained from the analysis of articulator contribution to constructed action. The analysis first adopts an articulator-specific perspective and subsequently reports on how corpus informants orchestrated the enacting use of multiple articulators. Finally, Section 7.4 compares the types of constructed action recruited in LSFb and Belgian French.

7.1 Presentation of the enriched corpus

As indicated in Table 5, the two tasks performed by the twenty participants amount to 146.2 min. of recording. This measure does not correspond to the duration of the analysed videos but rather to sequences in which each participant's languaging was identified on the 'Turn' tier. 88.2 min. of French discourse were studied (44.8 in Task 05 and 43.4 in Task 12) whereas 58 min. of LSFb discourse were analysed (25.7 min. for Task 05 as against 32.3 min. for Task 12).

Table 5. Turn duration (min.)

Language	Conversational task (Task 05)	Narrative task (Task 12)	Total
LSFB	25.7 min.	32.3 min.	58 min.
French	44.8 min.	43.4 min.	88.2 min.
Total	70.5 min.	75.7 min.	146.2 min.

As Table 6 shows, a total of 1342 tokens of constructed action were identified in this sample. Of these tokens, 924 were found in the LSFb Corpus (397 in Task 05, 527 in Task 12) whereas the remaining 418 instances were identified in the FRAPé Corpus (110 in Task 05 as against 308 in Task 12). When removing tokens tagged as uncertain ($n = 241$), a total of 1101 confidently annotated tokens remain. 771 of these confident tokens are found in the LSFb Corpus (288 in Task 05, 483 in Task 12) whereas 330 were identified within the FRAPé Corpus (86 in Task 05, 244 in Task 12).

Table 6. Number of identified tokens of constructed action

Language	Conversational task (Task 05)	Narrative task (Task 12)	Total
LSFB	397 (288)	527 (483)	924 (771)
French	110 (86)	308 (244)	418 (330)
Total	507 (374)	835 (727)	1342 (1101)

The number of tokens shows that 82.04% of tokens in the whole dataset were categorised as confidently annotated instances of constructed action. Looking at each language separately, respectively 83.44% and 78.95% of tokens were identified as clear/confidently annotated instances in the LSFb Corpus and in the FRAPé Corpus. While this number of confidently analysed tokens appears to be similar in both languages, task-specific information somewhat nuances that picture. In the LSFb Corpus, the proportion of confidently annotated tokens amounts to 72.54% in Task 05 and 91.65% in Task 12. In the FRAPé Corpus, these proportions are 78.18% in Task 05 and 79.22% in Task 12. Hence, the proportion of confidently annotated tokens is evenly distributed across tasks in the FRAPé Corpus. By contrast, a higher proportion of confidently annotated tokens is found in Task 12 than in Task 05 in the LSFb Corpus. Table 7 further details the number of annotations of constructed action for each participant across tasks. The same information is shown in Figure 22. Participants whose code starts with ‘S’ are LSFb signers whereas ‘L’ indicates Belgian French speakers.

Table 7. Number of tokens of annotated constructed action per participant and task

Participant	Language	Conversational task (Task 05)	Narrative task (Task 12)	Total
L001	French	06 (04)	33 (23)	39 (27)
L002	French	05 (03)	30 (23)	35 (26)
L016	French	12 (09)	51 (46)	63 (55)
L019	French	19 (15)	33 (24)	52 (39)
L020	French	19 (16)	32 (27)	51 (43)
L021	French	08 (06)	25 (20)	33 (26)
L022	French	01 (00)	30 (29)	31 (29)
L027	French	36 (32)	13 (10)	49 (42)
L029	French	02 (00)	37 (29)	39 (29)
L030	French	02 (01)	24 (13)	26 (14)
S028	LSFB	64 (43)	47 (46)	111 (89)
S029	LSFB	27 (20)	44 (37)	71 (57)
S030	LSFB	83 (63)	46 (41)	129 (104)
S031	LSFB	35 (20)	31 (29)	66 (49)
S052	LSFB	11 (08)	65 (61)	76 (69)
S059	LSFB	46 (35)	64 (59)	110 (94)
S060	LSFB	43 (32)	47 (46)	90 (78)
S075	LSFB	27 (20)	43 (39)	70 (59)
S076	LSFB	38 (31)	58 (55)	96 (86)
S097	LSFB	23 (16)	82 (70)	105 (86)
Total		507 (374)	835 (727)	1342 (1101)

As Table 7 and Figure 22 show, the number of tokens produced varies greatly across participants. While these numbers are very limited in terms of the information they provide without, e.g., their relation to the discourse duration, they do point to one aspect that deserves attention: For most FRAPé Corpus informants, few tokens were identified in Task 05. In some cases, not even one confidently annotated token

was found. While this information partly contributes to answering our first research question, i.e., how often do participants use constructed action, it does pose a potential problem for our two remaining research questions. The second research question explores the contribution of different articulators in a binary way, determining whether an articulator is used at least once for enacting purposes during the same token of constructed action. To get a reasonable idea of how frequently articulators contribute to enactment for a certain participant and/or task, a critical mass of tokens is needed in the first place. The amount of annotated tokens is also important when interpreting the results of our last research question. As this question explores the time proportions devoted to different degrees of constructed action, the fact that few tokens were identified undermines the possibility of drawing strong conclusions based on this sample of the dataset. In the following sections, the results relevant to our three research questions are presented. The general frequency of constructed action, the contribution of articulators, and the distribution of degrees of constructed action will be addressed in turn.

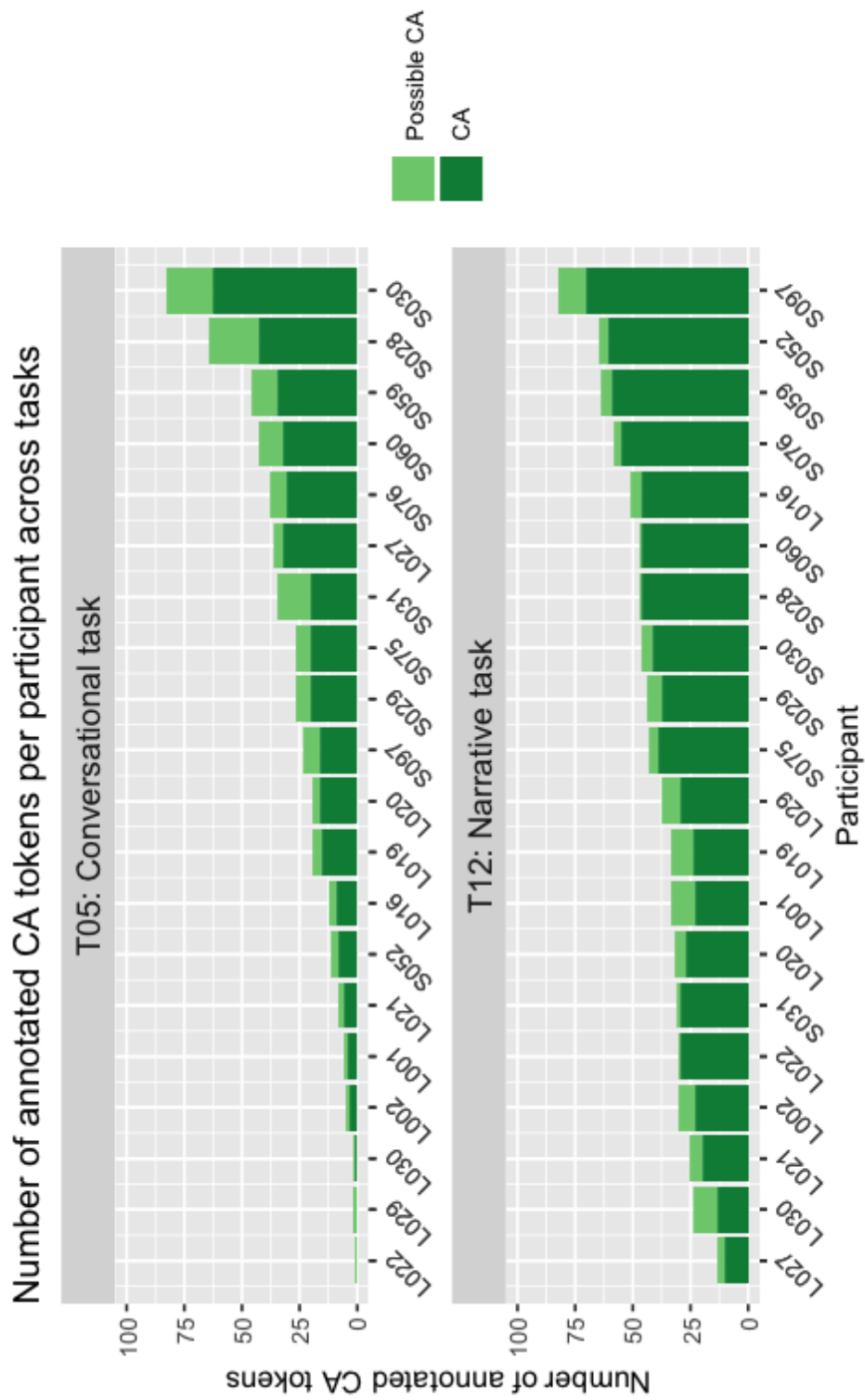


Figure 22. Number and confidence of annotated tokens of constructed action across tasks and participants

7.2 Research question 1: Frequency of constructed action

Comparing the timing data of annotations carried out on the ‘CA:summary1’ and ‘CA:summary2’ tiers (combined on the ‘CA:summary0’ tier) with annotations of the ‘Turn’ tier, the proportion of time that LSFb signers and Belgian French speakers spent on enacting referents was measured.

7.2.1 Proportion of time spent on constructed action

15.9% of French discourse time included annotations of constructed action (13.9% when only considering confidently analysed tokens). In LSFb, 47.3% of discourse time co-occurred with constructed action (44.1% when excluding annotations tagged as uncertain). Hence, on average, these first results suggest that LSFb signers spent close to 3 times more time on enacting referents than Belgian French speakers did.³³ These proportions are shown in Figure 23.

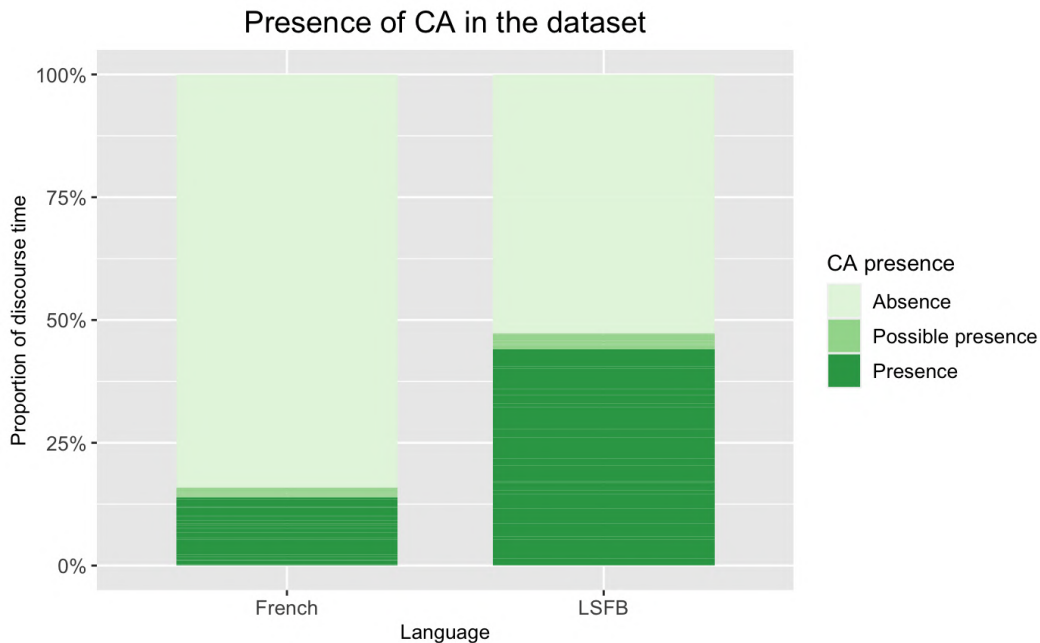


Figure 23. Proportion of time spent on constructed action in Belgian French and LSFb

Before drawing conclusions, it is important to address the potential impact of the tasks performed on the proportion of constructed action in LSFb signers’ and Belgian French speakers’ language use. 17% of the time used to perform Task 05 co-occurred with constructed action (14.1% when considering exclusively those annotations assessed as certain) whereas 38.9% of the time spent on performing Task 12 co-occurred with the strategy (36.8% when unconfidently analysed tokens are discarded). Overall, participants used constructed action in Task 12 more than

³³ When including all tokens, this ratio amounts to 2.73. This number increases to 3.17 when discarding durations of unconfidently annotated tokens.

twice as much as in Task 05.³⁴ The frequency of constructed action across both tasks in each language is shown in Figure 24.

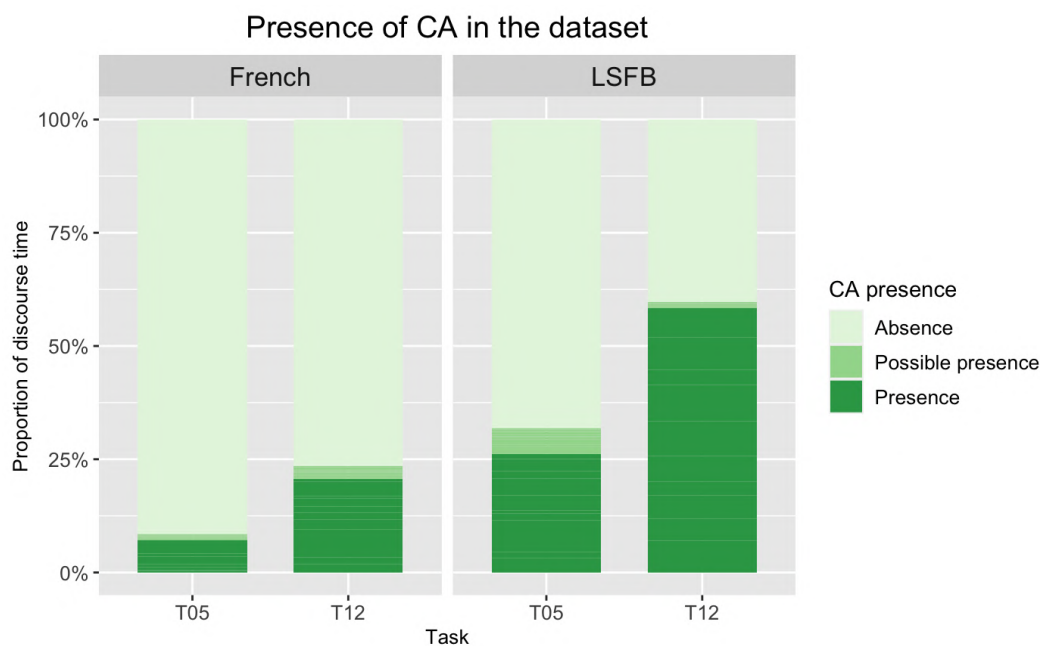


Figure 24. Proportion of time spent on constructed action across T5 and T12 in LSFB and Belgian French

The proportion of constructed action use in Belgian French discourse is distributed across tasks as follows: 8.6% (7.2% when discarding unconfidently analysed tokens) for Task 05, 23.4% (20.7% when keeping only confidently analysed tokens) for Task 12. Hence, French speakers spent a bit less than three times more time on enacting referents in Task 12 than they did in Task 05.³⁵ LSFB signers used constructed action in 31.8% of the time spent on performing Task 05 (26.2% when tokens tagged as unclear are removed) as against 59.7% for Task 12 (58.3% when excluding unconfidently analysed tokens). Hence, in Task 12, LSFB signers spent around twice as much time on enacting referents as in Task 05.³⁶

Figure 25 shows the proportion of discourse time used for constructed action by individual participants across tasks. Table 8 provides a description of the participants' proportion of time used to enact referents as well as the deviation from the mean (for each language-task combination) considering both the inclusive and the conservative versions of the dataset. LSFB signers enacted referents during discourse time proportions ranging from 20.6% (14.9% without uncertain tokens) to 52% (44.2% without uncertain tokens) in Task 05. In comparison, time spent on

³⁴ When considering all annotated instances of constructed action, the ratio amounts to 2.29 whereas removing durations for uncertain annotations leads to an increase: 2.61.

³⁵ This ratio adds up to exactly 2.73 when including all tokens and to 2.87 when keeping only confidently annotated ones.

³⁶ This ratio is slightly lower than 2 when all instances of constructed action are considered (1.88) whereas it is a bit superior to 2 when uncertain annotations are removed (2.23).

doing constructed action in French ranges from 0.5% (0% without uncertain tokens) to 20.3% (19.3% without uncertain tokens) in Task 05. In Task 12, LSFBS signers spent from 48% (47.5% without uncertain tokens) to 80.6% (80.1% without uncertain tokens) of discourse time on enacting referents. By contrast, French speakers' shares of discourse time used to perform constructed action in the same task ranged from 8% (5.9% without uncertain tokens) to 43.2% (40.8% without uncertain tokens).

Overall, these ranges show substantial variation within language groups. In certain instances, participants from different language groups may display proportions that are more similar to each other than to participants within their own language group. In Task 05, the proportion of time devoted to constructed action by some Belgian French speakers, such as L020 and L027, is similar to that of a few LSFBS signers, notably S031 and S097. Similarly, in Task 12, participants from the French-speaking group, e.g., L029 and L016, exhibited proportions of time spent on enacting referents close to those of some LSFBS signers, including S052 or S059.

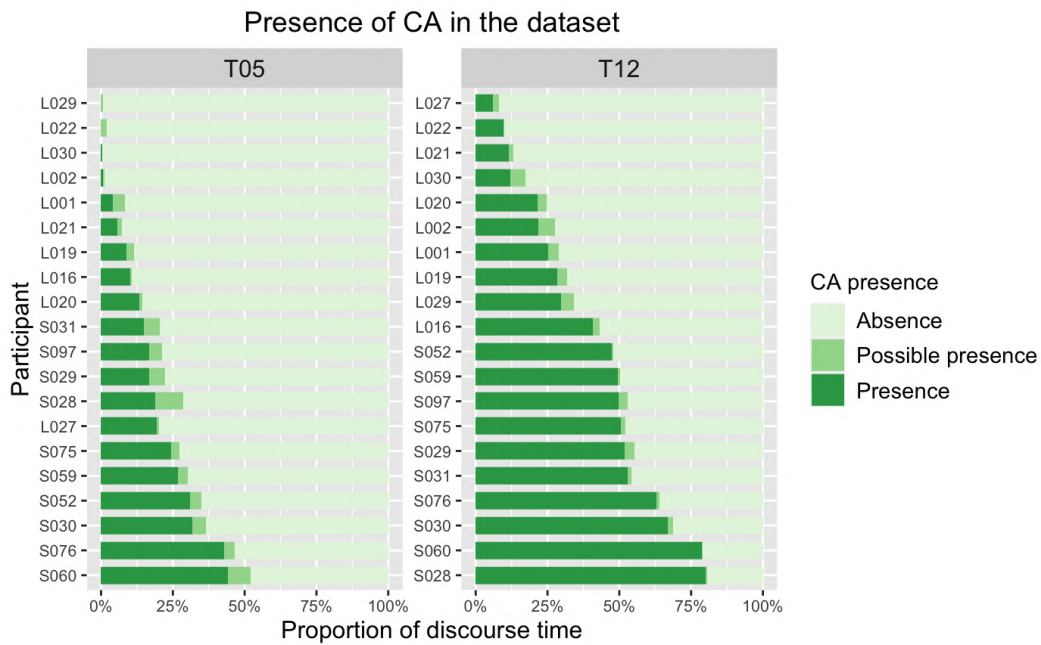


Figure 25. Proportion of time spent on constructed action per participant across tasks (ordered by the share of confidently annotated tokens)

Table 8. Proportion of discourse time spent on constructed action and deviation from the mean for each participant and task in each dataset version

Participant	Task	Language	Inclusive dataset		Conservative dataset	
			Proportion	Deviation	Proportion	Deviation
L001	T05	French	8.4	0.7	4.1	-2.1
L001	T12	French	28.9	5	25.3	4.6
L002	T05	French	1.3	-6.4	0.6	-5.6
L002	T12	French	27.5	3.6	21.8	1.1
L016	T05	French	10.7	3	10.1	3.9
L016	T12	French	43.2	19.3	40.8	20.1
L019	T05	French	11.6	3.9	8.9	2.7
L019	T12	French	31.9	8	28.3	7.6
L020	T05	French	14.4	6.7	13.4	7.2
L020	T12	French	24.8	0.9	21.4	0.7
L021	T05	French	7.1	-0.6	5.8	-0.4
L021	T12	French	13.2	-10.7	11.4	-9.3
L022	T05	French	2.1	-5.6	0	-6.2
L022	T12	French	9.9	-14	9.8	-10.9
L027	T05	French	20.3	12.6	19.3	13.1
L027	T12	French	8	-15.9	5.9	-14.8
L029	T05	French	0.7	-7	0	-6.2
L029	T12	French	34.2	10.3	29.8	9.1
L030	T05	French	0.5	-7.2	0.3	-5.9
L030	T12	French	17.3	-6.6	12	-8.7
S028	T05	LSFB	28.6	-3.4	18.8	-8
S028	T12	LSFB	80.6	20.1	80.1	21
S029	T05	LSFB	22.3	-9.7	16.9	-9.9
S029	T12	LSFB	55.2	-5.3	51.7	-7.4
S030	T05	LSFB	36.5	4.5	31.7	4.9
S030	T12	LSFB	68.8	8.3	67	7.9
S031	T05	LSFB	20.6	-11.4	14.9	-11.9
S031	T12	LSFB	54.1	-6.4	52.8	-6.3
S052	T05	LSFB	35	3	30.9	4.1
S052	T12	LSFB	48	-12.5	47.5	-11.6
S059	T05	LSFB	30.1	-1.9	26.8	0
S059	T12	LSFB	50.3	-10.2	49.6	-9.5
S060	T05	LSFB	52	20	44.2	17.4
S060	T12	LSFB	78.9	18.4	78.8	19.7
S075	T05	LSFB	27.2	-4.8	24.4	-2.4
S075	T12	LSFB	52.2	-8.3	50.7	-8.4
S076	T05	LSFB	46.4	14.4	43	16.2
S076	T12	LSFB	64	3.5	63	3.9
S097	T05	LSFB	21.1	-10.9	16.7	-10.1
S097	T12	LSFB	52.9	-7.6	49.8	-9.3

7.2.2 Confirmatory analysis: Comparing mean proportions of time spent on constructed action across languages and tasks

Boxplots were used to obtain a summary of these individual proportions of time spent on constructed action by language and task. The left part of Figure 26 shows the distribution of these proportions in the inclusive dataset whereas the right one only shows measures for confidently analysed tokens. Table 9 similarly summarises the information contained in this figure.

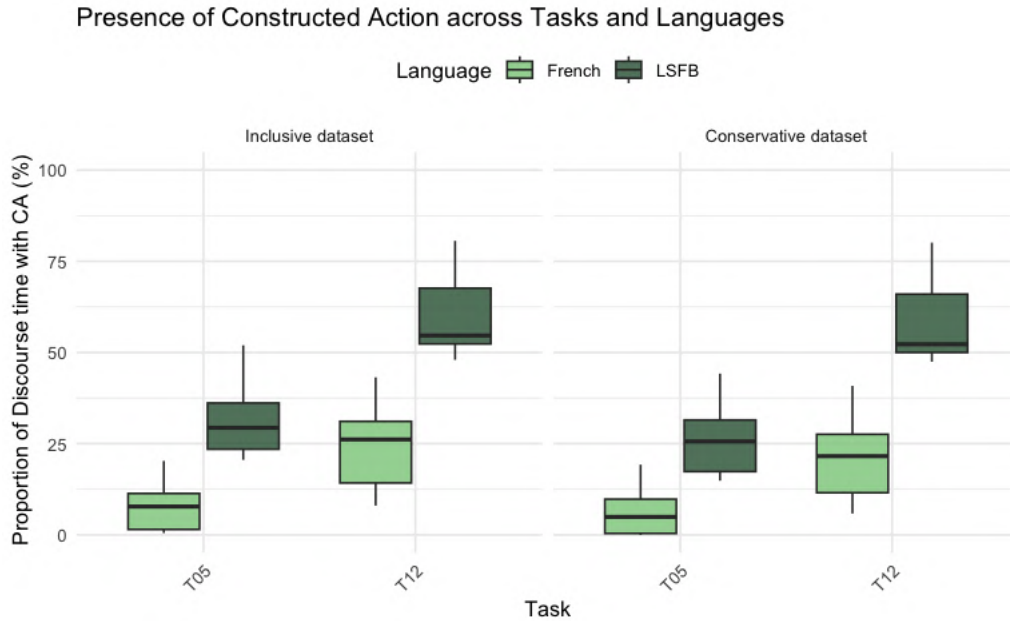


Figure 26. Distribution of discourse time spent on constructed action across languages and tasks in both versions of the dataset

Table 9. Mean and standard deviation of proportion of time spent on constructed action across languages and tasks in both versions of the dataset

Language	Task	N	Inclusive dataset		Conservative dataset	
			Mean	SD	Mean	SD
French	T05	10	7.717	6.682	6.250	6.598
LSFB	T05	10	31.974	10.641	26.828	10.634
French	T12	10	23.895	11.473	20.645	10.909
LSFB	T12	10	60.494	11.937	59.093	12.407

To confirm that language and task led to significant differences in the proportion of time spent on doing constructed action as well as test for a potential interaction of these factors, a Two-Way Mixed ANOVA was performed. In this model, language is a between-subject factor and task is a within-subject factor. The dependent variable is the proportion of discourse time spent on doing constructed action. Two

versions of the test were carried out, one using the whole dataset and the other after discarding uncertain tokens.

After checking for the model assumptions, the first test was run with the inclusive version of the dataset. The main effect of language was found to be statistically significant ($F(1, 18) = 66.724, p < 0.001$), indicating overall differences in the proportion of time spent on constructed action between participants in the French and LSFb language groups. The effect size (partial eta-squared, η^2) was substantial, accounting for approximately 70.4% of the variance. Similarly, the main effect of task was statistically significant ($F(1, 18) = 64.662, p < 0.001$), pointing to differences in the time spent on constructed action across the conversational and narration tasks. The effect size (η^2) for the task effect was 56.2%. However, the analysis also showed a significant interaction effect between language and task ($F(1, 18) = 4.930, p = 0.039$), indicating that the effect of language on the time spent on constructed action is influenced by whether participants are engaging in conversation (Task 05) or narration (Task 12), and vice versa. The interaction effect accounted for approximately 8.9% of the variance.

In order to capture the interaction of the two factors, post-hoc analyses with bonferroni adjustments for family-wise error rate were carried out. Pairwise comparisons revealed significant differences in the proportion of time spent on constructed action between the French and LSFb groups for both Task 05 ($p < 0.001$) and Task 12 ($p < 0.001$). These results indicate that the main effect of language holds across both discourse types or tasks. When examining the effect of task within each language group, significant differences in the proportion of time spent on constructed action between Task 05 and Task 12 were found both for FRAPé corpus informants ($p = 0.01$) and LSFb participants ($p < 0.001$). These results indicate that the main effect of task is significant within each language group. Mean proportions of time spent on constructed action for each combination of the factor groups can be used to better understand the interaction effect. FRAPé Corpus informants exhibited an increase in the frequency of enactment across discourse types, from 7.72% in the conversational setting to 23.89% in the narrative one, resulting in an increase of 16.18%. LSFb participants showed a more substantial rise in constructed action from 31.97% in Task 05 to 60.49% in Task 12, resulting in an increase of 28.52%. Hence, it appears that task (as an indicator of discourse type) may have had a more prominent impact on LSFb signers than on French speakers.

In the second, more conservative, version of the analysis, one of the model assumptions, i.e., the normal distribution of residuals, had to be rejected. Because the distribution could be characterised as mildly positively skewed, a square root transformation was applied to the proportions of time spent on constructed action, resulting in a normal distribution. In this second two-way mixed ANOVA, a significant main effect of language ($F(1, 18) = 64.115, p < 0.001, \eta^2 = 0.664$) and of task ($F(1, 18) = 48.472, p < 0.001, \eta^2 = 0.545$) was shown. These findings indicate that both language and task have an impact on the proportion of time spent on constructed action, with moderate to large effect sizes. However, unlike in the first version of the analysis, there was no significant interaction effect between

language and task ($F(1, 18) = 0.060$, $p = 0.809$, $\eta^2 = 0.001$). Hence, when tokens deemed uncertain are discarded, the combined effect of language and task on the frequency of enactment is not significantly different from what would be expected based on the individual main effects.

To conclude, the results of the Two-Way Mixed ANOVA confirm that both language group and task impact the frequency of enactment in the dataset. On average, LSFb signers spent more time on enacting referents than French speakers did and participants in both language groups spent more time on constructed action in the narrative retelling task than in the conversation about language attitudes. An interaction effect of these two factors was identified in a version of the analysis where all tokens of constructed action were included but was not replicated when discarding unconfidently annotated tokens. In addition, it should be noted that there is substantial inter-individual variation within each language group. One consequence of this inter-individual variation is that, while there is only marginal overlap between the proportions of time devoted to enacting referents between LSFb signers and Belgian French speakers, it cannot be said that their strategies are categorically different. Across both tasks, FRAPé Corpus informants who used constructed action most and LSFb signers who used it least exhibit similar proportions of time spent on enacting referents.

7.3 Research Question 2: Articulator contribution to constructed action

The second research question formulated in this study relates to how language users use their body and/or voice to enact referents. After annotating different articulators potentially contributing to a token of enactment, it becomes possible to compare their respective uses across languages, tasks, and participants. Using the annotations carried out on the various ‘CA:articulator’ tiers, e.g., CA:gaze, CA:face, CA:torso, it is possible to compare the contribution of each articulator to constructed action. An articulator was considered to contribute to enactment each time it was ‘active’, i.e., enacting, at least once during a token of constructed action. In the following analysis, it is this measure of articulator contribution that is compared.

7.3.1 A narrow look at each articulator across languages and tasks

Figure 27 and Figure 28 respectively show the proportion of enactment tokens to which each articulator contributed when unconfident annotations of ‘CA:summary’ and ‘CA:articulator’ tiers are included and excluded.

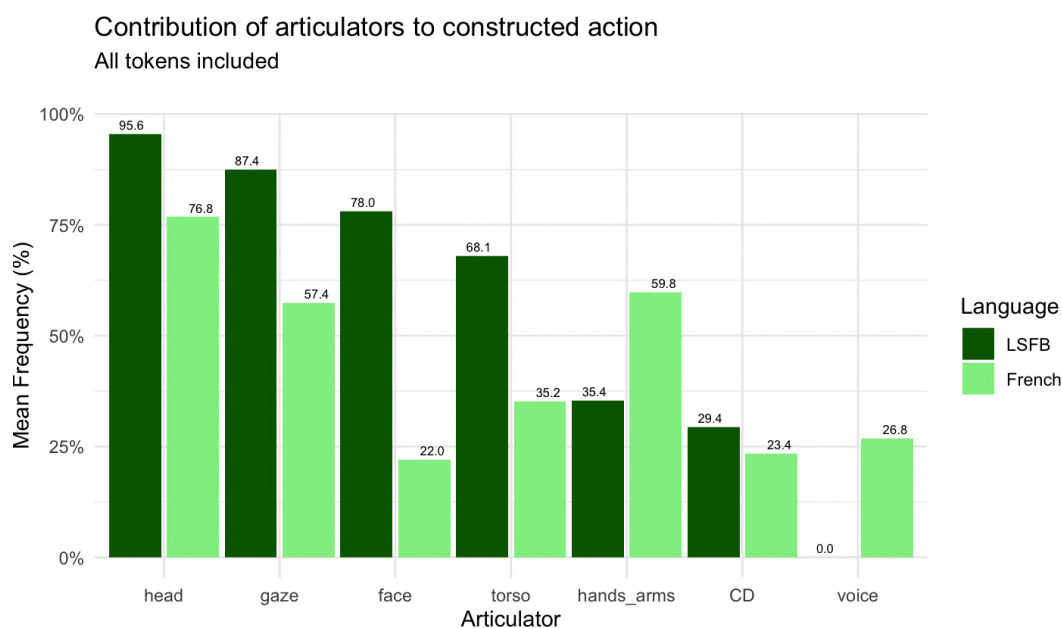


Figure 27. Articulator contribution to constructed action across Belgian French and LSF (inclusive dataset)

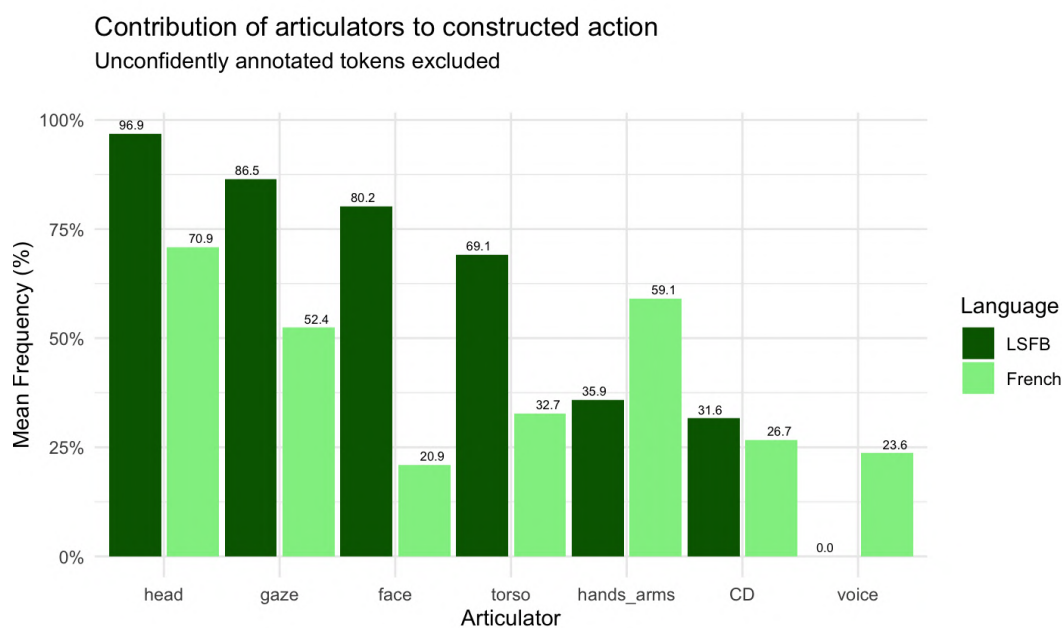


Figure 28. Articulator contribution to constructed action across Belgian French and LSF (conservative dataset)

Several articulators seem to be used relatively frequently in both languages but appear to be more systematically recruited in LSF than in French. This is the case for head and gaze. Head is the most frequently contributing articulator in both language groups, though it seems more frequent in LSF (95.6%/96.9%) than in French (76.8%/70.9%). A similar difference applies to gaze: LSF signers used enacting gaze movements in 87.4%/86.5% of tokens of constructed action as

against 57.4%/52.4% in Belgian French. Despite a higher mean use in LSFb, measures for enacting head and gaze movements indicate that these two articulators are frequently recruited resources to enact referents in both language groups.

This parallel use of articulators is restricted to head and gaze. Firstly, the use of voice was not measured in LSFb while French speakers produced vocal enactment in about ¼ of tokens (26.8%/23.6%). More interestingly, Belgian French speakers used their hands and/or arms in more than ½ of enactment tokens (59.8%/59.1%) whereas LSFb signers used them to a lower extent (35.4%/35.9%). Conversely, facial expression is one of the articulators which most frequently contributes to constructed action in LSFb (78%/80.2%) whereas it is the least frequent one in Belgian French (22/20.9%). Enacting torso movements were also found to be more prominently used in LSFb, i.e., in 68.1/69.1% of tokens, than in Belgian French (35.2/32.7%). Finally, constructed dialogue was a relatively less recruited strategy to enact referents in both LSFb (29.4%/31.6%) and Belgian French (23.4%/26.7%).

Hence, these contribution frequencies paint a nuanced picture of articulator contribution to enactment across LSFb and French. While the two groups of languages exhibit some shared behaviours (e.g., frequent use of head and a rarer use of constructed dialogue), some differences seem to emerge in the contribution of hands and arms, torso, and facial expression. The analysis now turns to the more complex picture of articulator contribution across both analysed tasks in a cross-linguistic perspective. The use of articulators can then be compared across conversations and narratives in Figure 29 and Figure 30.

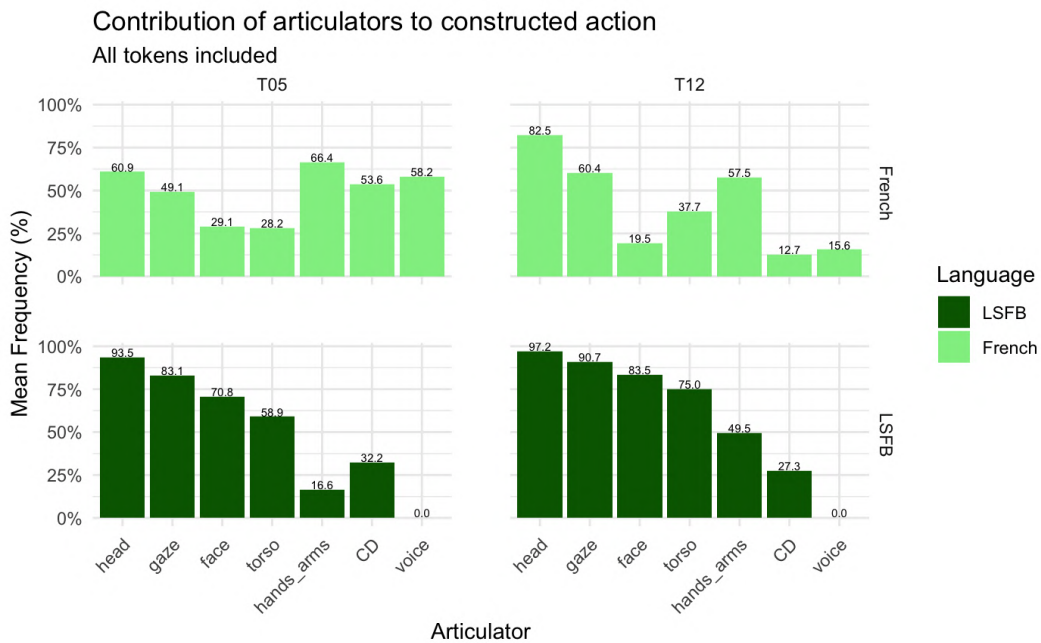


Figure 29. Articulator contribution to constructed action across tasks in Belgian French and LSFb (inclusive dataset)

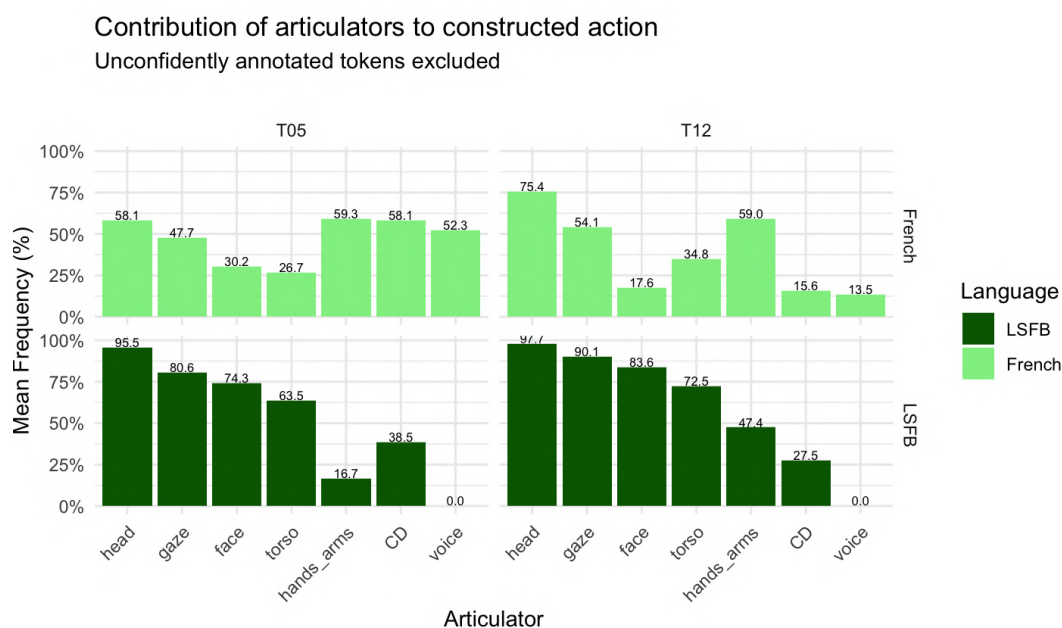


Figure 30. Articulator contribution to constructed action across tasks in Belgian French and LSFb (conservative dataset)

Articulator contribution in LSFb either remains stable across tasks or increases in Task 12 with respect to Task 05 for all articulators but constructed dialogue. In French, hands and arms seem to be used to comparable extents in both tasks. However, the contribution of other articulators appears to differ across conversational and narrative settings in the FRAPé Corpus. French speakers use head, torso, and (to a slighter extent) gaze enacting movements more frequently in Task 12 than in Task 05. Conversely, FRAPé Corpus informants also used some articulators more frequently in Task 05 than in Task 12. This is particularly the case for voice and constructed dialogue but also, to a lesser extent, facial expression. Overall, the task-related frequencies confirm most tendencies identified for each language group in the global comparison. However, the difference in the use of hands and arms between French speakers and LSFb signers narrows in Task 12. Another interesting nuance that emerges is that constructed dialogue seems to be more frequent in French than in LSFb in Task 05 but that the reverse is true in Task 12.

In the following sections, each participant's behaviour is surveyed for articulator contribution to constructed action in LSFb and French across conversations about language attitudes and narrative retellings. Considering inter-individual variation is important, notably because those participants who enacted the most have more influence on the overall frequencies presented above. Inter-individual variation is first described using different summary statistics related to the frequency of articulator use, namely: mean, median, standard deviation, as well as minimum and maximum values. This information is complemented by two kinds of visualisations.

First, bar plots show the proportion of tokens of constructed action in which each participant used a specific articulator to enact referents. These plots are faceted both

for task and for dataset version. In each facet, participants are ranked based on the decreasing order of contribution of the surveyed articulator. Different colours for each language group underscore overlaps between informants of the LSFb and FRAPé corpora. A red circle on the bar indicates that a participant has produced less than ten tokens of enactment for a given task, warranting caution when describing and interpreting the results.

Second, a line plot faceted both for language group and for dataset shows the progression of values from Task 05 to Task 12 for each participant, displaying the inter-individual variation of the potential effect of task on the use of each articulator. Green data points indicate that the participant’s recruitment frequency of an articulator was measured in at least ten tokens. By contrast, grey data points correspond to frequency measures relying on fewer than ten observations. Similarly, lines in the plot are coloured in green if observations for both tasks are based on at least ten instances of the strategy. When a participant’s frequency measures are based on a lower number of observations for at least one task, i.e., if one of the two datapoints is grey, the line connecting the two tasks is also coloured in grey. Like the red circles in the first plot, this colour-based distinction is used to distinguish measures deemed more reliable from those which need to be considered with more caution.

7.3.1.1 Gaze

Central tendencies in Table 10 indicate that gaze use is higher in LSFb than in French and more frequently used in Task 12 than in Task 05 in both groups. Standard deviation and range (minimum and maximum) measures indicate that participants’ use of gaze is not evenly dispersed around the mean: observations are clustered closer to the mean in LSFb than in French and, for both groups, closer to the mean in Task 12 than in Task 05. This indicates a wider dispersion for French speakers, on the one hand, and for Task 05, on the other.

Table 10. Eye gaze contribution to constructed action: Descriptive statistics

Dataset version	Language	Task	Mean	Median	SD	Min.	Max.
Inclusive	French	T05	33.49	29.17	26.74	0.00	84.21
Inclusive	French	T12	60.15	64.71	21.85	20.00	91.67
Inclusive	LSFB	T05	81.98	84.45	16.64	44.44	98.44
Inclusive	LSFB	T12	90.10	90.91	6.31	75.00	96.34
Conservative	French	T05	43.58	41.67	35.02	0.00	100.00
Conservative	French	T12	54.85	61.52	25.79	10.34	84.62
Conservative	LSFB	T05	80.51	85.94	18.59	45.71	100.00
Conservative	LSFB	T12	88.81	90.77	11.68	56.76	96.72

This description can be complemented by the data visualisations found in Figure 31 and Figure 32. These figures show that gaze contributes to enactment more frequently and with less inter-individual variation in LSFb than in Belgian French. Indeed, some French-speaking participants seem to rely on gaze very little, if at all, when enacting referents, e.g., L022, L029, and L016 in Task 05 (or L002 in the conservative version of the dataset) as well as L022 and L001 in Task 12. Others,

however, seem to recruit this articulator more frequently, e.g., L020 and L027 in Task 05.

As the red circles in Figure 31 indicate, French-speaking participants who exhibit the most extreme values for eye gaze use seem to be those who produced few tokens of constructed action. It is therefore legitimate to ask whether different patterns would have emerged, had more instances been identified for these informants. Nonetheless, this observed variability holds when looking only at participants who produced ten or more tokens of constructed action in Task 05, i.e., L016, L019, L027, and L020. Similarly, French speakers' use of gaze in Task 12 varies widely, despite the annotation of a more critical amount of tokens. As Figure 32 shows, it is unclear whether the higher mean use of eye gaze by French speakers in Task 12 with respect to Task 05 observed in Table 10 is a reliable result or a consequence of the paucity of annotations for some participants. In comparison, LSFb Corpus informants' higher use of gaze appears to owe to two participants' increase in Task 12 whereas most LSFb signers' use of the articulator seems to remain stable across tasks.

In summary, a few LSFb signers' increase in eye gaze use in narrations accounts for the slightly higher use of the articulator in Task 12 with respect to Task 05. Turning to the FRAPÉ Corpus, it is not possible to rule out that seemingly low or high values for Task 05 are a consequence of the few tokens on which eye gaze contribution has been measured for some participants. However, the fact that gaze is less used in French than in LSFb in Task 12 could suggest that while most LSFb signers consistently used gaze to enact referents, this articulator may simply be less favoured by French speakers. As a final observation, one should not draw the conclusion that the use of eye gaze is categorically different in LSFb and French. As can be seen in Figure 31, French speakers and LSFb signers sometimes exhibit very close values and the two language groups partly overlap, e.g., L020 and S029 in Task 05 and L029, L030, and S029 in Task 12.

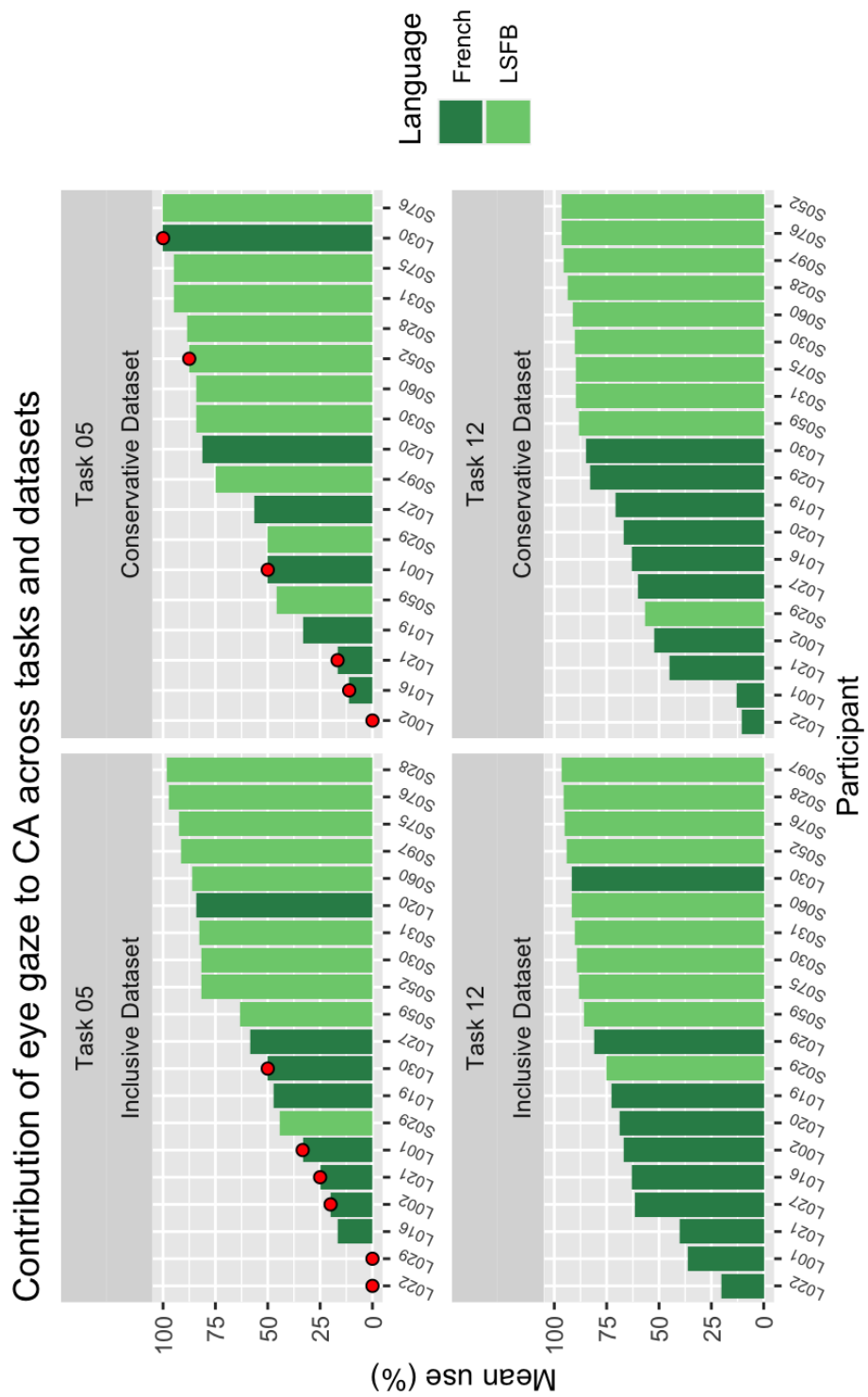


Figure 31. Barplot of eye gaze contribution to constructed action

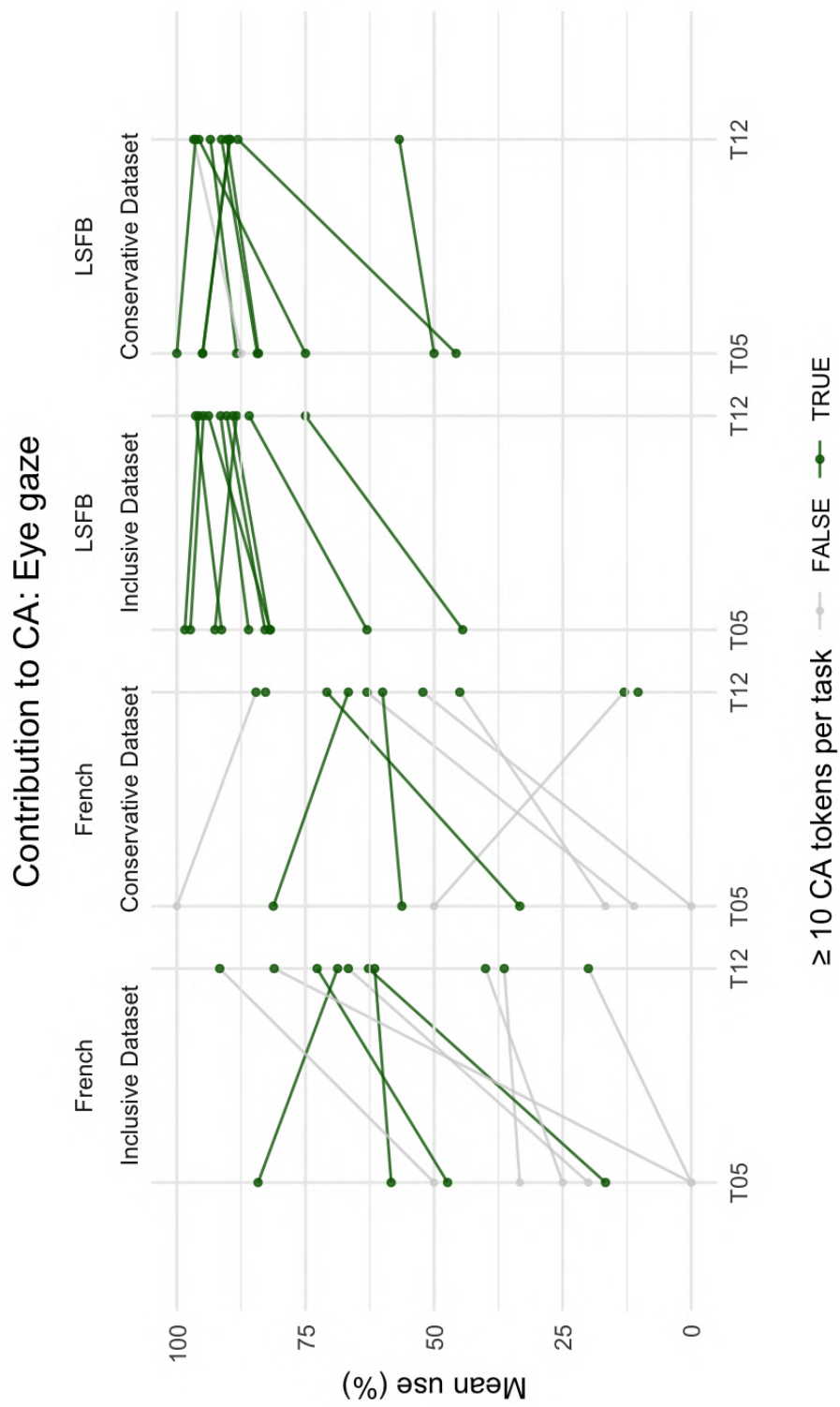


Figure 32. Lineplot of eye gaze contribution to constructed action

7.3.1.2 Face

As Table 11 shows, central tendencies show that the use of facial expression is very frequent in LSFb whereas it is comparatively rare in Belgian French. LSFb signers appear to increase their use of facial expression in Task 12 with respect to Task 05. By contrast, French speakers seem to recruit face more frequently in Task 05 than in Task 12. The inter-individual variation is also slightly higher in French than in LSFb. In addition, FRAPé Corpus observations are clustered closer to the mean in Task 12 than in Task 05. Some French speakers appear to use facial expression for enactment rather frequently (though still less than most LSFb signers), e.g., L020 and L021 in Task 05 or L001 in Task 12, whereas others barely used their face to enact referents, e.g., L022, L029, L030, L027, and L002 in Task 05 or L021, L030, L002, and L027 in Task 12. More often than not, low values in Task 05 may be related to the low number of identified tokens of constructed action for these participants, i.e., L022, L029, and L030. However, it cannot be ruled out that French speakers generally enact referents' facial expression less often than LSFb signers do. Indeed, several FRAPé Corpus informants for whom more instances have been collected, notably in Task 12, still exhibit a rather low frequency of face contribution to enactment, e.g., L002, L021, and L022.

Table 11. Facial expression contribution to constructed action: Descriptive statistics

Dataset version	Language	Task	Mean	Median	SD	Min.	Max.
Inclusive	French	T05	23.23	23.16	19.63	0.00	52.63
Inclusive	French	T12	17.80	10.41	15.64	4.00	51.52
Inclusive	LSFB	T05	71.85	70.37	11.24	48.57	90.91
Inclusive	LSFB	T12	82.77	87.81	12.74	55.81	95.65
Conservative	French	T05	26.25	25.83	20.53	0.00	56.25
Conservative	French	T12	15.93	12.07	15.04	0.00	47.83
Conservative	LSFB	T05	74.65	75.60	11.62	50.00	88.57
Conservative	LSFB	T12	82.40	86.10	12.94	56.41	94.59

This notably results in a lower mean use of face in FRAPé Corpus narratives, compared to Task 05. It remains unclear how the observation of more tokens in Task 05 for some participants would impact this pattern. The tendency for a higher use of facial expression in Task 12 than in Task 05 for LSFb signers is confirmed in Figure 34: a majority (7/10) show an increase on the line plot.

While there are differences between LSFb signers and Belgian French speakers, Figure 33 shows some overlap between the two language groups' behaviours. Some French speaking participants like L020 and L021 (Task 05) or L001 (Task 12) use enacting facial expressions in nearly half of the instances of constructed action which they produce. As a result, these participants use facial expression to an extent comparable to that of LSFb signers who used facial expression the least (e.g., S031 in Task 05 or S075 in Task 12).

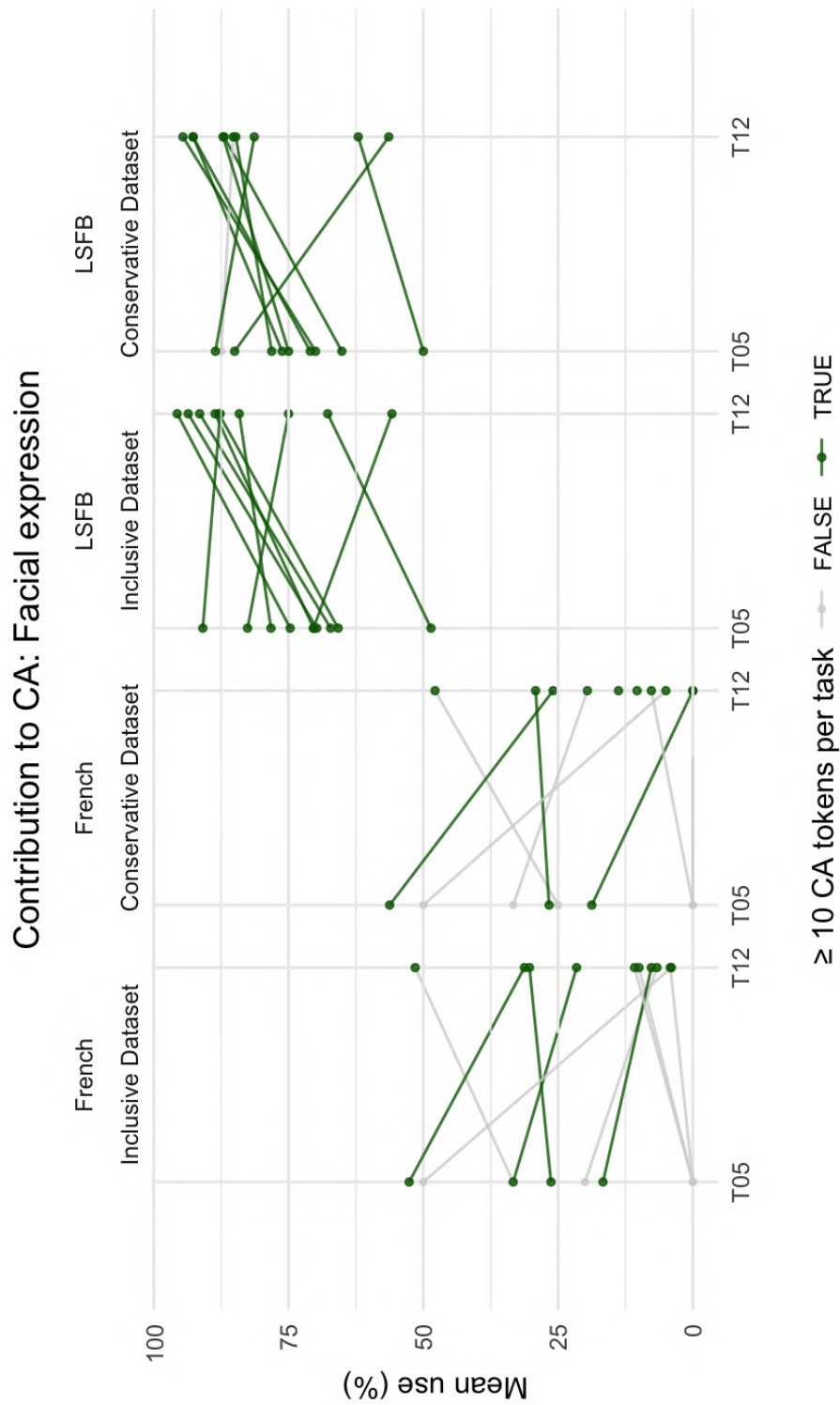


Figure 34. Lineplot of facial expression contribution to constructed action

7.3.1.3 Head

Table 12. Head contribution to constructed action: Descriptive statistics

Dataset version	Language	Task	Mean	Median	SD	Min.	Max.
Inclusive	French	T05	55.48	61.84	38.21	0.00	100.00
Inclusive	French	T12	82.68	82.62	9.06	69.23	95.83
Inclusive	LSFB	T05	92.21	91.77	5.47	82.61	100.00
Inclusive	LSFB	T12	96.74	97.33	3.09	91.49	100.00
Conservative	French	T05	71.64	79.17	26.11	33.33	100.00
Conservative	French	T12	75.98	75.85	12.10	51.72	91.30
Conservative	LSFB	T05	94.85	97.41	6.86	81.25	100.0
Conservative	LSFB	T12	97.45	98.47	3.20	91.30	100.0

As can be seen in Table 12, the frequency of head use is high in both language groups even though LSFB signers use enacting head movements more than French speakers do. Despite a higher mean use of head in LSFB than in French, it is worth noting that there is no clear-cut divide between the two language groups: some FRAPé Corpus informants, e.g., L020 in Task 05 or L002 in Task 12, recruited head to frequencies superior or close to those of some LSFB signers, as Figure 35 shows.

The values for French speakers' use of head in Task 05 show a very high degree of dispersion. While the frequency of contribution is high for several participants, e.g., L001, L002, L020, other participants rarely or never used their head to enact referents in the conversational task, e.g., L022 and L029. Here too, the paucity of constructed action tokens for some French speakers in Task 05 might lead to results that are not representative of the participants' behaviour. This may notably be true for those French speakers in Task 05 who exhibit the lowest and highest values (L022, L029, L016, L002, and L001). This becomes obvious when comparing results across the inclusive and the conservative versions of the dataset: the data corresponding to the absence of enacting head movements for some French speakers in Task 05 was based on unconfidently annotated tokens, as the red circles in Figure 35 indicate. Therefore, when these data points are excluded in the conservative version of the dataset, the mean use of head movements exhibits a prominent increase in Task 05 of the FRAPé Corpus.³⁷

Frequencies of head contribution in Task 12 more reliably show that the same French-speaking participants do use their head to enact in a narrative discourse, as can be seen in Figure 36. It remains unclear, however, whether an effect of task on the use of head movements for constructed action can be observed in the FRAPé Corpus. When it comes to the LSFB Corpus, an effect of task is also hard to ascertain since most LSFB signers' mean use of head remains stable across Task 05 and Task 12, as can be observed in Figure 36.

³⁷ The increase of the minimum values for enacting head movements in the conservative dataset is explained by the exclusion of (unconfident) enactment annotations related to two French-speaking participants in Task 05, L022 and L029, in this version of the dataset.

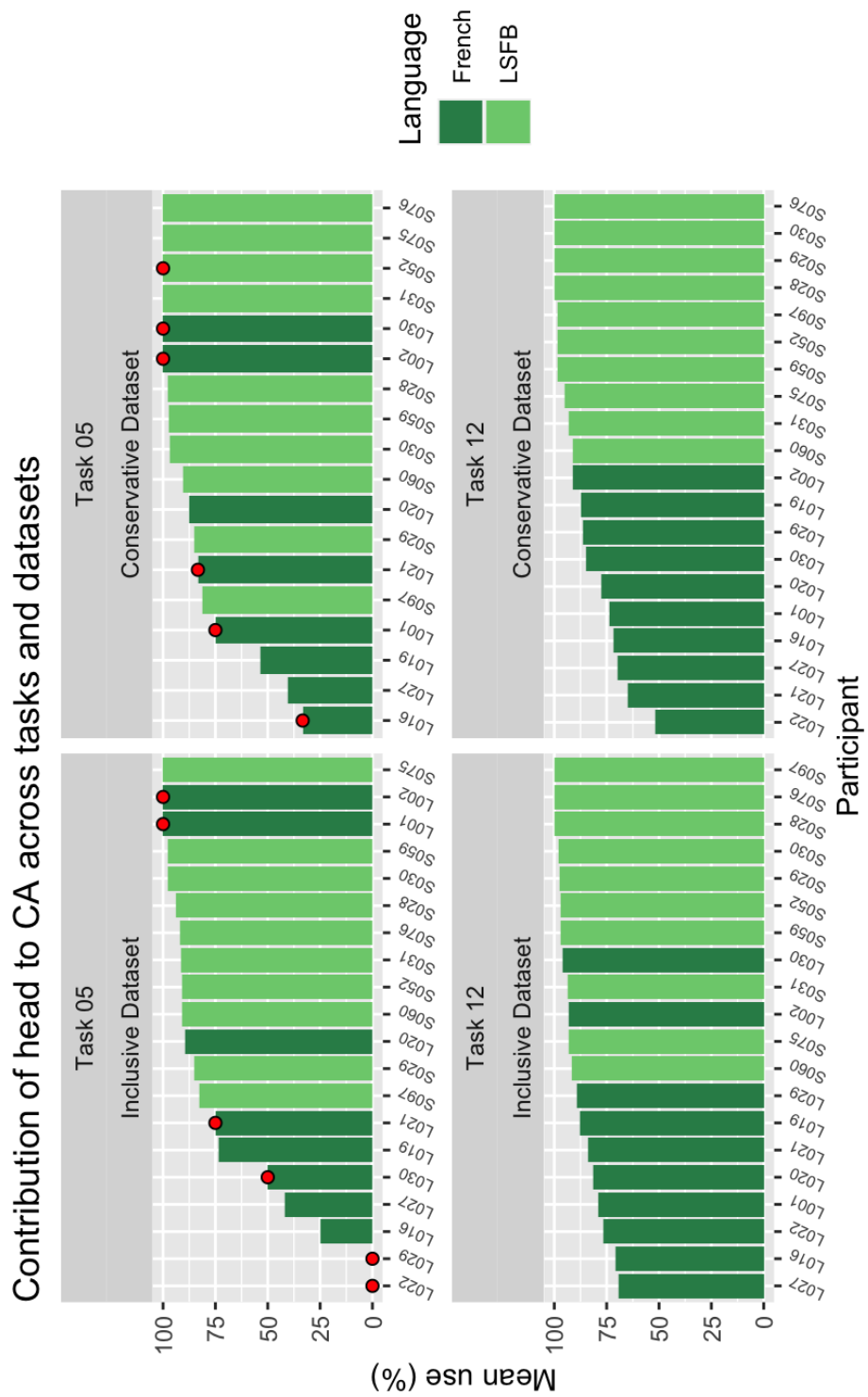


Figure 35. Barplot of head contribution to constructed action

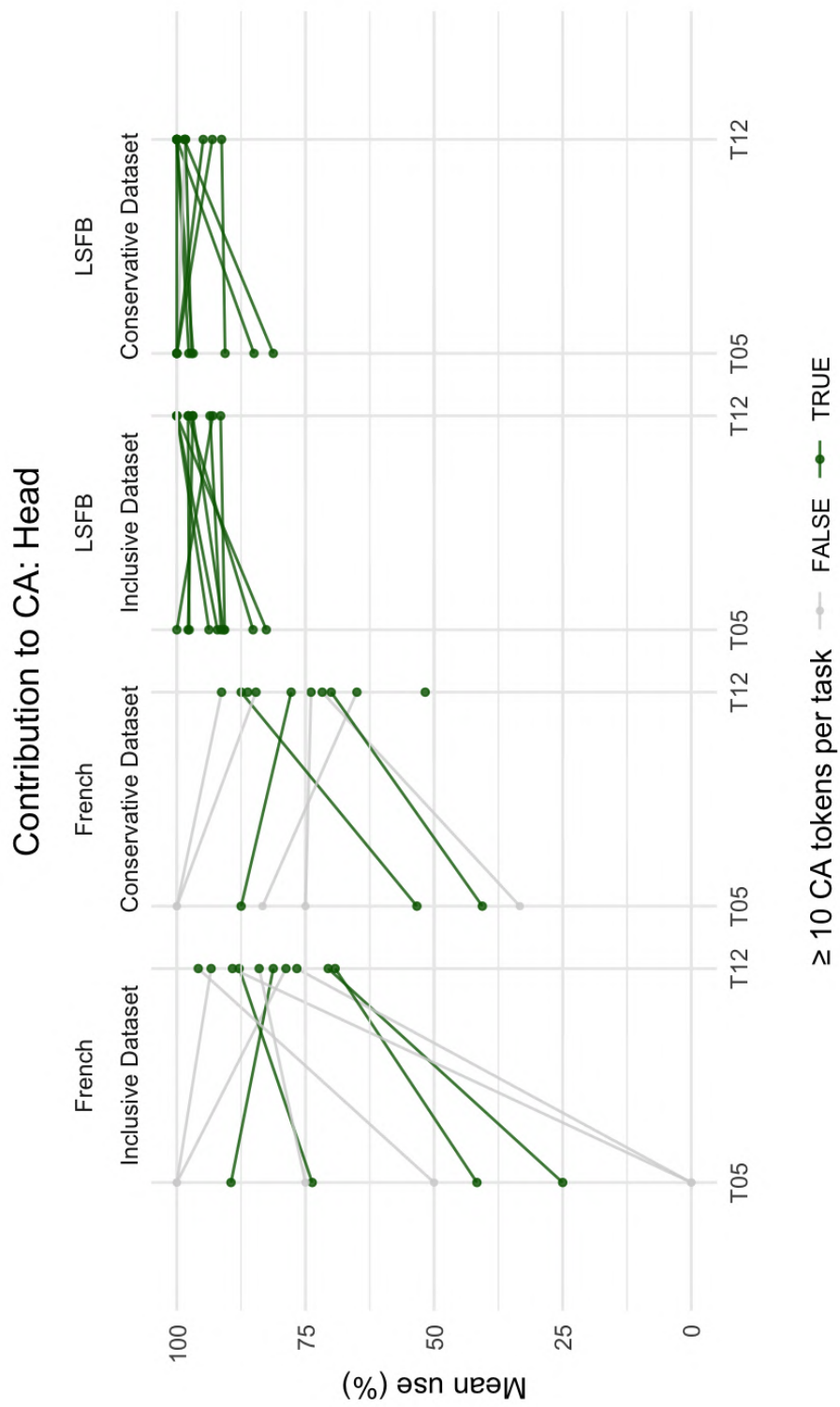


Figure 36. Lineplot of head contribution to constructed action

7.3.1.4 Torso

Central tendencies in Table 13 show that enacting torso movements are more frequent in LSFB than in Belgian French. As was the case for other articulators, the FRAPé Corpus exhibits a higher standard deviation than the LSFB Corpus, indicating that mean use of torso is more widely spread around the mean in French than in LSFB. One reason for this is that, in Task 05, some French speakers (L021, L022, L029, and L030) did not use enacting torso movements at all. As is visible in Figure 37, other participants did use their torso to enact referents, some even to an extent similar to LSFB signers, e.g., L002 and L019 in Task 12.

Table 13. Torso contribution to constructed action: Descriptive statistics

Dataset version	Language	Task	Mean	Median	SD	Min.	Max.
Inclusive	French	T05	24.11	12.50	27.07	0.00	66.67
Inclusive	French	T12	35.82	34.71	21.20	6.67	66.67
Inclusive	LSFB	T05	54.53	51.64	13.64	34.78	81.93
Inclusive	LSFB	T12	75.95	76.49	13.13	56.10	93.48
Conservative	French	T05	26.91	26.04	25.19	0.00	75.00
Conservative	French	T12	33.84	25.46	22.71	6.90	70.83
Conservative	LSFB	T05	58.26	60.00	18.09	25.00	87.10
Conservative	LSFB	T12	73.32	76.82	13.91	50.00	90.24

The high degree of inter-individual variation is at least partly a consequence of the extreme values associated with French-speaking participants producing few tokens of constructed action in Task 05. This can be seen in Figure 37 and Figure 38 where the most extreme values all correspond to French speakers with fewer than 10 identified tokens. Hence, the low number of tokens for Task 05 of the FRAPé Corpus makes it unclear whether participants' use of torso could be representatively captured as it is hard to distinguish between the effects of the narrow sample and those of potential inter-individual differences. However, in Task 12, where French-speaking participants produced more tokens of enactment, more reliable grounds can be found to claim that there is inter-individual variation in this language group: FRAPé Corpus informants used enacting torso movements in a share of tokens ranging from 6.67 (6.90) to 66.67 (70.83) %.

Table 13 indicates a tendency for the frequency of torso use to increase in Task 12 compared to Task 05. However, Figure 38 shows that this can only be confirmed for LSFB. Since those French-speaking participants who produced at least ten tokens of constructed action exhibit different patterns, a more robust analysis with additional instances of enactment in which torso use could be measured is required to examine the effect of task.

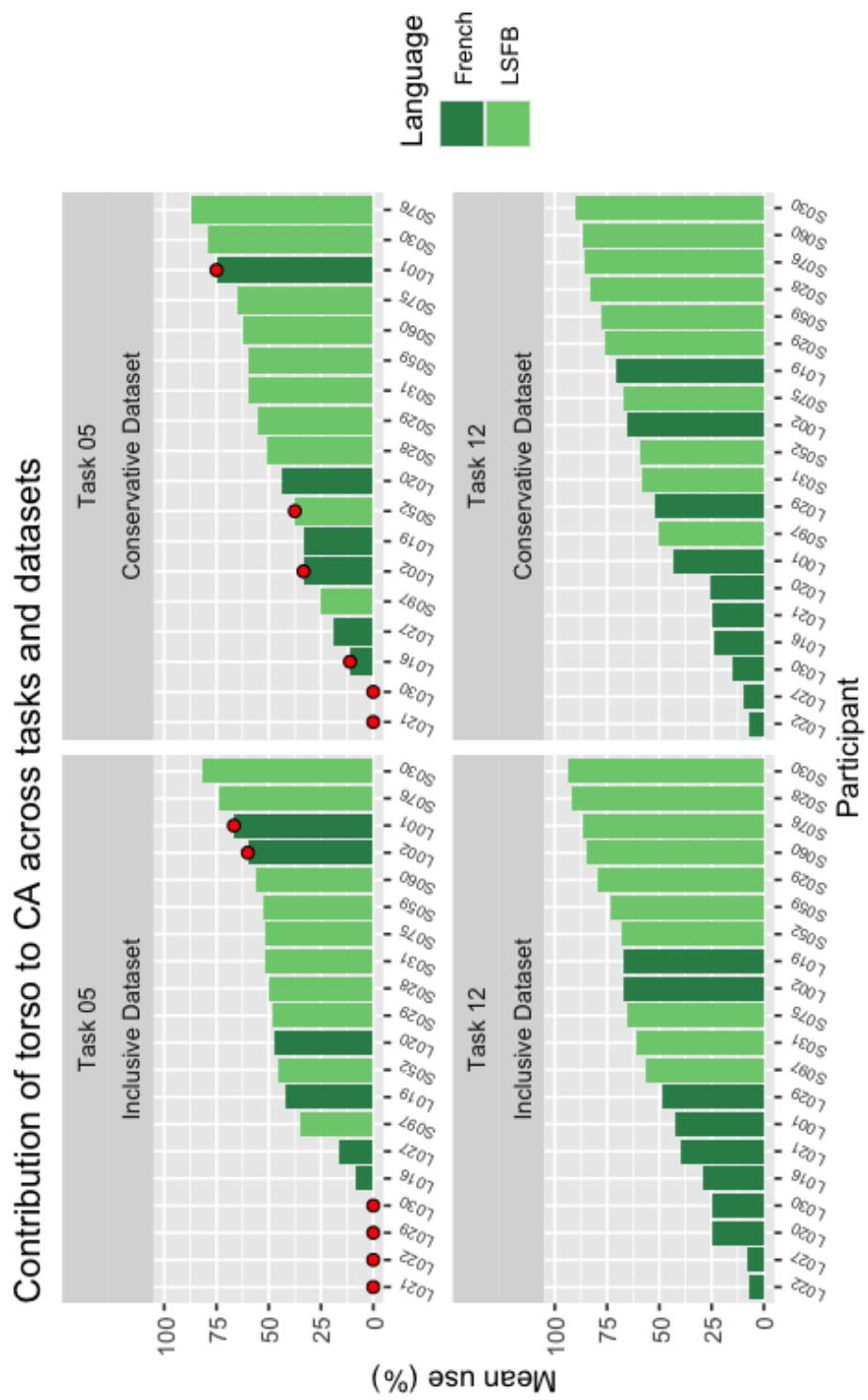


Figure 37. Barplot of torso contribution to constructed action

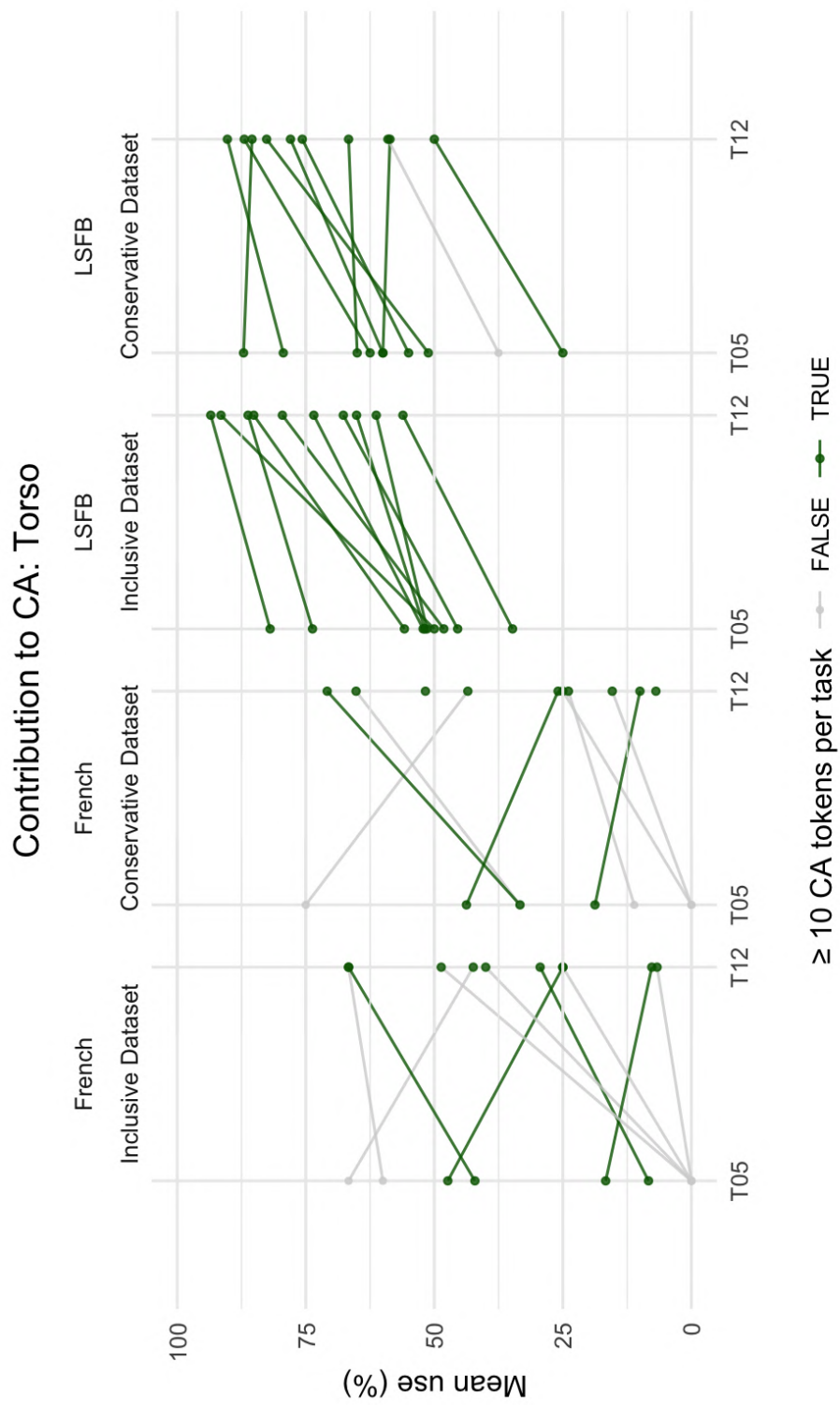


Figure 38. Lineplot of torso contribution to constructed action

7.3.1.5 Hands and/or arms

Table 14. Hands and arms contribution to constructed action: Descriptive statistics

Dataset version	Language	Task	Mean	Median	SD	Min.	Max.
Inclusive	French	T05	56.74	60.20	27.79	0.00	100.00
Inclusive	French	T12	54.94	56.12	15.71	25.00	75.68
Inclusive	LSFB	T05	18.97	14.37	11.01	7.41	40.74
Inclusive	LSFB	T12	50.11	50.76	13.26	25.61	72.41
Conservative	French	T05	44.04	43.33	25.51	0.00	75.00
Conservative	French	T12	55.62	53.59	15.08	30.77	79.31
Conservative	LSFB	T05	21.30	13.57	15.40	6.98	45.00
Conservative	LSFB	T12	47.17	47.31	14.70	25.71	72.73

Table 14 shows that the average use of hands and arms is much higher in Task 12 than in Task 05 for LSFB signers. As for French speakers, the frequency of use of hands and arms remains more stable, with a limited increase in the conservative version of the dataset. Therefore, LSFB signers and Belgian French speakers exhibit a different mean use of hands and arms in Task 05 and a more comparable one in Task 12. This is notably visible in the overlaps between the two language groups shown in Figure 39.

As was the case for other articulators, observations are more widely spread around the mean for Task 05 of the FRAPé Corpus than for the other combinations of task and language group. Again, this higher degree of variability could be partly caused by the paucity of data for some participants in Task 05, e.g., the minimum represented by L022, or the maximum represented by L029 (see Figure 39). It is hard to distinguish between plausible effects of having too few observations for some participants and potential inter-individual differences. Interestingly, French speakers who produced at least 10 tokens of constructed action (L019, L020, L016, and L027) appear to use their hands and arms to enact referents very frequently in Task 05. While these are too few participants to make any claim, it is noteworthy that their use of hands and arms is higher in Task 05 than in Task 12, which contradicts the effect of task previously reported.

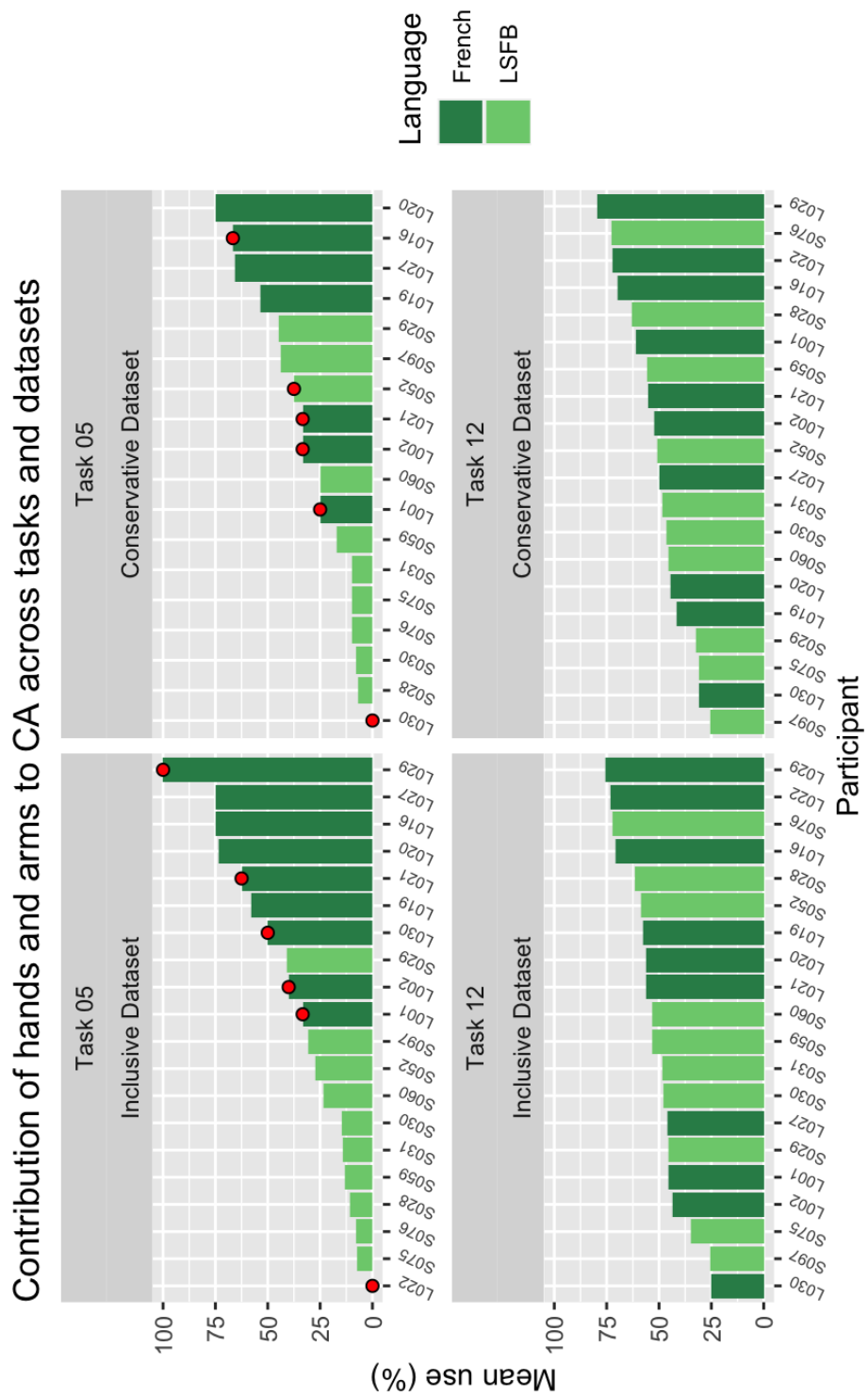


Figure 39. Barplot of hands and arms contribution to constructed action

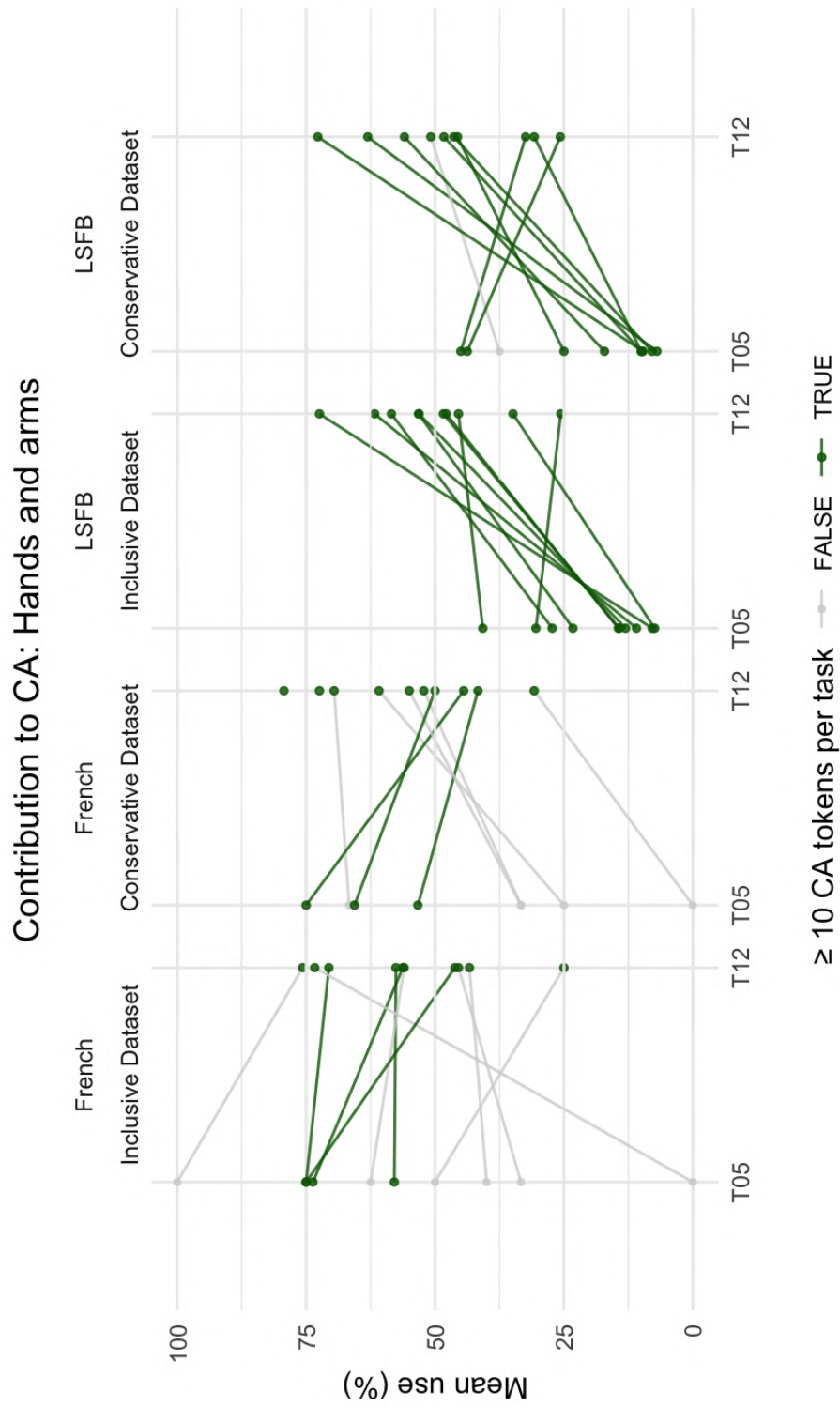


Figure 40. Lineplot of hands and arms contribution to constructed action

7.3.1.6 Constructed dialogue

Table 15. Contribution of constructed dialogue to constructed action: Descriptive statistics

Dataset version	Language	Task	Mean	Median	SD	Min.	Max.
Inclusive	French	T05	45.03	56.94	36.89	0.00	100.00
Inclusive	French	T12	10.45	5.93	11.88	0.00	31.37
Inclusive	LSFB	T05	28.66	26.84	13.04	13.04	52.63
Inclusive	LSFB	T12	26.17	30.04	13.50	6.38	46.81
Conservative	French	T05	43.34	46.88	35.62	0.00	83.33
Conservative	French	T12	12.59	8.85	14.47	0.00	37.93
Conservative	LSFB	T05	34.77	33.75	13.83	12.50	54.84
Conservative	LSFB	T12	26.65	29.39	13.55	6.52	45.65

Both language and task seem to partly affect the use of constructed dialogue. Central tendencies show that FRAPé Corpus informants overall exhibit a higher use of constructed dialogue than LSFB signers in the conversational task. An opposite pattern is found in the narrative retelling task, where LSFB Corpus participants enacted referents' utterances more frequently than French speakers did. As Figure 41 and Figure 42 indicate, this stems from a much lesser use (or an absence) of constructed dialogue in French narrations than in the conversations about language attitudes. By contrast, half of LSFB signers exhibit an increase in the enactment of utterances in their retellings with respect to the conversational task.

As the standard deviation value obtained for Task 05 of the FRAPé Corpus and Figure 41 illustrate, French speakers varied widely in their use of constructed dialogue in Task 05. Those participants who exhibit extremely low values – L002, L029, L030, and L022 – are among the FRAPé Corpus informants who produced few tokens of constructed action. However, the high frequency of utterance reports still seems to hold when looking at the participants who more frequently enacted referents in Task 05. Three out of four included 'reported' utterances in well over half of their tokens. In both tasks, and particularly so for the narrative retelling, LSFB signers and Belgian French speakers overlap in their use of constructed dialogue. In Task 05, L019 enacted utterances in equally few tokens as most LSFB signers while S076 used constructed dialogue to an extent comparable to that of some French speakers. In Task 12, participants from the two groups overlap on the cline from no constructed dialogue to more than 30% of tokens of enactment featuring an enacted utterance.

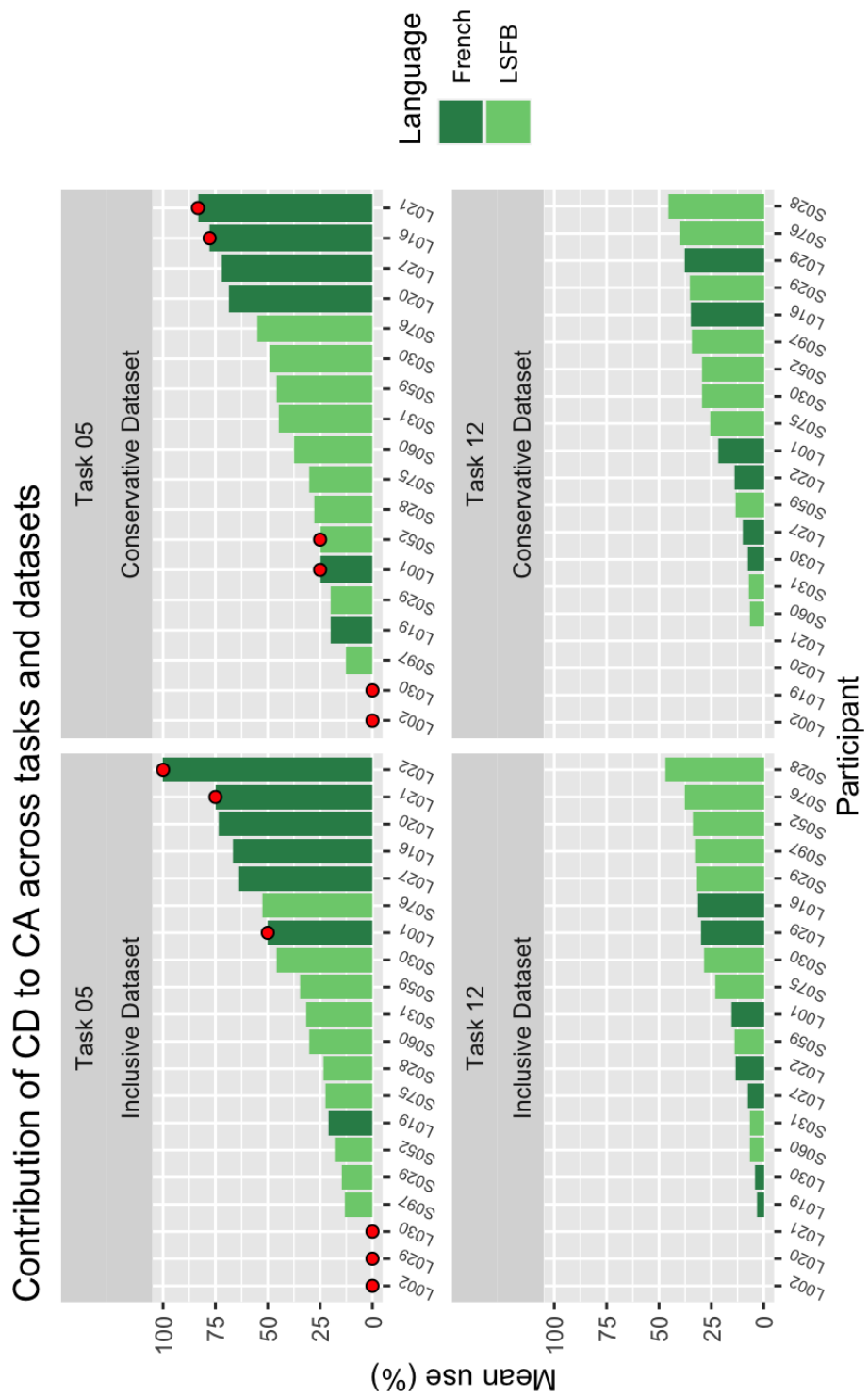


Figure 41. Barplot of contribution of constructed dialogue to constructed action

Contribution to CA: Constructed Dialogue

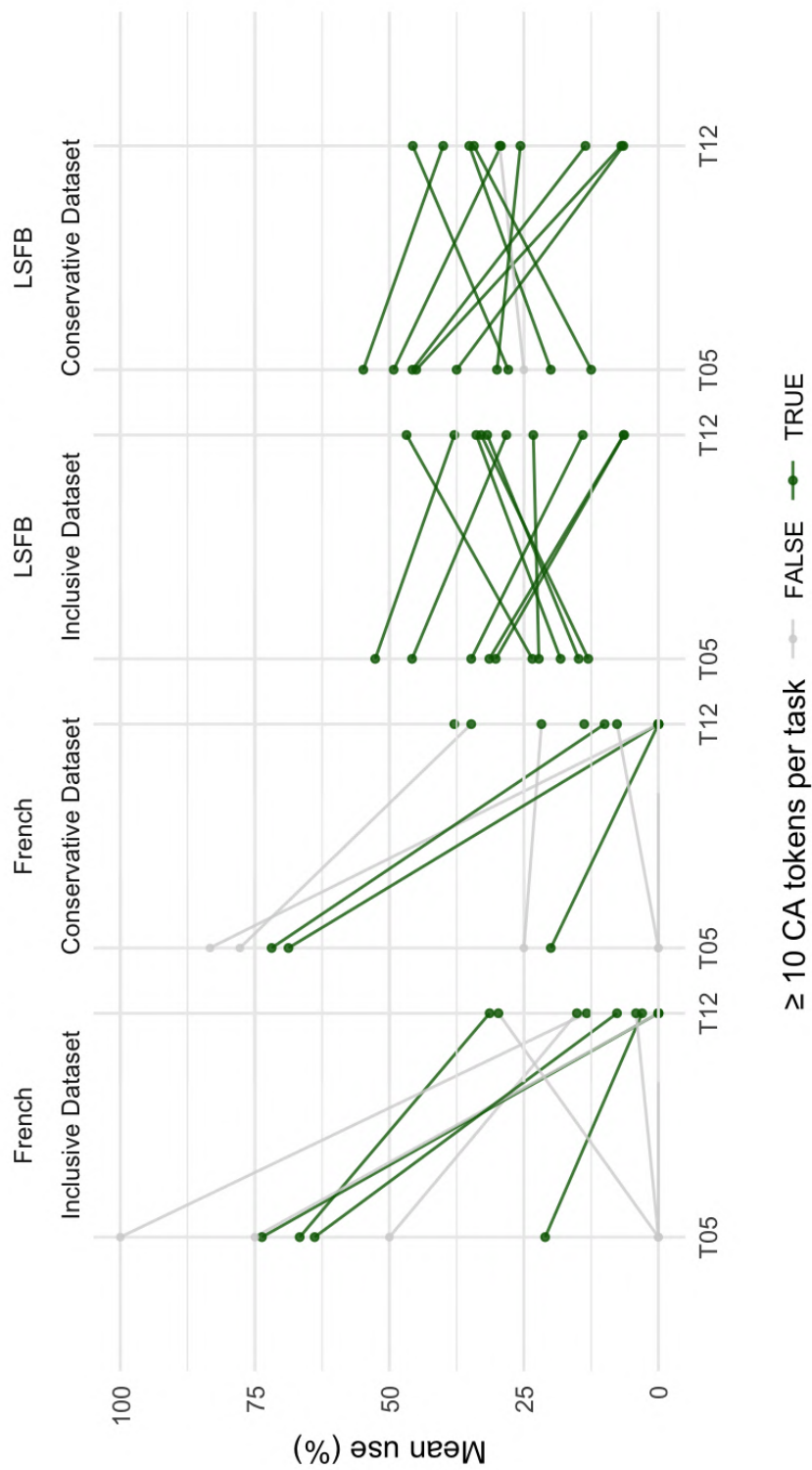


Figure 42. Lineplot of contribution of constructed dialogue to constructed action

7.3.1.7 Voice

As Table 16 shows, most French-speaking participants used their voice for constructed action less frequently in Task 12 than in Task 05.

Table 16. Voice contribution to constructed action: Descriptive statistics

Dataset version	Language	Task	Mean	Median	SD	Min.	Max.
Inclusive	French	T05	37.96	42.98	31.22	0	75.00
Inclusive	French	T12	13.52	9.79	12.33	0	35.14
Conservative	French	T05	39.59	42.22	29.03	0	83.33
Conservative	French	T12	10.85	7.17	12.26	0	34.48

Figure 43 and Figure 44 show that this pattern holds in French speakers who produced at least ten tokens of enactment. Standard deviation values indicate considerable inter-individual variation across informants in both tasks, with some of them never recruiting this articulator to enact referents while others often did. While this variability is likely to be exacerbated in Task 05 by values associated with participants who produced few tokens, French speakers still varied in their use of voice in Task 12.

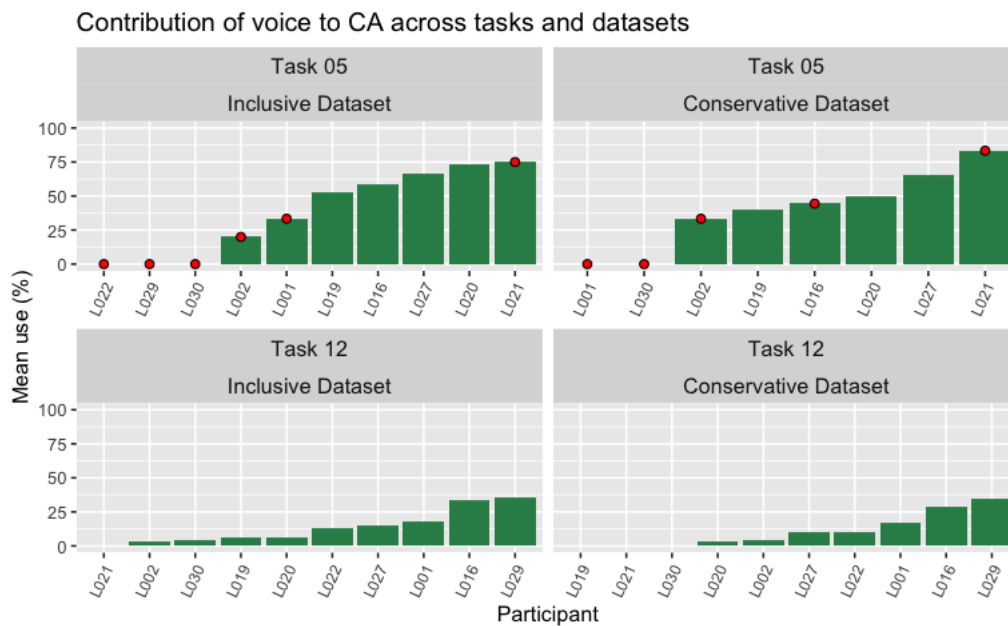


Figure 43. Barplot of voice contribution to constructed action

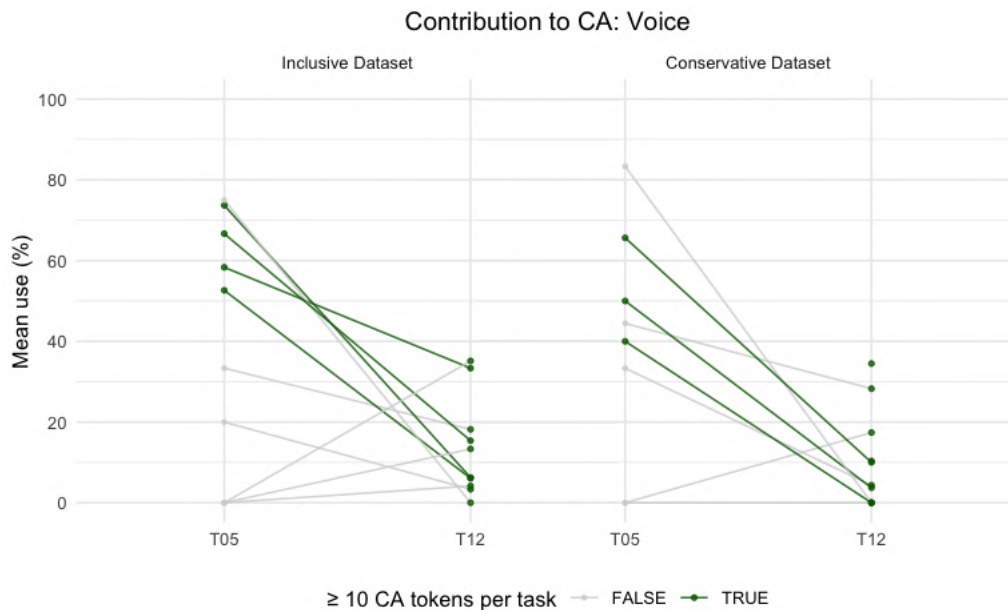


Figure 44. Lineplot of voice contribution to constructed action

While articulator-specific descriptions directly provide some information about how participants compare when it comes to the contribution of different articulators, this information adopts a relatively narrow view of bodily motion contributing to constructed action. It is indeed useful to reach a general view of how corpus informants used their whole bodies across communities and tasks. A more global understanding of how participants use their whole bodies is provided here in two ways: an articulator count index (Section 7.3.2) and the use of an exploratory statistical tool combining hierarchical clustering and heatmaps, namely heatmap dendrograms (Section 7.3.3).

7.3.2 Articulatory index

The articulatory index is a measure of the average number of articulators recruited by participants in each identified token of constructed action. This measure was used in prior research on the phenomenon by Stec et al. (2016) and Hodge et al. (2023). Each articulator is marked either as activated ('1') or as not contributing ('0'). Activation scores for all articulators are then added, yielding a value for each token of enactment. Averaging these values for all individuals in each task provides an index accounting for the multimodality exhibited by informants across discourse types. It is worth bearing in mind that because voice was not analysed in LSFb, tokens from each group have a different possible maximum index: 6 for LSFb and 7 for French. LSFb signers used an average of 3.48 (3.64) articulators in Task 05, as against 4.22 (4.16) in Task 12. French speakers recruited an average of 2.76 (2.95) articulators to enact referents in Task 05 as against 2.75 (2.60) articulators in Task 12. Hence, articulatory index measures exhibit more cross-linguistic similarity in Task 05 than they do in Task 12, where LSFb signers show higher values. To get a better understanding of the effect of task, Table 17 and Table 18 as well as Figure 45 and Figure 46 are provided.

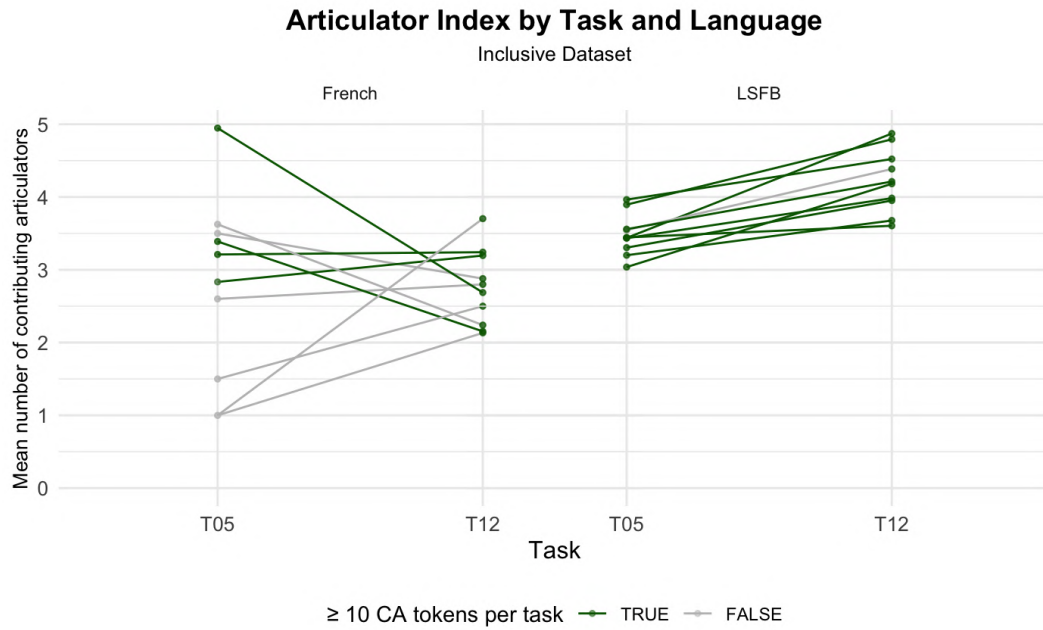


Figure 45. Articulatory index across tasks (inclusive dataset)

Table 17. Articulatory index per participant and task (inclusive dataset)

Participant	Task 05 – Conversation		Task 12 – Narrative retelling	
	Individual index	Deviation from mean index	Individual index	Deviation from mean index
L001	3.50	0.740	2.88	0.127
L002	2.60	-0.160	2.80	0.047
L016	2.83	0.070	3.20	0.447
L019	3.21	0.450	3.24	0.487
L020	4.95	2.190	2.69	-0.063
L021	3.62	0.860	2.24	-0.513
L022	1.00	-1.760	2.13	-0.623
L027	3.39	0.630	2.15	-0.603
L029	1.00	-1.760	3.70	0.947
L030	1.50	-1.260	2.50	-0.253
S028	3.44	-0.041	4.87	0.654
S029	3.04	-0.441	4.18	-0.036
S030	3.96	0.479	4.52	0.304
S031	3.20	-0.281	3.68	-0.536
S052	3.55	0.069	4.38	0.164
S059	3.43	-0.051	3.98	-0.236
S060	3.56	0.079	4.21	-0.006
S075	3.44	-0.041	3.60	-0.616
S076	3.89	0.409	4.79	0.574
S097	3.30	-0.181	3.95	-0.266

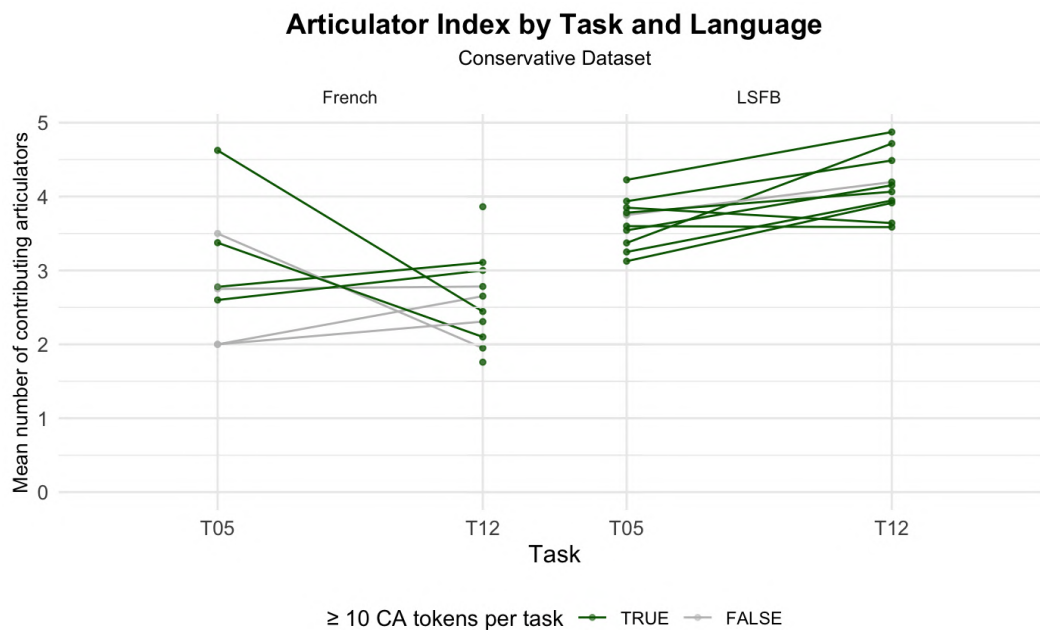


Figure 46. Articulatory index across tasks (conservative dataset)

Table 18. Articulatory index per participant and task (conservative dataset)

Participant	Task 05 – Conversation		Task 12 – Narrative retelling	
	Individual index	Deviation from mean index	Individual index	Deviation from mean index
L001	2.75	-0.20375	2.78	0.18400
L002	2.00	-0.95375	2.65	0.05400
L016	2.78	-0.17375	3.11	0.51400
L019	2.60	-0.35375	3.00	0.40400
L020	4.62	1.66625	2.44	-0.15600
L021	3.50	0.54625	1.95	-0.64600
L022	NA	NA	1.76	-0.83600
L027	3.38	0.42625	2.10	-0.49600
L029	NA	NA	3.86	1.26400
L030	2.00	-0.95375	2.31	-0.28600
S028	3.37	-0.27300	4.72	0.56100
S029	3.25	-0.39300	3.95	-0.20900
S030	3.94	0.29700	4.49	0.33100
S031	3.60	-0.04300	3.59	-0.56900
S052	3.75	0.10700	4.20	0.04100
S059	3.54	-0.10300	4.15	-0.00900
S060	3.78	0.13700	4.07	-0.08900
S075	3.85	0.20700	3.64	-0.51900
S076	4.23	0.58700	4.87	0.71100
S097	3.12	-0.52300	3.91	-0.24900

Table 17 and Table 18 support the idea that LSFB signers exhibit an increase in the articulatory index in Task 12 as compared to Task 05. The visualisations provided in Figure 45 and Figure 46 also corroborate that LSFB signers used a higher average number of articulators than French speakers in the retelling task. However, the central tendencies reported for Task 05 of the FRAPé Corpus should be considered with caution due to the limited amount of data collected for some French speakers in Task 05. As a consequence, French speakers exhibit considerable variation in their articulatory indices in this task. For some FRAPé Corpus informants who produced little constructed action, the few annotated tokens exhibit extremely low indices, subsequently leading to low individual mean indices. This notably applies to the three lowest articulatory indices in Task 05 of the FRAPé Corpus, which are all related to participants with few tokens, i.e., L022, L029, and L030. It is also striking that one of the French-speaking participants who produced at least ten tokens displayed highly multimodal enactment, resulting in a high individual index (4.95/4.62). Since it is unclear which pattern would have emerged if French-speaking participants had produced more enactments, comparing LSFB and French indices in Task 05 or the effect of task in Belgian French proves challenging. To complete the more holistic view provided by articulatory indices, heatmap dendrograms were used to identify how informants coordinated multiple articulators when enacting referents.

7.3.3 A holistic look at articulator use: Using heatmap dendrograms

Heatmap dendrograms include two kinds of analyses: correlation heatmaps and hierarchical clustering. Correlation heatmaps are data visualisation tools which are used to show the level of association between variables in a matrix. More specifically, in the analysis presented here, combinations of corpus informants and tasks are listed vertically (on the right) while the different articulators contributing to constructed action are displayed horizontally (at the bottom of the graph). The numerical value in each cell of such a matrix stands for a score measuring the association between a specific participant-task combination (e.g., L001 T12) and an articulator (e.g., gaze). In our case, for each participant-task combination, the number of times that a specific articulator has been counted as contributing to constructed action is divided by the total number of enactment tokens produced by the participant in the specific task. Next, this value is standardised by centering it across the averages of all articulators listed for that participant-task combination, i.e., subtracting the mean and then dividing resulting values by the standard deviation. The name ‘heatmap’ comes from the fact that these visualisations attribute a ‘hot’ colour (red) to highly positive association values and a ‘cold’ one (blue) to cells with a highly negative association score.

Hierarchical clustering is a method used to sort data points in different groups called clusters. For two data points to be in the same cluster, their values need to have been estimated as close enough by the clustering algorithm. Data points with values assessed to be too different will be grouped in separate clusters. The clustering solution may be displayed using a dendrogram, a tree-like structure which shows the proximity of variables and how they can be clustered accordingly. In a dendrogram, branches, i.e., the lines which connect variables, show which variables

are best grouped together: the clusters. The length of these branches indicates how similar the cluster members are. In the present analysis, the dendrogram above the heatmap shows which articulators are best grouped together while the side dendrogram displays clusters of participant-task combinations.

R packages were used to perform the heatmap dendrogram analysis. First, the clustering analysis was performed using the package ‘NbClust’ (Charrad et al., 2014). This package runs the analysis with different clustering indices and provides the most frequently generated clustering solution. This output was used to determine the ideal number of clusters within all participant-task combinations. Second, the ‘pheatmap’ package was used to generate the heatmap dendrograms (Kolde, 2019). The use of heatmap dendrograms, as an exploratory approach, is a first step to get a holistic view of how the participants recruit multiple articulators to enact referents across tasks. A color-based indication of task and language were also added to gauge whether the clustering solutions could be driven by these factors. The choice to use heatmaps drew on a prior study using this approach to compare enacting articulator use in Auslan and Matukar Panau (Hodge et al., 2023).

Different heatmap dendrograms were generated with different versions of the dataset. A first distinction was the inclusion or exclusion of unconfident annotations on the CA:summary and CA:articulator tiers. Another distinction had to do with which articulators were included in the analysis. As Hodge et al. (2023) point out, some articulators may only be used by one group of languagers because of different sensory experiences, e.g., voice. Therefore, it is important to also consider what patterns may emerge when only those articulators used by all participants are included. Finally, because some FRAPé Corpus informants produced few tokens of constructed action and their articulator contribution data may owe to extremely narrow samples, it was also decided to run the analysis both with all participant-task combinations and keeping only those participant-task combinations with at least 10 documented tokens. Hence, heatmaps were generated using the eight dataset versions listed in Table 19.

Across all heatmaps, either two or three clusters of participant-task combinations were identified. A clustering solution with two groups was found in dataset versions 1, 7, and 8. Three clusters were generated in the analyses using dataset versions 2, 3, and 4. In addition, both clustering solutions, i.e., with 2 or 3 clusters, were suggested by an equal number of indices for dataset versions 5 and 6. Overall, there were many similarities across heatmaps. For instance, removing annotations for participant-task combinations with few annotations ($n < 10$) did not alter the resulting clustering solution (save between versions 1 and 2). In addition, the differences between some heatmaps diverging in other parameters, e.g., inclusion of voice or of unconfidently annotated tokens, were not such that they called for alternative interpretations of the clustering solution. Hence, because of significant overlaps in the main patterns driving the generated heatmaps, the results will be discussed by using two heatmap dendrograms as representative examples, namely the ones based on dataset versions 1 and 3, respectively shown in Figures 47 and 48. The remaining heatmaps can be consulted in the Appendix.

Table 19. Number and types of performed heatmap dendrogram analyses

Annotation confidence	Articulator inclusivity	Representativeness	Dataset version	Number of generated clusters
Including CA tokens tagged as 'unconfident'	All articulators	Including all participant-task combinations	1	2
		Excluding participant-task combinations with few CA tokens ($n > 10$)	2	3
	Excluding voice	Including all participant-task combinations	3	3
		Excluding participant-task combinations with few CA tokens ($n > 10$)	4	3
Excluding CA tokens tagged as 'unconfident'	All articulators	Including all participant-task combinations	5	2 or 3
		Excluding participant-task combinations with few CA tokens ($n > 10$)	6	2 or 3
	Excluding voice	Including all participant-task combinations	7	2
		Excluding participant-task combinations with few CA tokens ($n > 10$)	8	2

As the heatmap dendrogram in Figure 47 shows, the clustering algorithm generated a solution with two clusters for the first version of the dataset. In all heatmap dendrograms with two clusters, language group was always the main clustering factor. While one cluster was entirely made up of LSFBS signers (Cluster 1), the other one (nearly) only represented Belgian French speakers (Cluster 2). Generated clusters strictly separated the two language groups for dataset versions 5, 6, 7, and 8. One minor exception to this is found in the heatmap dendrogram based on dataset version 1. Indeed, for this version of the dataset, Cluster 1 is exclusively made up of LSFBS signers. While Cluster 2 mostly compiles observations from the FRAPé Corpus, it does feature one observation from an LSFBS Corpus informant. By contrast, task does not seem to play a role in the clustering solution. Both of the generated clusters exhibit a balanced share of each task. Task 05 is represented by 9 observations (9/19, 47.4%) in Cluster 1 and by 11 observations (11/21, 52.4%) in Cluster 2. This then means that Task 12 contributes 10 observations in both Cluster 1 (10/19, 52.6%) and Cluster 2 (10/21, 47.6%).

How do these two clusters relate to the analysed articulators? In the two-cluster solutions, participant-task observations grouped in Cluster 1, all corresponding to LSFBS Corpus informants, exhibited a positive association with a signature characterised by head, gaze, and, to a somewhat slighter extent, face, and torso. The same cluster is also marked by a negative association with the remaining articulators: hands and/or arms, constructed dialogue, and, in particular, voice.

Observations in Cluster 2, most of which relate to the FRAPé Corpus, show more heterogeneity in their associations with different articulators. This is particularly the case for those dataset versions which include participant-task combinations with few tokens and/or those annotations deemed as uncertain (versions 1, 5, and 7). A trend towards positive association is found for several articulators, though most exhibit some exceptions. Whereas most observations in Cluster 2 exhibit a strongly positive association with head, a few of them show a slightly negative one, e.g., L027 T05. In dataset versions in which participant-task observations in Cluster 2 with few tokens of constructed action are included (1, 5, 7), a mixed pattern is found for gaze due to observations ranging from positive to negative association. However, in dataset versions in which these observations are discarded (6, 8), most of the remaining observations are positively associated with gaze. Next, most (if not all, in some dataset versions) observations in Cluster 2 are positively associated with the enacting use of hands and arms.

Negative association patterns are found for the remaining articulators. In all dataset versions resulting in a solution with two clusters, most observations in Cluster 2 are negatively associated with the use of facial expression. Turning to torso, most observations are negatively associated with this articulator in Cluster 2 (except for dataset version 1 where a more heterogeneous association pattern emerges, potentially due to a higher presence of annotations deemed uncertain for some participant-task combinations). Likewise, constructed dialogue is negatively associated with most observations in Cluster 2, even more so when participant-task combinations with few tokens are excluded (6 and 8). Like constructed dialogue, voice appears to be mostly negatively associated with observations in Cluster 2. While some observations do exhibit (sometimes very) positive association with constructed dialogue and voice, e.g., L022T05 or L016T05, they decrease in number when participant-task combinations with few tokens of enactment are excluded.

Summing up, on the one hand, Cluster 1 shows a positive association with a signature characterised by head, gaze, face, and torso. By contrast, it shows a negative association with the second signature (hands and arms, constructed dialogue, and voice). On the other hand, Cluster 2 exhibits association patterns that are less homogenous and less directly aligned with the two signatures. Participant-task combinations in Cluster 2 are positively correlated with the enacting use of head, hands and arms and to a slighter extent, gaze. Conversely, observations in Cluster 2 are negatively associated with the use of facial expression, and to some extent, torso, constructed dialogue, and voice.

In the heatmap dendrograms featuring a three-cluster solution, the clusters are partly driven by language groups, as Figure 48 shows. In some clustering solutions (versions 5 and 6), the first cluster is exclusively made up of observations drawn from LSFBSigners while the other two clusters contain observations related to French speakers. In other dataset versions resulting in three clusters, the language group separation becomes slightly more porous. In versions 2, 3, and 4, S029 T05 is found in Cluster 2, a cluster which otherwise only comprises Belgian French speakers. In version 4, L020 T05 is also found in Cluster 1, in which it is the only observation drawn from the FRAPÉ Corpus.

While there is no neat task distinction between Cluster 2 and Cluster 3, it seems that observations drawn from Task 05 are disproportionately represented in Cluster 3 (4/6 in version 2, 6/6 in version 3, 2/2 in version 4, 3/3 in version 5, and 2/4 in version 6). Hence, task may have played a role in the clustering output when it comes to observations drawn from the FRAPÉ Corpus. Given that some French-speaking participants produced few tokens of constructed action in Task 05, one may wonder whether the third cluster is an artefact resulting from extreme values related to these participants. However, the fact that a three-cluster solution was found for dataset versions 2, 4, and 6, all of which discard observations for participant-task combinations with few tokens, undermines this account.

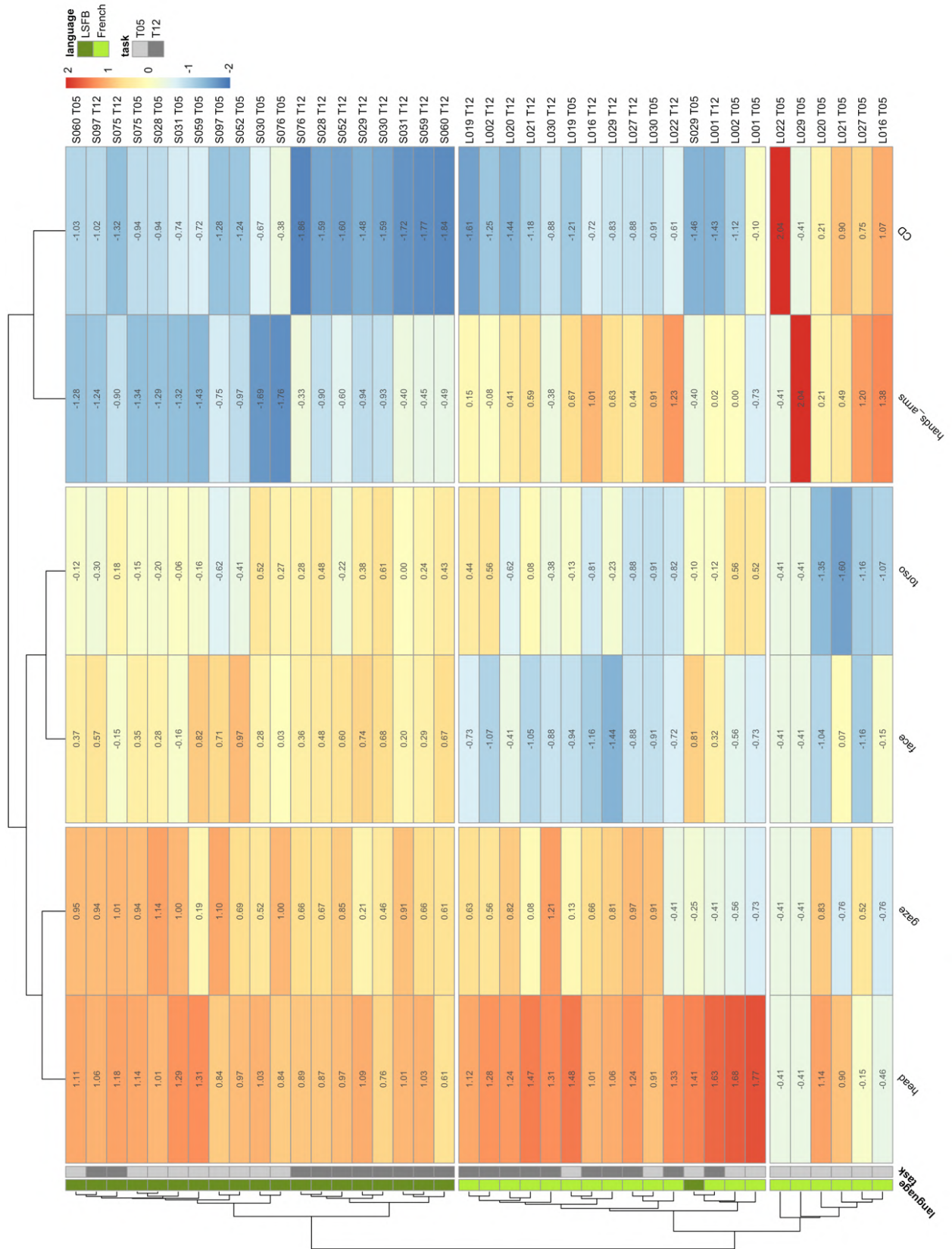


Figure 48. Heatmap dendrogram with a 3-clusters solution comparing the contribution of different articulators across participant-task combinations based on the third version of the dataset

Cluster 1 in heatmap dendrograms with a three-cluster solution can be described as very similar to Cluster 1 in the dataset versions featuring two-cluster solutions. It is characterised by a strongly positive association with enacting head and gaze movements, a positive association with face, and a neutral to positive correlation with torso (depending on the dataset version). By contrast, it is also characterised by a neutral to negative association with hands and arms and a negative association with constructed dialogue and voice.

What about the remaining clusters? If the last two clusters are made up of observations which, in two-cluster solutions, were found in Cluster 2, the question becomes: What are the association patterns which lead to a distinction between two groups mostly made up of French speakers here? The articulators which most frequently led to a distinction between Clusters 2 and 3 are constructed dialogue, voice, and torso. In all three-cluster solutions, observations were more positively associated with constructed dialogue and voice in Cluster 3 than in Cluster 2. Conversely, the use of enacting torso movements tended to be more negatively associated with observations in Cluster 3 than with those found in Cluster 2. In addition, in some (but not all) heatmap dendrograms with three clusters, other articulators also seemed to differ between the two groups of French speakers: in the same vein as the use of the torso, the enacting use of head, facial expression, and gaze movements tended to be more negatively associated with observations in Cluster 3 than with those in Cluster 2.

To conclude, three-cluster solutions contained a first cluster largely corresponding to LSFB signers' articulatory signature. Like in two-cluster solutions, this cluster exhibited a very positive association with head and gaze and a positive one with face and torso. Cluster 2, mostly comprising FRAPé Corpus informants, was characterised by a positive association with the use of head and rather mixed association patterns with gaze, torso, and hand movements. It was also negatively associated with the use of facial expression, constructed dialogue, and voice to enact referents. Turning to Cluster 3, mixed association patterns were found for head and gaze movements. However, this cluster is negatively associated with facial expression and torso movements whereas it is positively associated with hands and arms, constructed dialogue, and voice.

7.4 Research Question 3: Degrees of constructed action

Using the generated ‘CA:type’ tier, one can assess how much of the time spent on enacting was used to perform overt, reduced, or subtle constructed action. This information indicates whether the strategy co-occurred with non-enacting material as well as to what extent it was perceived prominent with respect to that material.

7.4.1 Data description: Distributions of degrees of constructed action across languages, tasks, and participants

Figure 49 shows how the three degrees were distributed in the LSFb and FRAPé corpora. LSFb signers seem to have used all three types quite frequently, though to different extents. The type that LSFb signers used the most is overt constructed action as this type makes up 39.14% of the total enacting time (40.97% when discarding annotations deemed uncertain). Next, reduced constructed action was the second most frequent type for LSFb signers, accounting for 33.72% (36.04%) of the time spent on enacting. Finally, the least used type was subtle enactment with a time proportion of 27.14% (22.99%). The distribution of types was less balanced for French speakers than it was for LSFb signers. FRAPé Corpus informants used subtle enactment forms in over half of the time – 56.66% (54.37%) – that they spent on constructed action. Overt enactment was the second most frequent type as it was found in 34.19% (36.76%) of the time spent on the strategy. Finally, French speakers rarely used reduced forms of enactment, which were identified in 9.16% (8.87%) of enacting time.

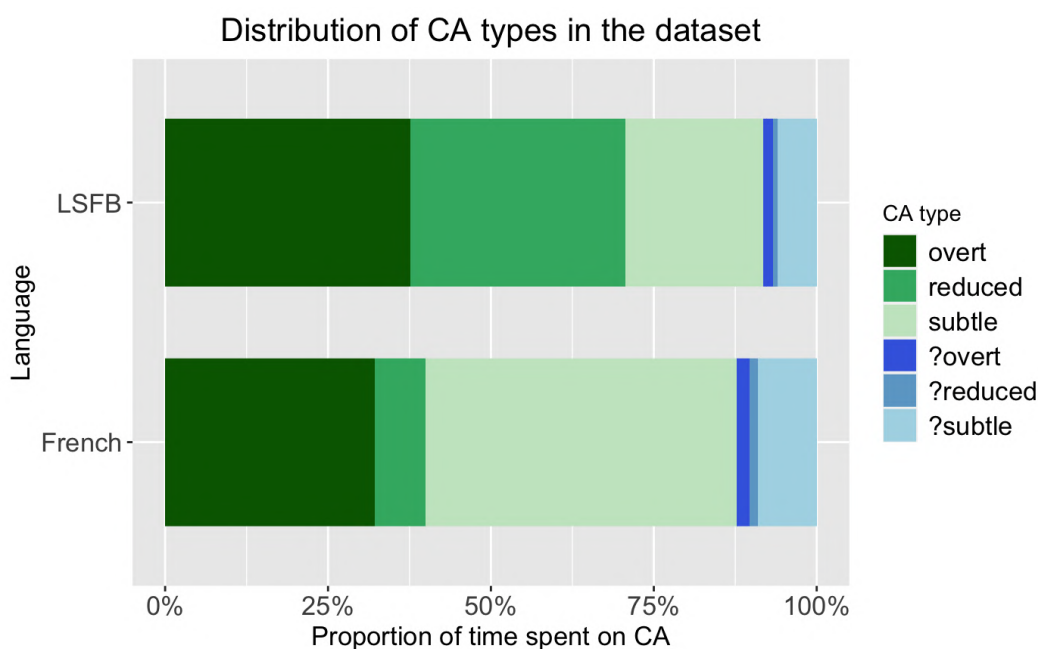


Figure 49. Distribution of types of constructed action in LSFb and Belgian French

Because task, as a proxy for discourse type, has been shown to influence the overtness of constructed action, it is relevant to observe which patterns emerge when considering Task 05 and Task 12 in the two corpora. Another motivation for

a task-based comparison is that participants spent more time on enacting referents during narratives. Degrees of overtness for each task-language combination are shown in Figure 50.

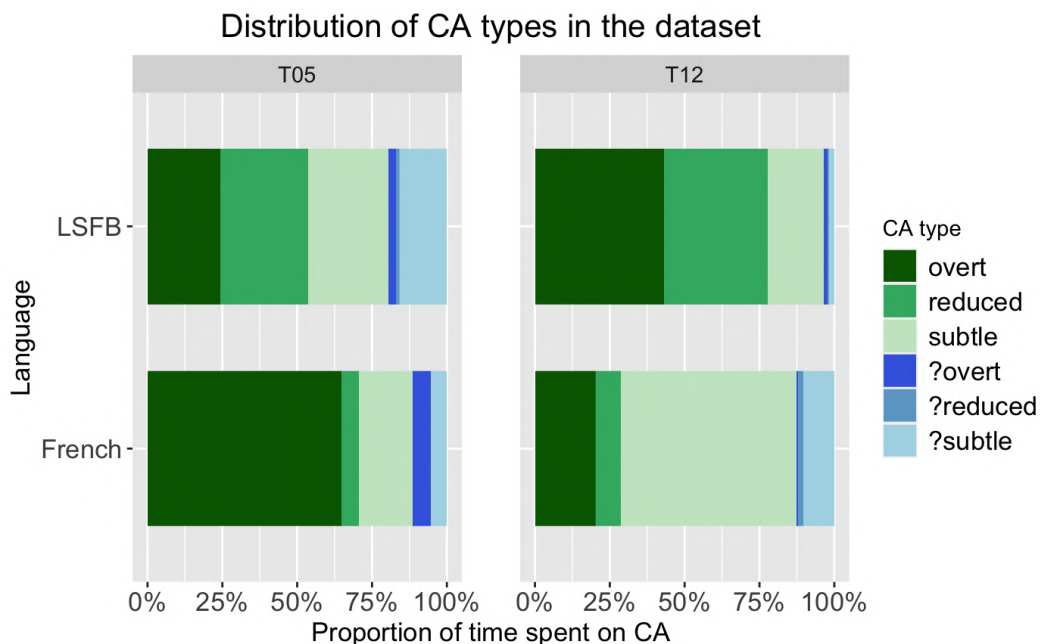


Figure 50. Distribution of types of constructed action across languages and tasks

The analysis now turns to the different degrees of constructed action exhibited by participants in the LSFB and FRAPé corpora in each specific task. In Task 05, French speakers spent 71.20% (73.38% when excluding unclear annotations) of enacting time performing overt forms, 23.05% (20.12%) on subtle constructed action, and 5.75% (6.5%) on reduced enactment. In the same task, a more balanced distribution of types is found in LSFB. Indeed, annotation time for degrees of constructed action shows that LSFB signers spent 27.01% (30.32%) of time on overt, 30.49% (36.6%) on reduced, and 42.5% (33.08%) on subtle constructed action.

The picture shifts somewhat in the narrative discourse genre. The distribution of degrees of constructed action in Task 12 looks different to the one observed in Task 05 for the LSFB Corpus. In elicited narratives, LSFB signers spent 44.27% (44.71%) of enacting time performing overt constructed action, 35.08% (35.84%) on reduced forms, and 20.65% (19.44%) on subtle forms. The distribution of degrees remains unbalanced in the FRAPé Corpus. However, it is another type that seems to be more prominent with respect to Task 05. French speakers spent 69.01% (67.12%) of enacting time on subtle constructed action whereas 20.58% (23.13%) and 10.41% (9.75%) of the time was spent on overt and reduced forms of the strategy respectively.

It appears that different patterns emerge for each combination of language groups and performed tasks. In LSFB, all three types are distributed in a rather balanced way in Task 05 (even more so when unconfident annotations are removed due to a

larger share of unconfident annotations of subtle constructed action). In Task 12, overt forms and, to lesser extent, reduced ones become more prominent, to the detriment of subtle constructed action. This already indicates that the account provided for LSFb based on Figure 49 is congruent with the distribution of types in Task 12 of the LSFb Corpus but differs from the patterns found in the conversational task. In Task 05, French speakers appear to have heavily relied on overt enactment, while using subtle constructed action less often, and very marginally performing reduced forms. By contrast, FRAPé Corpus informants mostly used subtle constructed action in Task 12 while they used some overt forms and disfavoured reduced enactment. Like for the LSFb Corpus, the account of the distribution of types in Figure 49 dovetails nicely with French speakers' use of types of constructed action in the narrative task. Conversely, it largely differs from patterns observed in Task 05. Hence, the frequency of the different types appears to differ across tasks in both language groups.

However, because the distribution of degrees is measured based on relative duration, participants who spent more time on constructed action weigh more heavily on the patterns which emerge in Figure 49 and Figure 50. Therefore, a careful inspection of inter-individual variation is needed before drawing conclusions. Figure 51 can therefore help redress potential misinterpretations.

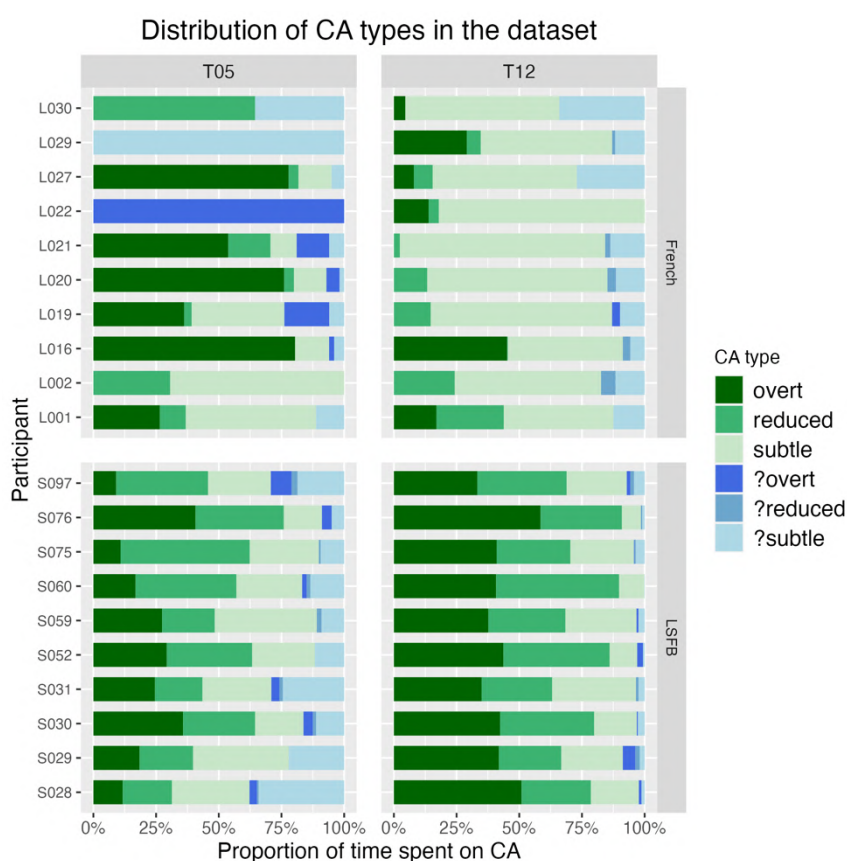


Figure 51. Distribution of types of constructed action by participant and task

Looking at inter-individual differences across tasks (and languages), one can again notice that the above-mentioned patterns do not systematically hold. The

distribution of degrees of constructed action for Task 05 of the FRAPé Corpus is highly variable, whereby most French speakers deviate from the global picture presented above. The patterns described in Figure 50 are driven by those few French speakers who spent considerable amounts of time on enacting referents. These four participants – L016, L019, L020, and L027 – all used overt forms frequently. Three of them – L016, L020, and L027 – even recruited overt forms in over 75% of their enacting time. Most of the other participants exhibit varied patterns that are incongruent with the conclusions based on Figure 50. It is hard to tell whether different distributions of types would have emerged if these participants had spent more time on enacting referents.

As for Task 05 of the LSFb Corpus, the by-participant observation of the distribution nuances the idea that the types are well-balanced. Rather, participants appear to show variation in which type is more prominent. However, unlike for French speakers, it may be said that all types are represented in every participant's discourse. In addition, the patterns do converge to some extent with the hierarchies found in Figure 50: overt constructed action is the most used type for only two participants whereas it is the least used one for six of the LSFb signers in the conversational task. Second, subtle enactment is almost never the least used type, except for S076 (and S30 in the conservative version of the dataset). However, because 'uncertain' annotations of subtle enactment are frequent, the dominance of this type is restricted to the inclusive dataset version. In the conservative version, the gap between subtle and reduced types appears to narrow down. To summarise, despite the inter-individual variation across LSFb signers in the distribution of time spent on the three types of constructed action, it seems that overt forms overall constitute the least recruited type whereas reduced and subtle forms are more represented in Task 05.

Turning to Task 12, the preference for subtle enactment seems to be shared by a majority of FRAPé Corpus informants, with at least half of the enacting time spent on this type of enactment. For most participants, the frequency of subtle enactment forms is even well above the majority threshold. L021 and L030 almost exclusively enacted referents in a 'subtle way in their narratives. Overt and reduced types are relatively marginal with some participants using no overt enactment whatsoever, e.g., L002, L020, L021, L022 (in all dataset versions) and L019 (in the conservative version), or no reduced forms, e.g., L030 (in both versions) and L016 (in the conservative version of the dataset). Two participants showed a different behaviour as they exhibited a comparatively higher use of overt constructed action: L016 and L029 respectively recruited overt enactment forms in 45.14 (49.44) % and 29.09 (33.43) % of enacting time in Task 12.

Finally, turning to the use of the three types in Task 12 of the LSFb Corpus, the observation of individual patterns both supports and nuances the information provided in Figure 50. Overall, it supports a decreasing hierarchy from the most overt to the most subtle forms of enactment. However, this hierarchy of types should not be seen as a categorical separation but rather as a continuum. First, one signer – S031 – used the three types to similar extents. Second, and more importantly, for several participants, 'neighbouring' degrees on the spectrum

exhibit similar frequencies. Overt and reduced forms were used to similar extents by S052 and S097 while reduced and subtle degrees of constructed action were equally frequent in the narrations of S029, S059, and S075.

Hence, examining the influence of task as well as inter-individual variation has enabled me to refine the analysis of types of constructed action in the LSFb and FRAPé corpora. In the same vein as Figure 51, Figure 52 and Figure 53 compare all participants' use of the three types regardless of the time they spent on constructed action, thereby controlling for the disproportionate influence of participants who enacted the most. These boxplots use individual proportions of enacting time spent on each type to provide a summary of the data distribution, e.g., median, quartiles, and outliers, across languages and tasks. This treatment of the data summarises the comparison of language-task combinations while controlling for varying amounts of time spent on constructed action by different participants like Figure 50. The information shown in Figure 52 and Figure 53 is also provided in Table 20 and Table 21.

Table 20. Distribution of types of constructed action (inclusive dataset)

Language	Task	CA type	Min.	Max.	Mean	Median	Std. Deviation
French	T05	subtle	0.00	100.00	37.79	26.87	31.18
French	T05	reduced	0.00	64.47	13.31	3.92	20.42
French	T05	overt	0.00	100.00	48.91	60.46	38.94
French	T12	subtle	51.58	95.52	76.47	82.10	15.36
French	T12	reduced	0.00	30.05	11.45	7.15	10.33
French	T12	overt	0.00	45.14	12.08	6.26	14.90
LSFB	T05	subtle	20.14	65.10	43.44	41.64	13.65
LSFB	T05	reduced	20.25	52.33	31.70	32.02	10.77
LSFB	T05	overt	10.82	44.64	24.86	23.03	10.94
LSFB	T12	subtle	8.50	35.89	22.07	23.47	9.50
LSFB	T12	reduced	26.55	49.00	34.30	31.90	7.19
LSFB	T12	overt	34.76	58.49	43.63	42.00	7.47

Table 21. Distribution of types of constructed action (conservative dataset)

Language	Task	CA type	Min.	Max.	Mean	Median	Std. Deviation
French	T05	subtle	0.00	69.39	28.93	14.16	25.78
French	T05	reduced	0.00	100.00	21.91	7.93	33.19
French	T05	overt	0.00	85.58	49.16	56.96	35.82
French	T12	subtle	49.93	97.19	74.97	80.45	16.72
French	T12	reduced	0.00	30.72	11.64	8.33	11.31
French	T12	overt	0.00	49.44	13.39	8.92	16.67
LSFB	T05	subtle	16.65	49.70	34.84	33.42	11.03
LSFB	T05	reduced	23.59	57.35	37.83	36.44	11.42
LSFB	T05	overt	12.04	44.69	27.33	27.21	11.63
LSFB	T12	subtle	7.68	34.62	20.93	22.69	9.11
LSFB	T12	reduced	27.21	49.13	34.99	32.34	7.25
LSFB	T12	overt	35.86	59.38	44.08	43.29	7.23

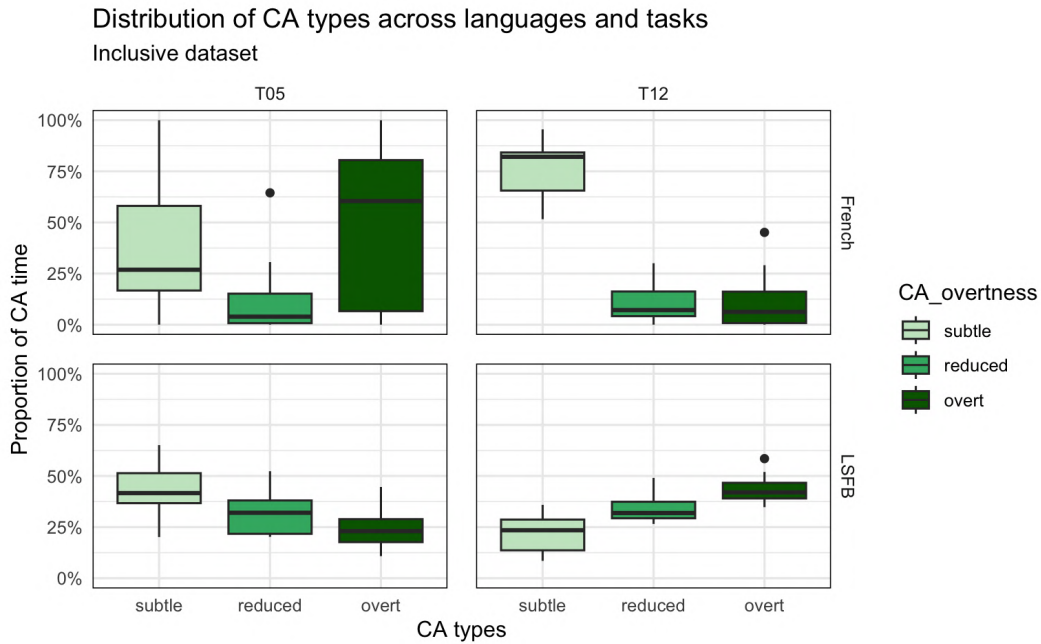


Figure 52. Distribution of types of constructed action across languages and tasks (inclusive dataset)

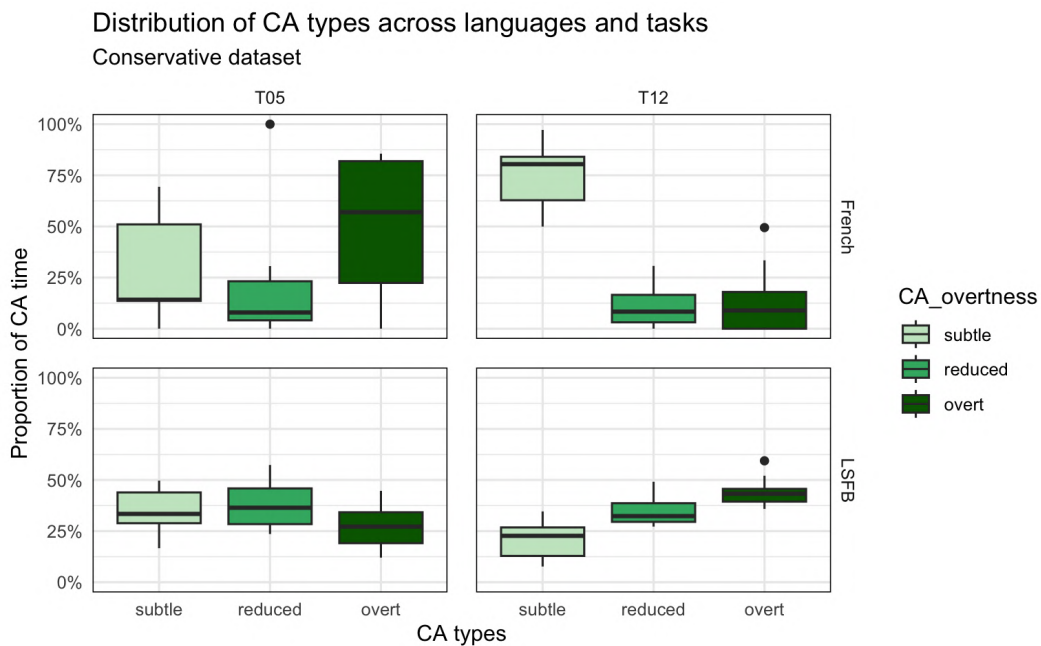


Figure 53. Distribution of types of constructed action across languages and tasks (conservative dataset)

In Task 05 of the FRAPé Corpus, data points related to overt and subtle forms exhibit a high degree of dispersion, possibly because of differences arising from the paucity of tokens for some participants. In Task 12, French speakers highly favoured subtle forms over reduced and overt ones. LSFb signers showed less extreme preferences with a comparatively more balanced distribution of types. Still, in Task 05, subtle and reduced constructed action seem to have been favoured over overt enactment forms whereas the opposite is true for Task 12. The same

information is used in Section 7.4.2 to statistically test for differences in the frequencies of different types.

7.4.2 Statistical treatment

This section focuses on performing two comparisons related to the use of types of constructed action, namely between LSFb conversations and narrations and between LSFb and Belgian French narrations. The frequency of types in Task 05 of the FRAPé Corpus being based on very little data for most participants, it was deemed unfit to be included in the comparison beyond descriptive statistics and related visualisations. To assess whether the differences in use of each degree reached statistical significance, two tests were chosen.

First, a Wilcoxon Signed Rank test for dependent samples was used to compare the proportion of each degree across Task 05 and Task 12 of the LSFb Corpus. The Wilcoxon Signed Rank test is used to assess whether the median of the differences between the paired samples is significantly different from zero. This test was notably used by Puupponen et al. (2022) to compare the proportions of time spent on different degrees (and non-enacting signing) across FinSL stories and free conversations. As a non-parametric test, it is fit for smaller samples, and it does not require the data to meet the normality assumption. For both the inclusive and the conservative versions of the dataset, the Wilcoxon Signed Rank test showed a significant difference in the proportions of time spent on overt ($p = .002$ in both the inclusive and conservative datasets) and subtle ($p = .002$ in both datasets) forms between Task 05 and Task 12 of the LSFb Corpus. However, no significant difference was found between the proportions of time spent by LSFb signers on reduced forms of enactment ($p = .16$ in the inclusive dataset, $p = .76$ in the conservative version of the dataset) across Task 05 and Task 12. Hence, while LSFb signers used a similar share of reduced constructed action in both tasks, they relied more on overt forms and less on subtle ones in Task 12 compared to Task 05.

Second, a Mann-Whitney U test for independent samples was performed to compare the use of different degrees between the stories retold by LSFb signers and those retold by French speakers. This test was also used by Puupponen et al. (2022) to compare the use of constructed action and of degrees of enactment between younger and older FinSL signers. Like the Wilcoxon Signed Rank test, the Mann-Whitney U test does not require the normality assumption and is fit for analyses of small samples. In both versions of the dataset, the Mann-Whitney U test showed significant differences between LSFb signers' and French speakers' use of all degrees of constructed action in their narrative retellings. The null hypothesis had to be rejected for subtle ($W = 100$, $p < .001$ in both dataset versions), reduced ($W = 5$ for the inclusive dataset, $W = 7$ for the conservative one, $p < .001$ in both dataset versions), and overt constructed action ($W = 6$, $p < .001$ for the inclusive dataset version / $W = 8$, $p = 0.002$ for the conservative dataset). Hence, French speakers and LSFb signers used all three degrees of enactment to significantly different extents in Task 12.

8. Discussion

8.1 Frequency of use of constructed action

8.1.1 LSFB

The reported results showed that LSFB Corpus informants spent a significant amount of discourse time enacting referents. This result is in line with studies on other signed languages, in which constructed action has been described as a frequent strategy (see Section 4.1.1). Figure 54 and Figure 55 respectively illustrate the use of constructed action in Task 05 and Task 12 of the LSFB Corpus. The LSFB Corpus informant shown in Figure 54 describes a familiar person whose linguistic insecurity shows in how their signing style adapts to whether there are hearing people nearby. The signer recruits his face, a head pull, and his hands to enact himself as shocked and disturbed by the insecure signer's behaviour.

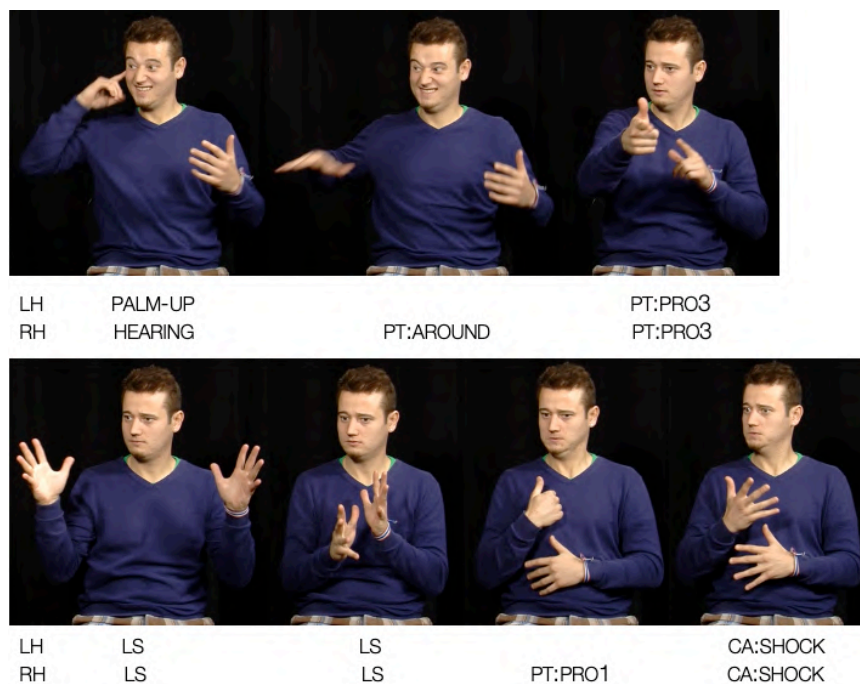


Figure 54. CLSFB S060 T05 (00:02:40.696 – 00:02:42.845)

When hearing people are around, they go from signing in a large signing space to signing very discreetly. That really shocks me.

In Figure 55, the LSFB signer is retelling the *Paperman* story. In this story, a man and a woman waiting for a train start talking after the wind blows the man's sheet of paper into the woman's face. Here, the informant enacts the man's gaze and posture attending to the woman while using facial expression to show the man's embarrassment. The character's hands and arms are subsequently depicted as holding folders and reaching for the lost sheet of paper.



Figure 55. CLSFB S028 T12 (00:03:43.062 – 00:03:45.276)

After the sheet of paper lands on the woman's face, the embarrassed man takes his sheet of paper back.

Though enactment was generally frequent in LSF discourse, the statistical analysis showed a significant impact of task in the frequency of constructed action. Indeed, LSF signers enacted referents for longer proportions of time in narrations than they did in the conversational task: the strategy was identified in close to 60% of Task 12 as against close to 30% of discourse time in Task 05. This effect of text type parallels reports made for other signed languages (see Section 4.1.1). However, the proportion of time spent on constructed action in LSF, especially in Task 05, seems larger than proportions reported for other signed languages.

Ferrara (2012) reported that constructed action and constructed dialogue occurred in respectively 4.9% and 8.7% of clause-like units in Auslan conversations. Sallandre et al. (2019) compared annotated meaning units in different LSF text types and found that personal transfers made up about half of annotated units in narratives as against 6.5% in a text described as a conversational dialogue. Because constructed action is operationalised in a very different way in these studies compared to the present one, it is difficult to contrast these results with ours beyond assuming that fewer occurrences of the phenomenon are likely to lead to smaller proportions of discourse time featuring enactment. Our methodology is more easily compared with that of other studies using similar metrics for frequency. In most of these studies, the frequency of constructed action seems lower than what has been reported for LSF here. For, instance, Hodge & Ferrara (2014) and Hodge et al. (2019a) respectively report 34% and 39% of discourse time involving enactment in Auslan narratives. Jantunen (2017) reports that the phenomenon is found in 35% of FinSL stories. In a recent study on FinSL, Puupponen et al. (2022) found constructed action to occur in 39% of studied narratives whereas it was found in only about 5% of free conversations. One exception to this higher frequency in LSF compared to other signed languages is found in a study on LSQ. Parisot & Saunders (2022) compare the use of constructed action across different text types in LSQ. They observe that narrative vignettes elicited enactment in 63% of retelling time, as against 48% for descriptive vignettes.

Beyond potential differences between these language communities, the discrepancy in reported frequency is likely caused by the use of different types of elicitation stimuli. Puupponen et al. (2022) used picture books as stimuli for the FinSL narrative retellings. As for Auslan stories, they were based on a picture book and a written English source text. While the LSF study is partly based on a picture book

used in the Auslan and FinSL studies too, *Frog, Where Are You?*, it also elicited stories with an animated short film, *Paperman*. Puupponen & Kanto (submitted) report that the nature of the stimulus, i.e., still images versus video materials, might influence narrative productions and the use of enactment in a way similar to what Ferrara (2012) described as a ‘picture-bias’. This could partly explain why LSFb signers used more constructed action in stories than FinSL and Auslan signers did. The conversational task used by Puupponen et al. also differs from the one used in the present study: FinSL signers were free to talk about daily activities such as work and hobbies. In LSFb, by contrast, the conversational task was more constraining: corpus informants were asked to discuss their attitudes towards diverse types of signing. As reported in Vandennitte (2022b), it appears that LSFb signers frequently used constructed action to tell autobiographical stories in Task 05, e.g., retelling past signed interactions. In these personal stories, participants enacted different signing styles as well as their own reactions upon witnessing these styles. The presence of personal narratives and the topics discussed in this task can account for the prominence of the strategy in Task 05. Enactment is a multifunctional strategy described both in storytelling and stance-taking contexts (as described in Section 4.4.7.2). Consequently, Task 05 was not devoid of narrative material and its relevance to the LSFb sociolinguistic situation may have led informants to enact referents to a greater extent than they would have in a different conversational setting.

In addition to the impact of discourse genre, the study also showed notable inter-individual differences across LSFb signers. In both tasks, different informants used the strategy to varying extents. When comparing signers who used constructed action the least and those who used it the most in the conversations about language attitudes and in the narrative retellings, one sees that the latter use enactment in as much as double the proportion of discourse time as the former. Such variation in the frequency of constructed action is also reported for Auslan (Ferrara & Johnston, 2014; Hodge et al., 2023), FinSL (Jantunen, 2017; Puupponen et al., 2022), and ASL (Quinto-Pozos et al., 2022). This variability supports the idea that enactment is not an obligatory strategy in LSFb. Rather, its use may reflect local choices made by individuals based on several dimensions of their communicative intent, e.g., ‘conversation’ topic, nature of a referent, liveliness, and stance expression, among other reasons.

8.1.2 Belgian French

The analysis of the frequency of constructed action in the FRAPé Corpus shows that Belgian French speakers also use the strategy in discourse. This is in line with past research, showing that speakers engage in bodily demonstration of actions. FRAPé Corpus informants selected for this study used constructed action in close to 16% (14% when excluding uncertain tokens) of discourse time. This shows that the strategy cannot be characterised as peripheral in Belgian French discourse. In addition, statistical analysis showed that the average proportion of time spent on enacting was significantly different across discourse types. French speakers used constructed action nearly three times more often (23.4/20.7%) in the narrative retelling than in the conversations about language attitudes (8.6/7.2%). Figure 56

and Figure 57 exemplify the use of constructed action in Task 05 and Task 12 respectively. In Figure 56, the French speaker depicts an obsessive prescriptive attitude attributed to French speakers by enacting someone criticising their interlocutor and holding a pen, as though correcting a written mistake.



Figure 56. CFRAPé L027 T05 (00:06:54.594 - 00:07:00.243)

“Il y a vraiment une stigmatisation du truc de- de la faute, tu sais, genre *ça c’est pas correct, ça t’as pas bien parlé.*”

“There’s a real stigma to the thing, to- to making a mistake, you know, like *that isn’t right, there you didn’t speak well.*”

In Figure 57, the informant uses her hands and arms, gaze, and head to enact a boy climbing up a tree.



Figure 57. CFRAPé L020 T12 (00:04:50.333 - 00:04:52.703)

“Le petit garçon monte dans un arbre.”

“The little boy is climbing up a tree.”

Most studies addressing the phenomenon in spoken languages seldom report on its frequency. Another problem for comparability across studies lies in differences in research scope. For instance, past research has sometimes focused on utterance reporting or very specific discourse types, e.g., narration, rather than encompassing other contexts in which speakers enact referents, e.g., Stec et al. (2016). In a similar vein, constructed action has sometimes been reduced to a channel- or articulator-specific phenomenon. Consequently, it is likely that many instances of the strategy are simply left unaddressed in such studies. Finally, yet another issue for comparisons is that there is no consensus on frequency metrics for spoken languages either. Despite these issues, an attempt at comparison is made to see how the results reported for Belgian French parallel past research on the use of constructed action in spoken languages.

Parisot & Saunders (2022) also use the proportion of time to quantify the frequency of constructed action. They report that Quebec French speakers respectively enacted referents in 16% and 41% of time for the retelling of descriptive and narrative vignettes. The descriptive vignettes being retellings of relatively neutral events, they are not fully comparable with either of the tasks performed by participants in the present dataset. However, narrative vignettes could to some extent be compared to the *Frog*, *Where Are You* and *Paperman* stories retold by FRAPÉ Corpus informants. Strikingly, the frequency reported for Quebec French speakers is almost twice as much as that reported for Belgian French. This result could be related to a difference in the elicitation materials : While the stimuli for the narrative task in Parisot & Saunders' study contain series of dynamic events, they differ in content (e.g., different plots and characters) and are shorter in duration than the stimuli used to elicit Belgian French speakers' retellings.

In the other studies reporting on the frequency of the phenomenon, the number of annotated tokens, rather than the proportion of time spent on constructed action, is reported. Quinto-Pozos et al. (2022) report that English speakers produced a mean number of 15.17 tokens of enactment in their average of 4 minutes of narration, i.e., about 3.6 tokens per minute, for specific events which the authors selected for their analysis. Hodge et al. (2023) count 311 instances of enactment in the 3.34 hours of stories told by Matukar Panau speakers, amounting to 1.5 token per minute. Because of differences in scope, stimuli, and metrics, comparing French speakers' frequency of constructed action with results from other studies is not easy. However, the present study confirms that Belgian French speakers also use enactment in discourse. It also shows that the participants used more constructed action when performing a narrative task than a conversational one. This parallels several studies carried out on signed languages as well as confirms frequent proposals that narration is a discourse context in which speakers frequently use enactment (e.g., Hodge et al., 2023; Janzen, 2022; McNeill, 1992; Parisot & Saunders, 2022; Quinto-Pozos et al., 2022).

While constructed action was shown to be an important strategy in Belgian French, the frequency of the strategy also shows that it is an optional one. FRAPÉ Corpus informants varied in the extents to which they enacted referents in both conversations and narrative retellings. In Task 05, speakers ranged from virtually no use (0.5%/0%) to a frequent use of the strategy (20.3%/19.3%). In Task 12, the frequency range widens with a participant using little constructed action (8%/5.9%) whereas another participant enacted referents very frequently (43.2%/40.8%). Inter-individual variation in frequency measures is also described in other studies on spoken languages. Quinto-Pozos et al. (2022) report that English speakers exhibited a range of 6 to 28 tokens of enactment per person. While the metric used in this study differs from ours, it does show that the considerable variability found in the analysed sample of the FRAPÉ Corpus is not an isolated case.

Different reasons may account for the wide range of frequencies observed across corpus informants. Participants may differ in their communicative styles, some being more comfortable in staging referents using highly multimodal depictions while others may favour using mostly speech. In addition to different

communicative styles, different personalities or degrees of comfort during the recording session or even specific tasks may also partly account for inter-individual differences in the sample. For instance, participant L027 is the French speaker who used most constructed action in Task 05 (even more so than some LSFBS signers if one only considers confidently annotated tokens). However, L027 is also the participant (and FRAPÉ Corpus informant) who enacts the least in the narrative task. One possible explanation for this is that the participant easily enacted referents in a less controlled conversational setting than in the less naturally-occurring narrative retelling task.

8.1.3 LSFBS-Belgian French comparison

The analysis of the proportion of discourse time spent on constructed action has shown that LSFBS signers and Belgian French speakers differ significantly in the extent to which they use the strategy. LSFBS signers enact referents around 3 times more frequently than Belgian French speakers do. This result confirms those of prior studies where constructed action has been compared across pairs of signed languages and their respective ambient spoken languages (Earis & Cormier, 2013; Marentette et al., 2004; Parisot & Saunders, 2022; Quinto-Pozos et al., 2022; Quinto-Pozos & Parrill, 2015; Rayman, 1999). It also parallels results reported in Hodge et al. (2023) who compare a signed language with a non-ambient spoken language. It is possible to draw a comparison between the LSFBS-Belgian French results and those of other studies which quantify frequencies of constructed action across a signed and a spoken language. Parisot & Saunders (2022) report that, using the proportion of time spent on enacting referents as a metric, the strategy is twice as frequent in LSQ as in Quebec French. The same result is reported by Quinto-Pozos et al. (2022) using the number of tokens in ASL and English. Hodge et al. (2023) also compare the number of tokens of constructed action found in Auslan and Matukar Panau discourse. They find that Auslan speakers produce about three times more instances than Matukar Panau speakers. While comparability of methods and metrics is rather low, the finding that enactment is more frequent in a signed language than in an ambient spoken language holds.

While a significant effect of discourse type or task was found both in LSFBS and Belgian French, the first statistical analysis (when uncertain tokens were included) suggested an interaction of task and language, whereby a stronger effect of task was found in LSFBS. Because this interaction was not confirmed in the conservative version of the dataset, it can only be said that future comparisons should strive towards including different tasks to assess to what extent potential differences in frequency occur across diverse discourse types, nuancing the idea that a community's use of constructed action in discourse is homogeneous and constant. In both versions of the analysis, LSFBS signers and Belgian French speakers used more enactment in Task 12 than in Task 05, pointing to a higher use of the strategy in narration than in conversations. This shows that in both LSFBS and French, constructed action is flexibly used and adapted to the discourse context. The influence of this common factor supports the view that the strategy is tailored by signers and speakers alike to their referential targets and communicative intents. This is further supported by the wide ranges of inter-individual variation in both

languages. This result contradicts the idea that signers may show more uniformity in how frequently they enact than French speakers do. Indeed, rather than a strict divide between two homogeneous language groups, one observes a cline from those participants who use little to no constructed action to participants who make prominent use of the strategy. While each extreme of this continuum can be associated with a specific language group – French for no or little use and LSFb for discourses in which enactment is pervasive –, the middle part contains observations from both LSFb signers and Belgian French speakers.

To summarise, the analysis of the proportion of time spent on constructed action confirms that the strategy is more frequent in LSFb than in Belgian French discourse. The study has also shown that task or discourse type have a significant effect on this frequency in both LSFb and Belgian French, with a potential interaction between task and language. This result cautions against interpreting frequencies too generally if the strategy is analysed in only one discourse type. Future studies should be encouraged to further investigate the variability of constructed action across discourse genres. Finally, the study reveals a spectrum of individual variation in the frequency of enactment. While LSFb signers exhibit a significantly higher frequency of constructed action compared to Belgian French speakers, the distinction is not characterised by a clear gap between the groups. Instead, individuals lie on a continuum with Belgian French speakers who use the strategy sparingly, those who enact referents more frequently, LSFb signers with lower proportions of enacting time, and signers who use constructed action pervasively. This continuum underscores that the phenomenon is subject to individual communicative styles across both communities, undermining the idea of a stark dichotomy between signers and speakers.

Both the observed effects of language and task as well as patterns of inter-individual variation are congruent with prior reports in the literature. Comparing the present results with those of studies on other signed and spoken languages nevertheless proves difficult as some studies do not provide quantitative results. For those which do, however, it is often the case that they use a different metric for frequency, e.g., the number of tokens per unit of time, or that their method (elicited discourse genres or elicitation materials) differs from the one used here. Still, comparing the patterns reported here with similar studies, one observes that the frequency of constructed action in LSFb seems higher than that reported for other signed languages, particularly in Task 05. Future studies should aim to compare a broader sample of languages, signed and spoken, while controlling for comparability by operationalising constructed action (frequency) in the same way and using similar tasks.

8.2 Articulator contribution to constructed action

This section centres on how and why different articulators were recruited for enactment by LSFb signers and Belgian French speakers in each analysed task. A detailed description and comparison of the referential targets enacted by LSFb and Belgian French is key to understanding some differences across language groups.

8.2.1 Articulator contribution to constructed action in LSF

In LSF, head and gaze were found to contribute to a large majority of tokens of constructed action across conversations and narrations. These articulators seem to be routinely used by LSF Corpus informants in both discourse types studied. Facial expression and torso are two other frequent articulators that LSF signers recruited to enact referents, though to a lesser extent than head and gaze. These four articulators were all confirmed to play a prominent role in LSF signers' use of enactment in the heatmap dendrogram analysis, as shown by the systematically positive association between these articulators and this language group. These results are also captured by the articulatory index measures reported for LSF signers which averaged 3.48 (3.64) in Task 05 and 4.22 (4.16) in Task 12. By contrast, LSF signers' observations were mostly negatively associated with the use of hands and arms or with constructed dialogue in this exploratory analysis. Indeed, as frequency measures showed, hands and arms were less frequent, particularly in Task 05, and LSF signers used little constructed dialogue in both tasks compared to nonmanual articulators. In what follows, the ways in which each articulator was used and varied across tasks and participants is described and illustrated.

8.2.1.1 LSF signers' use of eye gaze

Enacting eye gaze actions consisted of blinks and of changes in gaze direction aimed to depict referents' eye aperture and gaze direction. In both tasks, signers enacted referents looking at people. In Task 05, these gazed-at surrogates included: deaf and hearing relatives, hearing teachers, children at school, interpreters. In the third still of Figure 58, for instance, the signer uses both the LSF lexical sign LOOK and an enacting use of gaze to denote herself attending to someone signing.

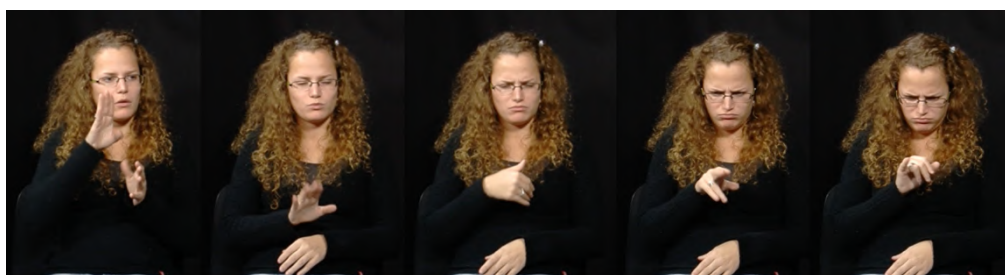


LH
RH PT:PRO1 LISTEN-HEARING LOOK

Figure 58. CLSFB S030 T05 (00:00:05.204 - 00:00:06.340):

I listen to them; I look at them with interest.

Eye gaze aperture was also used for different purposes. Sometimes, signers used it to enact referents closing their eyes while signing, conveying overconfidence and/or a lack of interest for interlocutors. In other cases, eye gaze closure portrayed relief or contributed to constructed dialogue including emphatically affirmative or negative statements as well as directives. Figure 59 also exemplifies the use of gaze. The LSF signer relates an interaction with her grandmother in a public space.



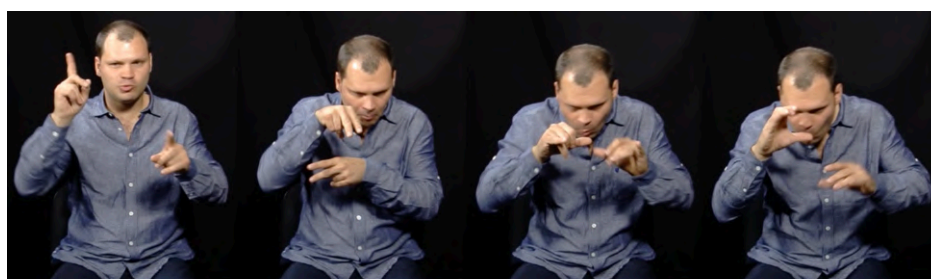
LH
RH GRANDMA WAIT.STOP PT:PRO1 LOOK WHAT

Figure 59. CLSFB S059 T05 (00:03:48.289 - 00:03:50.558)

My grandmother was saying: “stop”. I looked at her (and answered): “what?”

As a consequence of linguistic insecurity, the enacted grandmother asks her grandchild to stop talking (WAIT.STOP). During that utterance, the grandmother is also enacted as closing her eyes, potentially depicting her signaling an end to the (signed) interaction or emphasising the directive force of the reported utterance. The signer then enacts her own reaction, asking for an explanation (LOOK WHAT). Throughout this sequence, the signer enacts her past self looking at the grandmother.

In their narrative retellings, signers often enacted story characters looking at other people, notably in interactions. They also depicted characters searching for other referents or attending to objects that they were manipulating. Gaze aperture and direction were also used to show characters’ states of mind, such as to express relief or to depict a pensive stare. Figure 60 and Figure 61 respectively exemplify the use of gaze direction and closure. In Figure 60, the signer enacts a ‘looking’ event where the dog in the Frog story leans towards the jar to see what it contains. Figure 61 illustrates an LSFb signer using gaze closure to depict the boy in the Frog story going to sleep.



LH DOG LOOK WHAT
RH DOG LOOK WHAT CURIOUS

Figure 60. CLSFB S76 T12 (00:00:07.118 – 00:00:07.944)

The dog is curiously looking (inside the jar): *What is it?*



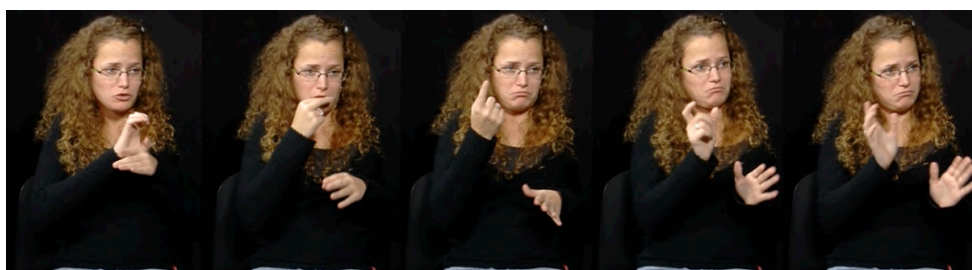
LH DARK
 RH DARK

PT:PRO3

SLEEP

Figure 61. CLSFB S029 T12 (00:00:31.144 - 00:00:32.962)
 At dark, he falls asleep.

While enacting uses of eye gaze were highly frequent in the LSFb Corpus, it should be stressed that none of the signers continuously used eye gaze throughout all their tokens. More often than not, enacting gaze actions were interrupted by monitoring gazes towards the addressee and did not span the whole token of constructed action. In addition, while most signers routinely recruited gaze in their enactments, none used it in all tokens. Some even exhibited comparatively low frequencies, e.g., S029 in both tasks and S059 in Task 05. For these signers, instances of constructed action or of constructed dialogue without any gaze aversion were not rare. Figure 62, Figure 63, and Figure 64 exemplify enactment sequences in which gaze is not averted from the addressee. In the bottom part of Figure 62, the signer enacts her reaction to people signing in a succinct but unclear way. Throughout the sequence, which includes an utterance (WHAT UNDERSTAND BEFORE.METER WHAT), gaze remains directed towards the addressee.



LH EXAMPLE
 RH EXAMPLE

SPEAK

ONE

WORD

THAT'S-ALL
 THAT'S-ALL



LH
 RH LOOK

WHAT

UNDERSTAND

BEFORE.METER

WHAT

Figure 62. CLSFB S059 T05 (00:00:16.641 - 00:00:19.905)

For example, if someone says just one word, I look at them and I'm like: *What? I didn't understand what you said before.*

The second row of Figure 63 similarly exemplifies an enacted utterance (POSSIBLE EAT EVENING TOGETHER) mostly co-occurring with addressee-directed gaze.



Figure 63. CLSFB s029 T12 (00:05:48.410 - 00:05:52.979)

The boy (says): *Could we go eat together tonight?*

Last, in Figure 64, the LSFBSigner recruits facial expression to enact the bees' anger (BEE ANGRY) after being disturbed by the dog in the Frog story. As in the other examples, gaze is not recruited into that token of enactment.



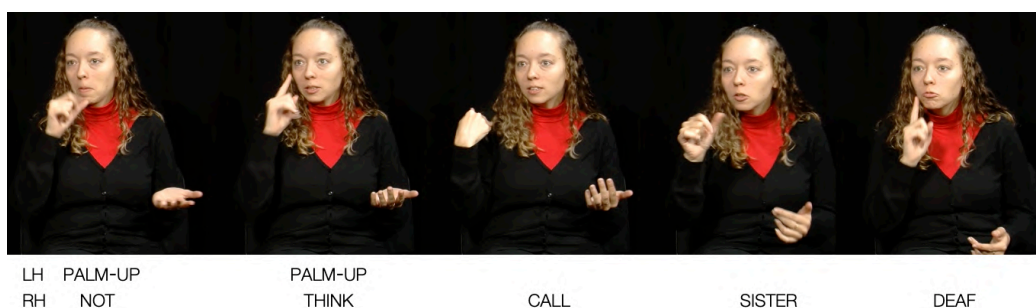
Figure 64. CLSFB S075 T12 (00:00:45.005 - 00:00:46.433)

The bees in the beehive up there are very angry.

8.2.1.2 LSFBSigners' use of head and torso

Head was the most frequently recruited articulator across both tasks in LSFBS. Though rarer and more variable, annotated torso movements consistently co-occurred with head movements and performed a similar function, as described by Puupponen (2018) for FinSL. Therefore, the referential targets depicted by these

two articulators are described together. In the conversational task, changes in the orientation and flexion of head and torso were used for a wide array of situations in which a referent minimally attends to but often also interacts with someone or reacts to a referent's way of signing. Movements forwards were generally used to depict interaction, e.g., looking at, teaching, or talking. In context, these movements could additionally depict interest, attentiveness, or attraction. In some cases, combinations of forwards flexions of the torso and head pulls were used to depict (over-)confidence. Backwards leans of head and torso were used to enact referents observing other referents and their signing styles from afar, surprise, as well as distaste or lack of interest. In other cases, head movements were more formally complex and served to depict general bodily motion, e.g., highly dynamic signing styles. In Figure 65, the LSFb signer refers to the fact that other children at school never asked her whether she had deaf siblings. This question (SISTER DEAF) co-occurs with forward leans of both head and torso which could convey the referent's interest, curiosity, as well as their request for information (Arnold, 2024).



LH PALM-UP
RH NOT

PALM-UP
THINK

CALL

SISTER

DEAF

Figure 65. CLSFB S031 T05 (00:02:19.966 - 00:02:21.104)
But they never thought of asking me: *is your sister deaf?*

In Figure 66, head and torso movements convey a referent's bragging attitude. The signer's torso is straightened up (SHOW CA:SHOWING SHOW OFF) and the signer performs a 'chin-up' head movement (CA:SHOWING OFF) (Puupponen 2019). Together, these movements convey that the referent likes to be seen.



LH
RH PT:PRO3

SHOW
SHOW

CA:SHOWING OFF
CA:SHOWING OFF

SHOW OFF
SHOW OFF

Figure 66 CSLFB S028 T05 (00:01:11.727 - 00:01:13.827)
They're showing off.

In the narratives, LSFb signers recruited head and torso in most tokens of enactment. The use of torso was also shown to be higher in Task 12. These articulators suited the dramatic dynamics of both stories in which characters navigate different spaces and engage in many physical activities, e.g., walking,

running, jumping, escaping, climbing, and so on. In Figure 67, the head and the torso are involved in enacting the search for the frog in the Frog story. As the boy is looking for the frog on the forest floor, the signer leans both articulators forwards.



Figure 67. CLSFB S076 T12 (00:02:12.204 - 00:02:14.804)

The boy is walking and walking, looking for the frog (on the forest floor).

Head and torso movements were also used to depict mental states such as unrest or relief. Head and torso leans were used to enact resting or sleeping. Finally, enacted utterances and thoughts also involved head and torso movements. First, these articulators were reoriented towards imagined referents that were being looked at or talked to. Second, in constructed dialogue, head and torso movements also portrayed typical interactional functions of these articulators such as coordination or the expression of illocutionary force, e.g., assertions and directives. In Figure 68, the signer enacts a referent telling the male protagonist in *Paperman* that the woman he is looking for works on another floor (NO DIFFERENT). Part of this utterance (NO) is paired with a different orientation and inclination of the signer’s head, as though attending to the interlocutor, and also co-occurs with a negative headshake.



Figure 68. CLSFB S097 T12 (00:03:04.743 - 00:03:06.580)

He goes to the reception, and they tell him: “No, it’s on another floor”.

8.2.1.3 LSFb signers’ use of facial expression

LSFB signers used several facial muscles involving their eyebrows, nose, and mouth to enact referents. In conversations, signing profiles were enacted with attitudes such as confidence, effort, clumsiness, or worry. In addition, signers depicted past or hypothetical reactions to signing styles or to autobiographical events with facial expressions of surprise, motivation, shyness, entertainment, frustration, boredom, or satisfaction. In narratives, where facial expressions were

more frequent, LSFb signers used their face to portray characters as scared, attracted, worried, angry, or surprised, among other affective states. Figure 69 and Figure 70 respectively exemplify the enactment of amusement (in co-occurrence with GIVE LAUGH) and of a state of effort and fatigue (DS:CLIMB-ON and CA:CLIMB).



Figure 69. CLSFB S031 T05 (00:00:37.548 - 00:00:40.333)

I'm also captivated when someone uses facial expression a lot, yes, or when their signing style is entertaining.



Figure 70. CLSFB S097 T12 (00:06:02.430 - 00:06:05.418)

The boy is climbing on the rock.

While facial expression was shown to occur across both tasks, tokens which did not feature any enacting use of face were found across most participants. The absence of enacting facial expression is illustrated in Figure 71. During the sequence with the NO ADVICE manual glosses, the signer enacts siblings providing advice by a downwards gaze redirection, a head lean forwards, and a token of constructed dialogue (NO). Whereas this enacted utterance could have been accompanied by an enacting facial expression, e.g., frowning during NO, it did not occur in this example.



LH			ADVICE	LISTE.1-5
RH	THERE-IS	NO	ADVICE	LISTE.1-5

Figure 71. CLSFB S031 T05 (00:04:58.555 - 00:04:59.585)
They reason with me, provide advice, and so on.

8.2.1.4 LSFb signers' use of hands and arms

Hands and arms were among the articulators least recruited for enactment in the LSFb Corpus, particularly in Task 05. In conversations about language attitudes, signers recruited their hands mostly to enact signing styles. As shown in Vandenitte (2022b), they did so by manipulating formational or prosodic properties of the iconic lexical signs glossed LS, FRANCAIS.LS-ORAL, LS-PAS, and LS.PUISSANCE in the LSFb Corpus lexical database. Figure 72 shows the forms associated with these glosses in that database.

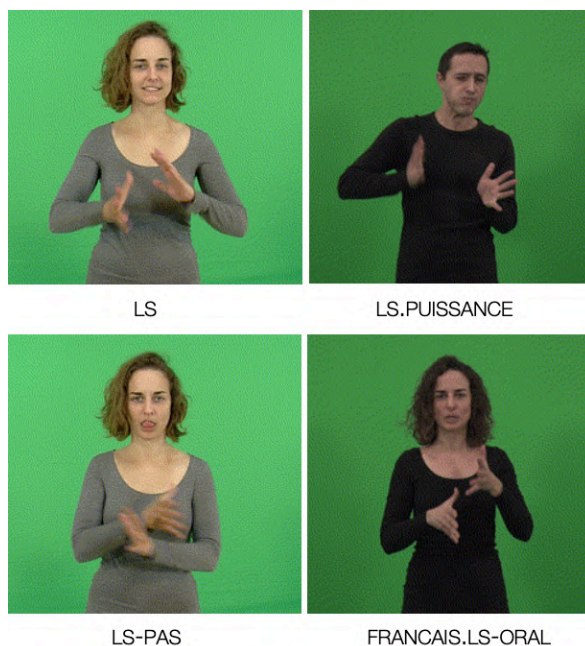


Figure 72. Four lexical signs that denote signing in LSFb

The different tokens of these signs varied as a function of the signers' depictive aims in terms of movement duration, speed, size of movement area, and handshape. Figure 73 exemplifies an enacting use of hands in which LS is characterised by the use of a high signing space, a distalisation of the two hands, and a lower speed to enact a signing style assessed as too slow and too focused on form.



LH LIKE POEM LS
 RH LIKE POEM LS DE:BORING-STRONG

Figure 73. CLSFB S029 T05 (00:00:40.982 – 00:00:43.123)

It's very boring when people sign slowly as if they were reciting a poem.

In Figure 74 (adapted from Vandennitte, 2022b), the LSFb signer uses the depictive potential of LS to contrast two enacted signing styles observed in LSFb-French TV news hearing interpreters. The first token of LS is characterised by a larger and higher use of space whereas the second one is articulated at mid-torso level, with little space between the signer's hands, and with clutched fingers, a feature which differs from the prototypical handshape used to articulate LS.



LH PT:PRO3 THE-AIR DEAF LS
 RH PT:PRO3 THE-AIR DEAF LS



LH GOOD CLEAR PT:PRO3 LS
 RH GOOD CLEAR PT:PRO3 LS

Figure 74. CLSFB S075 T05 (00:02:55.169 – 00:02:58.957)

Some look like they're deaf. I look at their signing and think: 'That's good signing! That's clear!'. Others sign in a small space and in a boring manner.

It should be noted that signing styles were also discussed by using descriptive semiotics (Vandennitte, 2022b). In addition, hands and arms were also used to enact other referential targets in Task 05. For instance, a referent's motivation and tenacity could be depicted with clenched fists. Other examples include depictions of silence or stupor by laying one's hands on one's lap or by letting them hang

loose. This is shown in Figure 75, where the signer enacts herself quietly looking at people’s conversations (CA:QUIET).



LH CA:QUIET	CA:QUIET	VISIT.MEET	LOOK
RH CA:QUIET	SEE	VISIT.MEET	LOOK

Figure 75. CSLFB S031 T05 (00:07:23.210 - 00:07:24.480)
When visiting people, I’d just quietly watch them chat.

The use of hands and arms was found to increase in LSFb narratives. These articulators met the informants’ needs to depict the characters’ varied manual actions such as climbing, clinging on to surfaces in their environment, taking, holding, throwing, or using one’s hands to protect oneself. In Figure 76, for instance, both hands and arms are used to enact a man closing a window (CA:CLOSE WINDOW).



LH	DIFFERENT	CA:CLOSE WINDOW	CLOSE	WINDOW
RH MAN	DIFFERENT	CA:CLOSE WINDOW	CLOSE	WINDOW

Figure 76. CLSFB S059 T12 (00:06:19.424 – 00:06:22.627)
The other man angrily closed the window.

In Task 12 too, the use of hand movements varied according to informants’ choice of events to retell and of semiotics. For instance, one could use gaze and head to enact the boy looking for the frog while producing the sign LOOK-FOR. Alternatively, one could enact the boy’s hands rummaging through his bedroom.

8.2.1.5 LSFb signers’ use of constructed dialogue

Enacted utterances in Task 05 were mostly devoted to depictions of interactions. These portrayals aimed to present one’s assessment of signing styles or depicted and commented on language attitudes. In Figure 77, the utterances PT:PRO2 PARENTS DEAF and YES PT:PRO1 PARENTS DEAF depict an interaction in which the enacted referent asks about the hearing status of the signer’s parents.

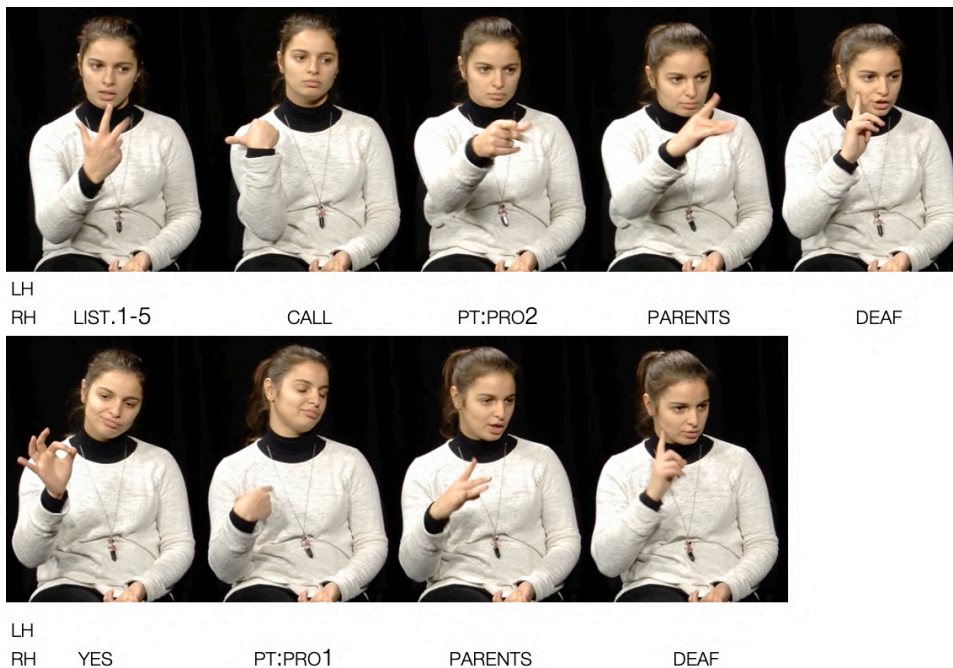


Figure 77. CLSFB S030 T05 (00:02:27.216 - 00:02:29.925)

Several people have asked me: *Do you have deaf parents?* I answered: *Yes, I have deaf parents.*

Figure 78 is retrieved from an interaction where the signer recruits constructed dialogue (and other enacting articulators) for argumentative purposes. The two conversational partners disagree on the extent to which a signed language gets organically transmitted when deaf children are born to signing deaf parents. When her interlocutor argues that signers raised in deaf families naturally grow to become proficient signers (see Figure 8 and Figure 10 in Sections 3.2.2 and 3.4.2), the signer objects by negating a constructed utterance which summarises the point made by her addressee (BECAUSE PT:PRO3 FAMILY DEAF LS CAN PT:PRO3).

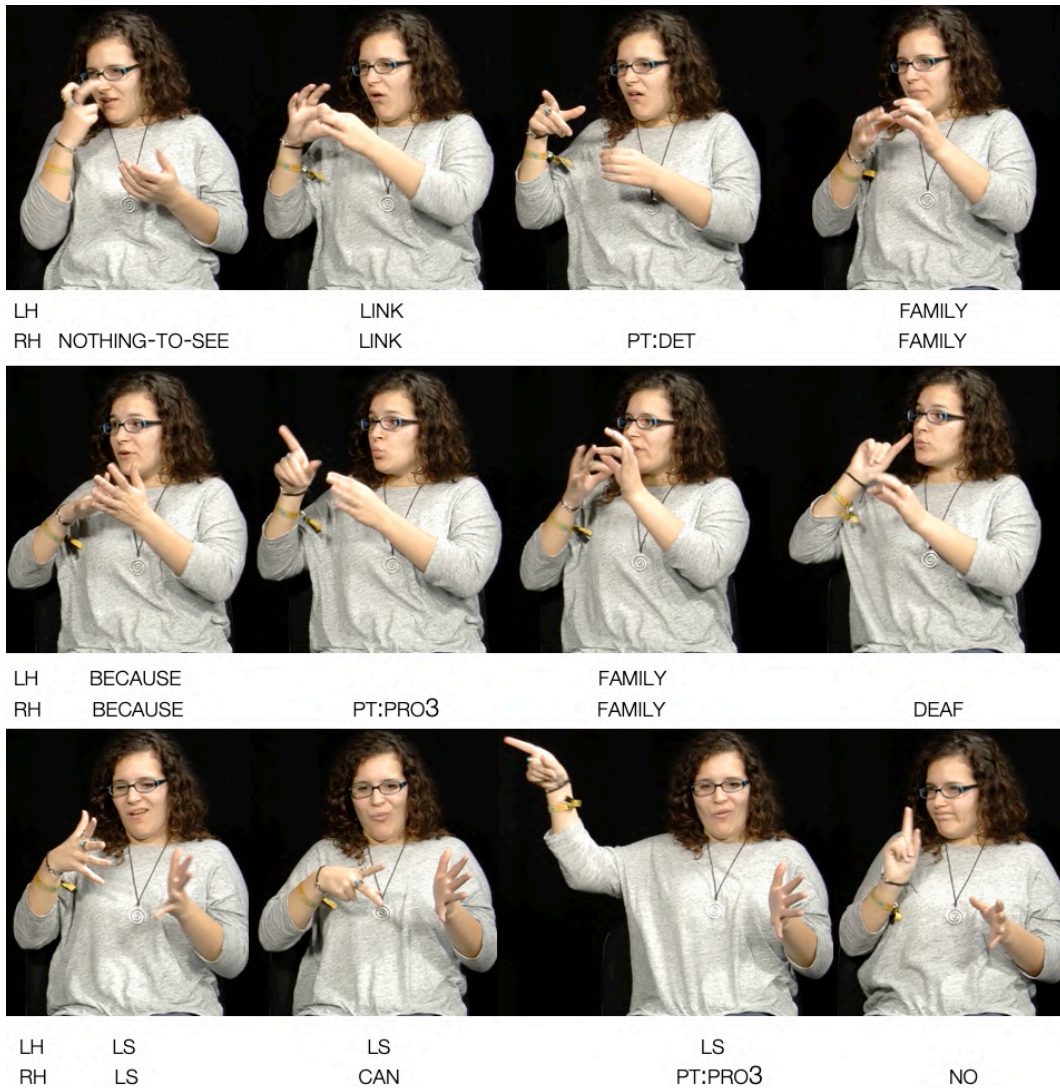


Figure 78. CLSFB S028 T05 (00:03:57.324 - 00:04:01.578)

That has nothing to do with (being born in a deaf) family. The idea that because one has a deaf family, “*one can sign proficiently*” is incorrect.

In their narrative retellings, LSFb signers often enacted story characters’ thoughts to express the referents’ states of minds from an internal perspective. Constructed dialogues between referents were also staged by corpus informants, making their narratives livelier. Figure 79 provides such an instance. The LSFb signer enacts the male protagonist in the *Paperman* story addressing a janitor to try and convince him to let him go through so that he can speak to the woman he loves.

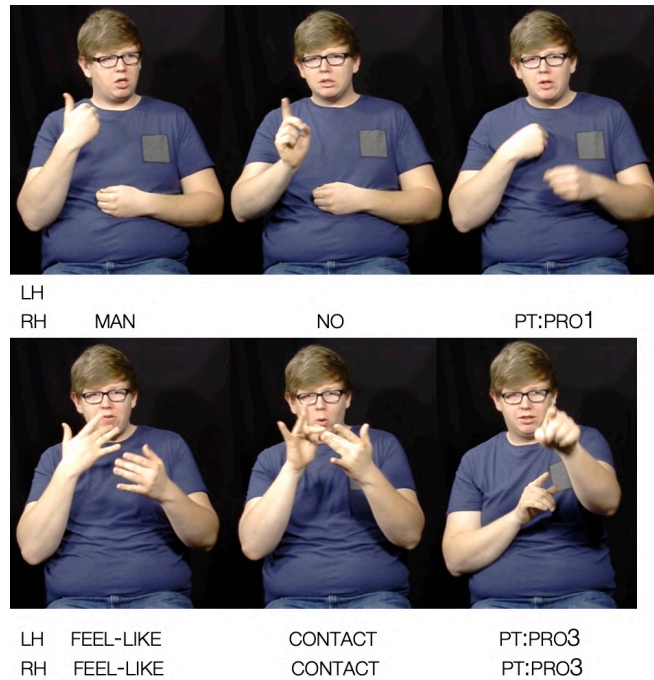


Figure 79. CLSFB S097 T12 (00:03:31.993 - 00:03:33.995)
The man said: ‘*No, I want to get in touch with her*’.

As was the case for the other strategies, different signers varied in the extents to which they used constructed dialogue. While some informants seldom recruited it, e.g., S097 and S029 in Task 05, others more frequently included utterances in their enactments, e.g., S076 in both tasks.

8.2.1.6 Indexing and/or placing in LSFb

While indicating uses of articulators were not the focus of the present study, indication was sometimes intertwined with or complemented constructed action in ways relevant to the debate on the semiotics of signer’s perspective shifting behaviours (see Section 3.5). Indicating semiotics arose from signers’ enacting behaviours when they depicted referents’ gaze, head, and torso attending behaviours, e.g., looking at or moving towards invisible surrogates (Puupponen 2019, Hodge & Ferrara 2022). However, the multifunctionality of these articulatory behaviours sometimes led to ambiguous cases in which it was tricky to tease apart purely indicating instances and those which also involved enactment. In this section, I address different scenarios in which indication likely occurred, with and without co-occurring enactment.

Many of the annotations tagged as ‘unclear’ in the LSFb dataset were indeed cases in which gaze, head, and/or torso were the sole articulators deemed active. These articulators were oriented towards locations associated with referents (invisible surrogates) and it was unclear whether the signer merely ‘pointed’ to a referent or whether they enacted themselves looking at that referent. Even during enactment sequences, some gaze, head, and torso behaviours appeared to tightly co-occur with enacting uses of other articulators, but no obvious depictive intent could be attributed to these forms. Part of this ambiguity could result from lacking the

common ground necessary to infer depicted meanings due to, for instance, not knowing corpus informants or not having been directly present in the communicative situation. However, it is here suggested that at least some of these instances may also be interpreted as cases of indication. Such tokens were characterised by changes in posture such as adopting a different head (and torso) orientation or leaning sideways. Three such cases are presented in Figure 80, Figure 81, and Figure 82. In Figure 80, the signer leans her head and torso to the right while producing the lexical signs STANDING, FOR, POEM. An indicating interpretation of this behaviour could relate to the signer’s intent to single out, i.e., exclude, performative discourse like poetry compared to other discourse genres which were discussed in the co-text. Hence, this lateral movement could express exclusion as a form of contrastive focus (Puupponen, 2019; Wilbur & Patschke, 1998).

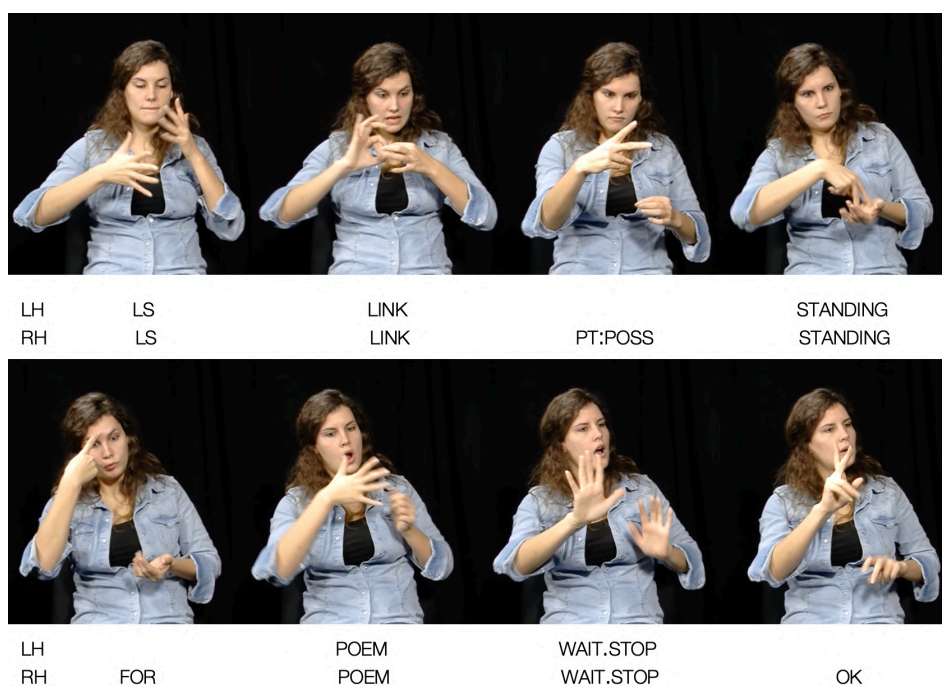


Figure 80. CLSFB S030 T05 (00:01:42.372 - 00:01:46.358)

But when people sign (this way) because they’re performing a poem, I find that
OK.

In Figure 81, the LSFb signer also performs a head and torso lean to her right. In this case, the signer simultaneously enacts the dog in the Frog story. The direction of this lateral lean appears to be congruent with that of a preceding pointing action (PT:PRO3), suggesting that the signer is placing the referent lower in space. This could result from the common perception of a height difference between dogs and humans or from the signer’s intent to mark a contrast between the dog, on the one hand, and the beehive (HOUSE) which is placed higher in space, on the other.

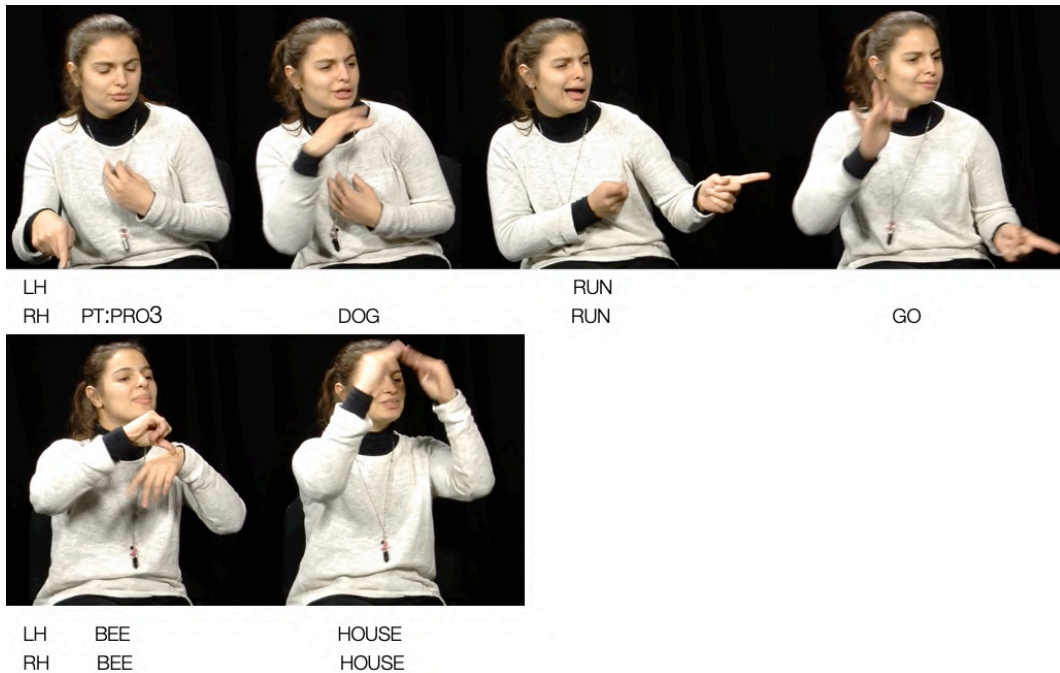


Figure 81. CLSFB S030 T12 (00:00:53.250 - 00:00:55.663)
The dog is running towards a beehive.

Finally, in Figure 82, the signer's gaze and facial expression here depict someone staring judgingly starting from the lexical sign glossed THINK.

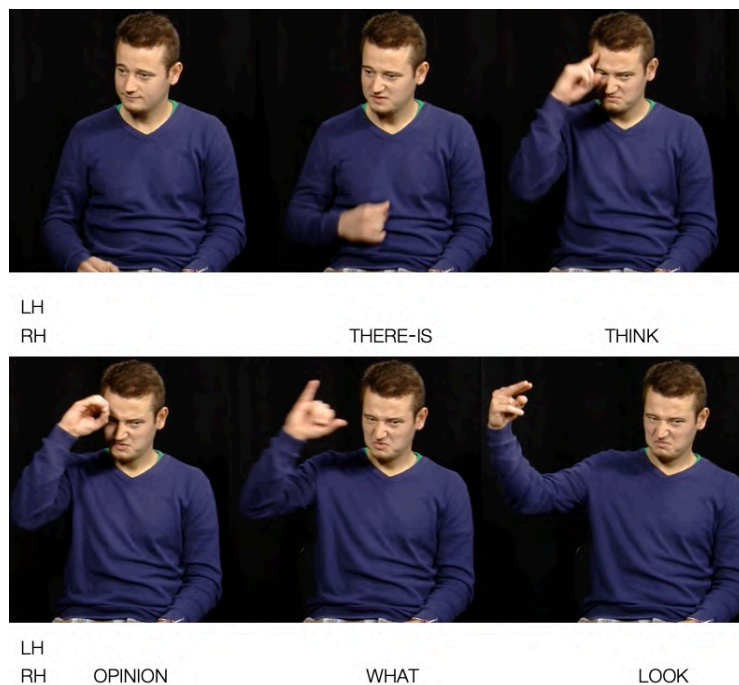


Figure 82. CLSFB S060 T05 (00:04:15.242 – 00:04:16.634)

Some people worry about the eyes of others: “What are people going to think?”

In that sequence, the signer's hands also enact the referent's worried thoughts (OPINION WHAT (LOOK?)). In the last still, the signer's head and torso are inclined

to the signer’s left side. It is unclear how this last behaviour could be ascribed a depictive reading. Instead, it may be interpreted as a placing behaviour. This example is strikingly similar to one of Dudis’ (2004) illustrations of body partitioning in ASL. As Dudis points out, the signer’s hand(s) and face, instead of contributing to creating “a visible actor” together with the rest of the body, “create the additional visible elements that increase the richness of the conceptual integration network of which they become part” (p. 237). Here, the LSFBSigner may adopt a different posture, leaning to his left side, to clearly distinguish the observed referent from the observer, whose location is cued by the indicating sign LOOK.

In this section, I show that LSFBSigners sometimes recruited head and torso to contrastively place referents that are enacted as interacting with one another. These instances have received some attention in the literature under several labels such as ‘(contrastive) role-shift’ (Padden, 1986; Herrmann & Steinbach, 2012). In Figure 83, the signer enacts an interaction, including some utterances, between the two protagonists in the *Paperman* story. The signer first enacts the woman’s action of holding the paper plane, inspecting it, and wondering where it came from before noticing the man’s presence and acknowledging him. Throughout that sequence, the signer’s head and torso are oriented to her right. This contrasts with the next sequence in which the man is enacted as relieved that the woman has noticed him and subsequently asking her to meet him downstairs. In the latter sequence, the signer changes posture and orients her head and torso to her left.



Figure 83. CLSFB S029 T12 (00:05:37.351 - 00:05:43.944)

She’s looking at the paper plane and wonders what it is. She then notices him and waves “hi!” at him. He looks at her, relieved, waves “hi” back and asks her: “Will you come downstairs?”.

A similar example is found in Figure 84, where the same scene from the animated film is retold by another signer. Here too, the two enacted referents are systematically distinguished by the signer's posture in a long sequence. The signer's body is oriented to the right to indicate the man (CA:CALLING, third and fifth tokens of LOOK, second token of DS:BEATING HEART). Interestingly, however, this sequence appears to be more focused on enacting the referents' mutual gaze behaviour and emotions than their utterances.

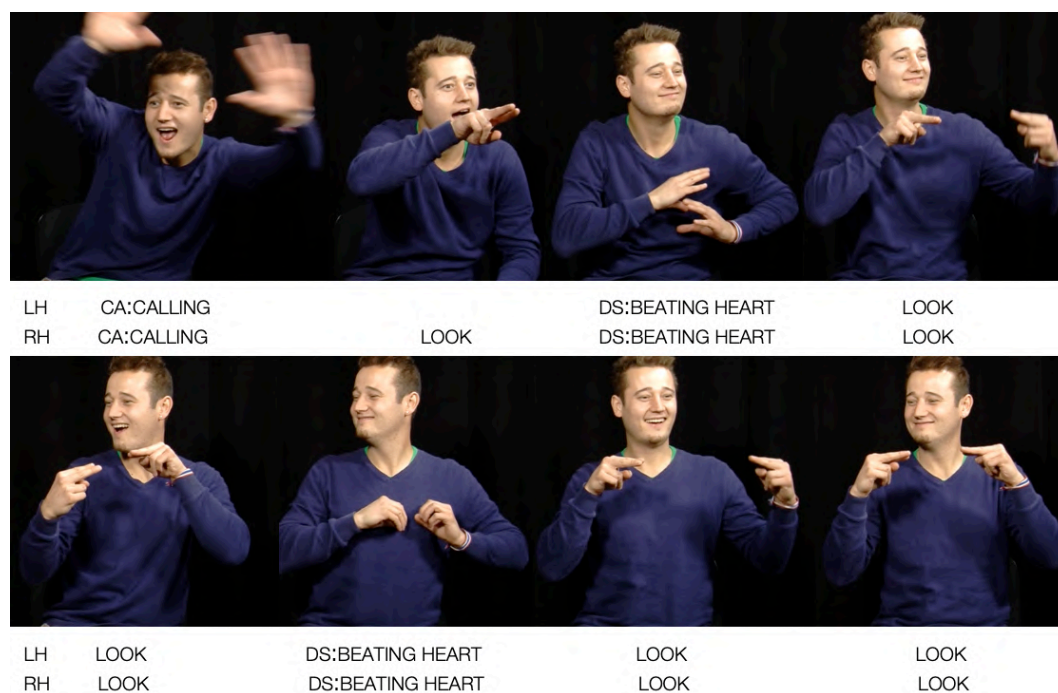
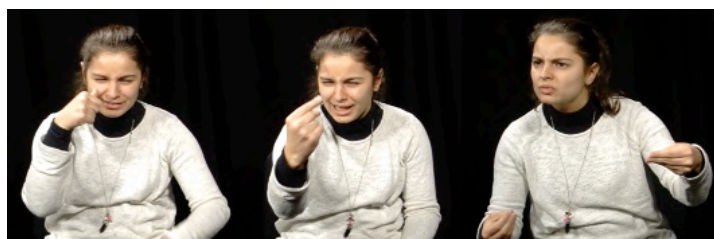


Figure 84. CSLFB S060 T12 (00:08:12.011- 00:08:20.745)

The status of these indicating behaviours will be discussed together with the articulators' enacting uses in the next section. However, it is already worth noting that these placing behaviours should not be seen as obligatory in LSFb. Figure 85 shows yet another retelling of the same *Paperman* sequence. Here too, the two protagonists are enacted by means of several articulators, such as gaze, facial expression, hand actions, and head and torso movements. However, in contrast to Figure 83 and Figure 84, the signer adopts the same body posture and orientation to her right side as well as the same gaze direction for the two enacted referents. The difference between the two ways of reporting the constructed interaction between the referents is reminiscent of the uses of space called 'static' and 'rotated' by Janzen (2004, p. 156):

This spatial layout does not remain static with the signer using devices such as body shift to move around the space to portray the actions of referents from their point of view. Rather, the signer may remain essentially in a single position, and mentally "rotate" the space to portray various perspectives.

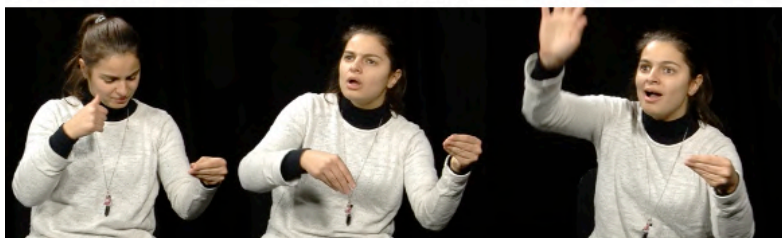
The examples provided show that placing referents enacted as interacting is but one strategy available to LSFb signers and that it is not an obligatory one.



LH
RH WOMAN DS:PLANE CA:HOLDING WHERE



LH CA:CALLING
RH BOY CA:CALLING



LH CA:HOLDING CA:HOLDING CA:HOLDING
RH WOMAN GOODBYE



LH WAIT.STOP CA:HOLDING
RH BOY WAIT.STOP



LH DS:PAPER PLANE
RH WOMAN OK

Figure 85. CLSFB S030 T12 (00:05:20.390 - 00:05:42.217)

The woman gets hit by the paper plane and wonders where it came from as she looks around. The boy desperately waves at her. She ends up noticing him and says “Hey!”. The boy says: “Wait!” and shows a cardboard (with text written on it). The woman answers: “Ok!”.

8.2.1.7 Discussion: orchestrating different articulators in LSFb

Because other studies of the contribution of articulators to constructed action vary in several methodological parameters (research scope, nature of performed tasks, discourse genre, stimuli, annotation procedure), no direct comparison of the enacting use of different body parts in LSFb and other signed languages can be drawn. However, the general tendencies to favour some enacting articulators over others or the number of articulators recruited in enactment tokens can be tentatively contrasted. The overall more prominent use of nonmanual articulators – head, gaze, face, and torso – in LSFb seems to parallel reports on other signed languages such as LSQ (Parisot & Saunders, 2022), DGS (Herrmann & Steinbach, 2012) or RSL (Kimmelman & Khristoforova, 2018).³⁸ The rarer use of constructed dialogue in LSFb is also similar to the reported preference for the enactment of non-linguaging events in Auslan (Hodge et al., 2023). Finally, the reported articulatory index for LSFb narratives (4.22/4.16) appears to be higher than the one reported for Auslan signers (2.41) in a narrative picture task. The partly different nature of the tasks might account for this discrepancy.

How could these results be interpreted? For some of the articulators surveyed, LSFb signers show inter-individual variation and adapt their use to the discourse context. The enacting use of hands, face, and torso exhibits a higher frequency in the narrative retellings than in the conversations. This suggests that LSFb signers enchronically select these articulators depending on several dimensions of their communicative intent. The higher enacting use of hands in Task 12 compared to Task 05 can be explained by the story plots in both elicited narratives, comprising characters' multiple manual actions such as holding, clinging, climbing, throwing, or waving. The nature of the referential target could also account for the comparatively lower use of constructed dialogue: most actions or referents that could be enacted in the LSFb Corpus involve bodily motion. By contrast, linguaging events constitute a narrower and specific set of actions that were perhaps not always deemed worth selecting by participants. Another element that suggests that the selection of some articulators is enchronically rooted lies in the effect of discourse type: the increased use of facial expression and torso in the narrative retellings can be explained by the signers' aim to produce lively stories and generate involvement. Consequently, the higher use of these three articulators is also likely to be the reason why Task 12 exhibits a higher articulatory index than Task 05 in the LSFb Corpus.

Enacting head and gaze actions, however, appear to be very frequent and to be less affected by inter-individual variation or discourse type. Considering a broad causal framework, several mutually compatible explanations can be invoked to account for the systematic use of these articulators in most enacting sequences. First, the higher frequency of these articulators could be a direct consequence of what enactment is used for: gaze and head behaviour might simply be fundamental elements that the signers intend to depict. While enacted referents may vary in the

³⁸ Note that the use of constructed dialogue could not be compared as these studies either do not report on the enactment of linguaging actions or exclusively focus on the use of articulators during constructed dialogue sequences.

actions which they are portrayed to perform, their being depicted as animate and sentient beings is probably a constant factor driving which articulators are selected. The relation between referent animacy and constructed action is well-known: a referent's animacy status has been shown to be a predictor of whether it will be denoted through enactment across several signed languages (Ferrara et al., 2022; Hodge et al., 2019a; see also Sutton-Spence & Napoli, 2010 on anthropomorphic enactment). Since eye gaze behaviour and head movement are prominent and consistent cues of attentional behaviour typically attributed to animate beings (Chang & Troje, 2008; Palmer et al., 2023), these two articulators could be more frequent than others simply because they constitute a common denominator of human or animate 'action'. In the studied subset of the LSFBC Corpus, an overwhelming majority of enacted referents were indeed humans and/or animate referents such as non-human animals. These referents were almost always enacted as attending to a situation, an activity, an object, and/or another animate entity. Signed language linguists have described these attentional cues as a strategy whose indexical quality can be capitalised upon. Indeed, head and gaze play a prominent role in 'pointing' to referents conceived of as being in the surrounding 'enacted' space that are sometimes called 'invisible surrogates' (Herrmann & Steinbach, 2012; Liddell, 2003; Puupponen, 2019; Quer, 2011; Winston, 1991). Hence, the steadier use of gaze and head behaviour for constructed action may simply reflect the pervasiveness of looking and orienting one's attention in most types of human action.

Second, in addition to the nature of LSFBC signers' enacted referential targets, microgenetic factors could also account for the prominence of nonmanual articulators in the dataset. On the one hand, a clear reason for the prominence of non-manuals lies in the frequent use of non-overt forms of constructed action. When producing reduced or subtle enactment, LSFBC signers' hands produced more highly conventional forms and therefore could not be used to enact referents' manual actions, as observed by Parisot & Saunders (2022) and Hodge et al. (2023).³⁹ In such non-overt forms, the use of nonmanual articulators might also be key to clearly identifying the enacted referent when constructed action plays a role akin to that of a constituent in signed clause-like units (see, e.g., Section 2.3.6.2). On the other hand, the observed hierarchy of articulators could also reflect the articulatory action processing required to move these body parts as well as their degree of coarticulation. Support for this microgenetic account is found in the literature. Herrmann & Steinbach (2012) propose that DGS signers may hierarchically favour eye gaze and head position over body leans as 'markers' of role shift because of microgenetic reasons related to physical effort reduction. Herrmann & Steinbach also note that articulators like gaze or head can be more easily used for enactment without involving other body parts. By contrast, performing enacting torso movements without moving one's head proves challenging. This result is verified by Puupponen's (2018) observation that enacting torso movements very frequently co-occur with enacting head actions in FinSL. Using motion capture and eye tracking measures, Jantunen et al. (2020) provide empirical support to a hierarchy

³⁹ This statement slightly overgeneralises since LSFBC signers did exploit lexicalised iconic manual forms like LS for enactment. However, most instances of reduced and subtle forms did occur with other types of descriptive material.

in the temporal ordering of enacting articulators. The authors study the timing of eye gaze, head, torso, and of the dominant hand in ten instances of shifts from non-enacting discourse to overt constructed action in FinSL. While there is variation in the order in which these articulators start enacting, some systematicity can also be identified: “*when changing the discourse strategy from RN [regular narration] to overt CA, the head and the eyes tend to take the leading role, while the chest and the dominant hand tend to start acting last*” (p. 6006). The order reported by Jantunen et al. is congruent with the higher frequency of head and gaze in LSFb enactment and could provide a microgenetic explanation for the predominance of these articulators: if they are the first to enact, shorter instances of constructed action may only feature these enacting articulators. More importantly, if this hierarchy is a form of microgenetic trade-off, signers may simply avoid using other articulators in any instance in which gaze and head are considered sufficient.

8.2.2 Articulator contribution to constructed action in Belgian French

Because few tokens of constructed action were found in the discourse of several FRAPé Corpus informants in the conversational task, Task 12 is a more reliable baseline to study French speakers’ use of articulators. Those participants who produced little constructed action often exhibit extreme values, e.g., most of the null values, cause a higher inter-individual variability for the frequencies of articulator use in this task. Therefore, the frequency of enacting articulators is first discussed for the narrative retellings. Results obtained for Task 05 are then addressed, notably by considering the behaviour of those participants deemed more reliable because of their production of a more substantial number of tokens. However, it should be emphasised that it is unclear to what extent behaviours observed for frequently enacting participants constitute isolated cases or whether similar patterns would have emerged for the other informants if more tokens had been identified.

FRAPé Corpus informants were shown to use an average of 2.75 (2.60) articulators in Task 12, as against 2.76 (2.95) in Task 05. The different types of visualisations used, including the heatmap dendrogram analysis, confirm that head, eye gaze, and hands and arms were the three most recruited articulators in Task 12. These articulators were then followed by the use of enacting torso movements, facial expression, constructed dialogue, and voice. Descriptive statistics for Task 05 suggest that hands and arms, head, constructed dialogue, and voice were the most recruited articulators whereas gaze, face, and torso were more marginally used. All participants frequently recruited hands and arms, including participants who produced a substantial amount of tokens of constructed action. This results in a positive association pattern in the heatmap dendrograms. The rarer use of gaze, torso, and particularly facial expression is also supported by the heatmap dendrograms: speakers varied largely in their use of enacting eye gaze and torso movements and were homogeneous in using face marginally. However, the picture is more complex for head, constructed dialogue, and voice. While a positive association with head was found in Task 05 of the FRAPé Corpus, it does not apply to two speakers – L27 and L016 – who produced at least ten tokens of enactment. Together with other informants, these two speakers make up the third cluster in

three-cluster analyses, where voice and/or constructed dialogue were usually favoured over other enacting articulators. While this cluster only applied to Task 05 and was made up of few participants, it is worth observing that three of them were speakers who were frequently enacting. Therefore, one could ask whether there exist two different styles of doing enactment in French: using mostly visible enactment or opting for more speech-centered tokens of constructed action. A similar difference between Matukar Panau speakers is presented in Hodge et al. (2023). Unlike in Belgian French, however, most Matukar Panau speakers seemed to prefer speech-centered enactment in that study.

8.2.2.1 French speakers' use of gaze

In Task 05, FRAPé Corpus informants enacted referents' gaze direction and aperture to depict themselves or other individuals brought up in their conversations in varied ways. These included looking for something or someone, thinking, reading or writing text, and talking to someone. In some instances, eye gaze closure was also used to depict distaste or to show disinterest and arrogance. Interestingly, French speakers showed variability in their use of eye gaze and some maintained eye contact with their addressee throughout most enactment sequences, including enacted utterances. Figure 86 illustrates an enacting use of gaze direction. While enacting children writing, the speaker also depicts the children looking down at their sheet of paper.



Figure 86. CFRAPé L020 T05 (00:01:34.646 – 00:01:38.484)

Et, les questions, enfin ils y répondent par écrit.
And, the questions, anyway they're writing down their answers.

Figure 87 exemplifies the optionality of eye gaze direction. In the second still, the speaker first recruits constructed dialogue, vocal prosody, and an enacting hand movement to enact people claiming that proper French does not include Anglicisms. The speaker does not, however, avert eye gaze. By contrast, when the same FRAPé Corpus informant enacts himself disagreeing with the former claim (fourth still), a tongue click (voice) and a redirection of eye gaze to the upper right space are both used for enactment.



Figure 87. CFRAPé L027 T05 (00:11:23.353 - 00:11:29.014)

*Le bon français, je suis pas du tout d'accord mais la plupart des gens disent: "c'est sans anglicismes!". Et t'es là: *clic de la langue**

Proper French, I completely disagree with that but most people say: "it's without Anglicisms!". And you're like: *tongue click*

In Task 12, eye gaze was frequently used to depict referents looking for or at other referents which can be described as invisible surrogates, notably the different story characters. Speakers also enacted characters attending to their own manual actions such as folding sheets of paper to make paper planes out of them. Here too, enacting gazes rarely spanned whole tokens of constructed action. In addition, speakers did not systematically recruit gaze into their enactments, not even when depicting utterances.

Two enacting uses of gaze are illustrated in Figure 88 and Figure 89. In Figure 88, the French speaker's gaze is lowered to enact the boy and the dog looking inside the jar (third still). In Figure 89, the speaker first closes his eyes to enact the woman's relief (second and third stills) and then redirects eye gaze to his right, thereby enacting the woman gazing at her addressee (fifth still).



Figure 88. CFRAPé L002 T12 (00:00:35.616 - 00:00:39.569)

Le petit garçon et son chien regardent le bocal.
The little boy and his dog are looking at the jar.



Figure 89. CFRAPé L029 T12b (00:00:25.159 - 00:00:32.063)

(Il rencontre une dame (...)) qui la reprend et qui le regarde en le remerciant du regard en disant: “ouf, heureusement que j’ai rattrapé cette feuille-là!”
 (He meets a woman (...)) who takes it back and gives him a thankful look saying:
 “phew, it’s a good thing I got that one sheet back!”

8.2.2.2 French speakers’ use of head and torso

Like for LSFB, French speakers’ head and torso movements are addressed within the same section because enacting torso movements co-occurred with head actions which contributed to the same depicted action. In Task 05, speakers used head and torso movements to enact referents looking for things, being (metaphorically) pulled or attracted by ways of speaking or distancing themselves from an idea, being surprised or shocked, talking to people. In some instances, speakers were also ascribed negatively connotated attitudes through body posture: several speakers used lateral flexion of head and torso to portray enacting utterers as silly during constructed dialogue sequences. In other cases, referents were enacted as arrogant with backwards head and body leans. Finally, head movements were also used during constructed dialogue sequences to portray typical head behaviour during talk, e.g., discourse organisation functions (Puupponen, 2019). In Figure 90, the participant enacts her past self noticing a colleague’s reaction from afar by recruiting a backwards lean of both head and torso (second still). In the following stills, the speaker enacts the colleague’s reaction while adopting an upright sitting posture and enacting the colleague as flexing her head laterally. The informant in Figure 91 recruits a backwards head tilt to enact the arrogance of speakers of a specific variety of French when they believe that they are the custodians of the language (third still).



Figure 90. CFRAPé L020 T05 (00:01.52.453 – 00:01:57.303)

Et là, je vois (nom) au loin qui tique: “prof de français genre l’orthographe on s’en fout”.

And then, I see (name) from afar flinching: “French teacher as if we didn’t care about spelling”.

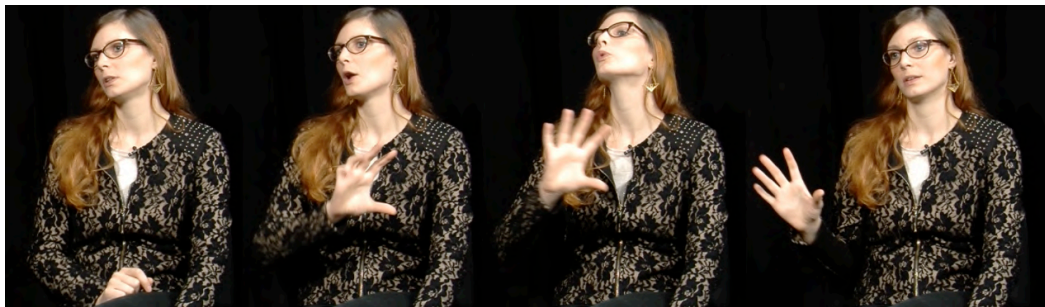


Figure 91. CFRAPé L002 T05 (00:06:41.674 – 00:06:43.989)

(Et le stéréotype que) eux sont les détenteurs de la langue de Molière.

(And the stereotype that) they are the custodians of the language of Molière.

In their retellings, French speakers more frequently enacted head movements than in Task 05. Head and torso movements were well-suited to the dynamic plots of both stories. Speakers used these articulators to depict referents looking for or attending to other referents, e.g., the frog, the sheet of paper, varied places, human characters. In some instances, head movements contributed to depicting characters’ navigation through space, e.g., entering a room, climbing, getting up, and falling. Head movements also portrayed dynamic physical interactions with referents, such as getting hit by a paper plane or being attacked by an animal. Finally, lateral flexion movements of the head and torso were used to depict referents as thinking, sometimes portraying their thoughts as silly or naive. Figure 92 illustrates a French speaker rotating his head to enact a referent gazing to their side while Figure 93 shows another informant vividly enacting a referent leaning their torso forwards to try and catch a sheet of paper blown away by the wind.



Figure 92. CFRAPé L019 T12 (00:06:48.629 - 00:06:51.184)

Là, dans le bas, ils tombent en face d'un restaurant.
Then, further down, they come across a restaurant.



Figure 93. CFRAPé L001 T12 (00:05:52.571 - 00:05:57.675)

Là, à un moment, il y a un coup de vent. Il rattrape de justesse son papier et il se dit: "bon beh je vais l'utiliser".

Then the wind starts blowing. He only just manages to catch his sheet of paper and tells himself: "Well I guess I'll use it".

8.2.2.3 French speakers' use of facial expression

Facial expression was among the least frequently enacting articulators in Belgian French. When they did use face in Task 05, speakers enacted stances related to language attitudes or to ways of speaking such as shock, overconfidence, irritation, distaste, surprise, or incredulity. One such use is exemplified in Figure 94: the FRAPé Corpus informant enacts their own reaction to hearing an utterance that deviates from the prescribed verb form for a conditional construction. The informant's disapproval is conveyed multimodally, notably with facial expression in the second still, where the speaker uses a frown to imitate someone being in pain.



Figure 94. CFRAPé L016 T05 (00:02:47.104 - 00:02:52.148)

*J'étais là: "C'est une fut- future prof dans un an ou deux" et j'étais là: "si j'aurais, si j'aurais *aaah*". Là, je l'ai jugée.*

I was like "She's a fu- future teacher in a year or two" and I was like: "(repeating the conditional clause whose verb occurs in a non-prescribed form) *aaah*". I did judge her then.

In Task 12, speakers did not recruit enacted story characters' facial expression frequently either. When they did, face was used to portray referents' anger, e.g., the mole and bees in the Frog story, surprise, embarrassment, attraction, incredulity, pensiveness, or amusement. The speaker's frowned eyebrows in Figure 95 are used to enact an angry character in the *Paperman* story (third and fourth stills).



Figure 95. CFRAPé L022 T12 (00:03:21.517 - 00:03:24.655)

Et là, son patron arrive et euh le casse quoi, dans ses pensées. Le patron avec euh la tête assez assez méchante

Then, his boss comes and interrupts, well, his train of thoughts. The boss with erm quite quite a mean face.

8.2.2.4 French speakers' use of hands and arms

In their conversations, speakers sometimes enacted manual actions related to language attitudes. These included raising hands in the language classroom, writing, or correcting French spelling. Manual actions were also used to convey stance, such as clenching one's fist out of irritation or slapping someone whose ideas are negatively assessed. Speakers also frequently used their hands in metaphorical ways: grasping actions were used to enact speakers 'fishing' from different regional variants, ideas were 'thrown' or 'gathered'. Hands were also enacted as shielding or destroying French (grammar). Finally, during enacted utterances, speakers also depicted regular manual actions co-occurring with speech such as beat gestures or emblems. In the first and fourth stills of Figure 96, a French speaker enacts his growing tenseness upon noticing a spelling 'mistake' by clenching his fingers. In Figure 97, the informant raises his right hand and enacts destroying prescriptive French grammar with a closed first (third and fourth stills).



Figure 96. CFRAPé L019 T05 (00:07:03.299 - 00:07:05.928)

vocalisation; *il y a quelque chose à l'intérieur qui *vocalisation**.
vocal noise; there's something inside that **vocal noise**.



Figure 97. CFRAPé L027 T05 (00:05:10.142 - 00:05:17.521)

En fait, c'est un cours où on déconstruit la grammaire française telle qu'on la connaît euh on fait que la détruire pendant deux ans.

So, it's a course about smashing French grammar as we know it erm all you do is destroy it for two years.

Narrative retellings in the FRAPé Corpus featured enacting hand movements in over half of annotated tokens of constructed action. These were often used to illustrate actions visibly performed by story characters in each stimulus, e.g., holding, throwing, catching, manipulating, grasping for objects but also putting boots on, running, climbing, leaning against surfaces, or pushing. Several instances of hand movements were also used to depict referents' states of mind. Clenched

fists portrayed anger, frustration, or regained energy. Clapping hands were used to enact motivation while letting one's hands hang loose portrayed relief or surrender. Enacting hand movements were also involved in tokens of constructed thought, dialogue, or interaction more broadly: speakers portrayed *Paperman*'s protagonist waving his hands to catch his loved one's attention but also introduced varied hand movements, e.g., emblems, pointing and palm-up actions, to construct multimodal utterances. In Figure 98 and Figure 99, the hands are recruited by the same speaker to enact a referent's vigour and enthusiasm and to depict the boy sweeping off dirt from his clothes respectively.



Figure 98. CFRAPé L022 T12 (00:04:22.275 - 00:04:25.482)
Un regain de joie et d'énergie s'empare s'empare de du jeune homme.
 A renewed joy and energy took took hold of the the young man.



Figure 99. CFRAPé L022 T12 (00:13:19.962 - 00:13:21.403)
Il frotte un peu toutes les saletés.
 He's kind of sweeping all the dirt off.

In Figure 100, the speaker enacts the deer lifting the boy and the dog and pushing them into the pond (second and fourth stills). Finally, in Figure 101, the informant recruits her hands to enact a referent holding a paper plane (first still) but also performs another hand action depicting the plane landing on a building window (last still).⁴⁰

⁴⁰ This example is particularly interesting because, while the form depicts a manual action, it does not provide a direct mapping to its referential target. Rather, one could hypothesise that this mapping is cross-modal (Keränen, 2023): the speaker depicts the impact of the plane on the window by invoking the clinking sound resulting from giving a flick on a glass surface. This hypothesis is supported by the cotext; the speaker subsequently says that a character hears the impact of the paper plane on the window.



Figure 100. CFRAPé L030 T12 (00:10:30.852 - 00:10:36.459)

Il commence à s'énerver. Il les prend avec eux et euh il les balance dans la mare.
 He's starting to get nervous. He lifts them and erm flings them into the pond.



Figure 101. CFRAPé L020 T12 (00:02:24.023 - 00:02:28.491)

Il peaufine un peu euh sa sa technique de l'avion jusqu'à arriver à un avion qui euh vraiment euh vient frapper à la fenêtre.
 He kind of polishes his plane technique until it gets to a point where the plane erm really erm hits the window.

While these aspects were not annotated in the present study, the timing and formal characteristics of some instances of enacted manual actions which occurred across several of the speakers were striking: some enacting hand movements seemed to co-occur with a spoken lexical affiliate and were characterised by a long duration paired with repeated movements of limited dynamism, e.g., distance traveled or speed. Because some of these movements seemed to occur without the presence of many, if any, other enacting articulators, they also appeared to be very subtle instances of enactment. All these characteristics are reminiscent of features used to describe so-called 'recurrent' gestures (see section 4.2.1 on the use of hands for constructed action). Recurrent gestures are described by Müller (2017) as "*tightly coordinated with the verbal part of multimodal utterances in terms of their temporal, semantic and pragmatic synchronization*" (p. 280). In addition, the fact that few, if any, other articulator(s) were recruited into these tokens may point towards a form reduction also described for recurrent gestures (Müller, 2017, p. 292).

8.2.2.5 French speakers' use of constructed dialogue and voice

Constructed dialogue and voice were among the most recruited articulators in Task 05, though most instances were produced by a few speakers. FRAPé Corpus informants sometimes used voice to take on regional accents while producing semiotically descriptive speech. In other instances, speakers used voice while

enacting thoughts or utterances. The interactional goal of these sequences of constructed dialogue were sometimes aimed to present attitudes in the form of statements. Other cases included depictions of ways of speaking which featured differences in register, regional variant, or language altogether. Finally, some instances of constructed dialogue featured reported speech presented by informants as somehow deviant from normative French. Figure 102 and Figure 103 illustrate how speakers used constructed dialogue and voice to portray language planning and ideologies as unreasonable and laughable. In Figure 102, the informant mentions language planning that occurred at the time of the French Revolution by enacting an utterance stating a goal to change the language. During that enacted utterance, the speaker recruits several visible articulators – hands and arms hanging loose, repeated lateral tilting of the head and torso – and adopts a higher vocal pitch. This multimodal ensemble portrays the referent(s) as childish. Figure 103 illustrates the use of a hybrid enacted utterance where the sequence of words ‘*mauvais français*’ (‘bad French’) is uttered with a different, creakier, voice prosody paired with a repeated lateral tilting movement of the speaker’s head and a facial expression characterised by a nose wrinkle. This multimodal ensemble pejoratively depicts people claiming Belgian French is bad as judgmental.



Figure 102. CFRAPé L027 T05 (00:10:11.969 - 00:10:17.589)

1789, *Révolution française*, à ce moment-là il y a tous les érudits qui se sont faits: “eh, on va un peu aussi changer le français!”.

1789, French Revolution, back then, all the scholars told themselves: “hey, we’re also going to change French a bit!”.



Figure 103. CFRAPé L021 T05 (00:13:17.535 - 00:13:20.944)

Mais oui, je suis fière de notre “mauvais français”.

Exactly, I’m proud of our “bad French”.

Interestingly, several FRAPé Corpus informants never recruited constructed dialogue nor enacting speech in their narrative retellings. Among those who did, only two used these modes relatively frequently, i.e., in over ¼ of tokens. The other

participants only marginally recruited either of these articulators into their depictions of story characters. In some instances, voice was used to enact attitudes and emotions. Changes in vocal prosody were sometimes used to ‘voice-over’ descriptive speech to convey characters’ sadness and disappointment, e.g., by lowering one’s voice volume. Many instances of constructed dialogue enacted characters’ thoughts whereas relatively few spoken interactions between story characters were depicted. When these tokens occurred, however, they were usually characterised by long sequences of enacted turns. One such example is provided in Figure 104, where the speaker enacts three conversational turns by the two protagonists of the *Paperman* story. The participant alters his volume, e.g., “*Vous êtes qui?*” (“Who are you?”) is shouted, as well as his pitch to enact the two referents.



Figure 104. CFRAPé L016 T12 (00:08:47.416 - 00:08:50.810)

Vous êtes qui?!
 Je vous aime.
 Oh ok!
 Who are you?!
 I love you.
 Oh ok!

8.2.2.6 Indexing and/or placing in Belgian French

Like in LSFB, there were instances in the FRAPé Corpus in which tokens of enactment were paired with indicating behaviours. Instances which appear to be good candidates for indicating uses of head and torso are illustrated in Figure 105 and Figure 106. In Figure 105, the speaker rotates his torso and head to the right while enacting the man retrieving a sheet of paper in the *Paperman* story.



Figure 105. CFRAPé L016 T12 (00:05:31.713 – 00:05:33.889)

Et donc euh Jim est très embêté. Il reprend le papier.
 And so erm Jim is very embarrassed. He takes the sheet of paper back.

Figure 106 illustrates a speaker leaning to her left side while enacting a frog clinging to a rock (second, third, and fourth stills). Because a clinging action would be more likely to involve head and torso motion along the sagittal plane than a sideways movement, an indicating reading of this behaviour seems to be more strongly profiled.



Figure 106. CFRAPé L022 T12b (00:00:07.467 - 00:00:10.064)

Il réussit finalement à s'accrocher à un rocher un petit peu plus grand.

He eventually manages to cling to a slightly bigger rock.

Interestingly, French speakers did not exhibit instances akin to contrastive head and torso postures when enacting interactions between referents. This is exemplified in Figure 107, where the speaker reports an interaction in France. As the speaker announces the price of an item to a customer, he gets immediately recognised as Belgian for using the numeral ‘*nonante*’ (‘ninety’). Throughout the three interactional turns enacted, the speaker largely maintains the same head and body posture, rotating the enacted space in a way similar to what was described for LSFb in Section 8.2.1.6.



Figure 107. CFRAPé L027 T05b (00:08:17.486 - 00:08:24.622)

- *Bonjour, quatorze euros nonante-neuf, s'il vous plait*
 - *Vous venez de Belgique, vous!*
 - *Ouais, ouais, ouais*
- Hiya, fourteen euros ninety-nine (Belgian numeral), please
 - You're from Belgium, you!
 - Yeah, yeah, yeah

8.2.2.7 Discussion: orchestrating different articulators in Belgian French

Because of partly different methods for defining and annotating constructed action, no straightforward comparison between the results obtained for Belgian French and those reported for other spoken languages can be drawn. However, some of the main tendencies identified in the present study are congruent with the use of articulators reported for American English (Stec et al., 2016), Quebec French (Parisot & Saunders, 2022), and Matukar Panau (Hodge et al., 2023). Body posture (combining head and/or torso) was reported as the most recruited articulator in American English speakers' enacted utterances. Quebec French speakers were also shown to use both articulators in about 85% of tokens of constructed action. Similarly, Matukar Panau speakers are reported to use head frequently while

enacting. Like in Belgian French, gaze was reported as frequent both in American English and Quebec French. Lastly, facial expression was described as a less frequently recruited strategy in all three language groups too. Results obtained for other articulators seem to partly differ from those provided in the other studies. Torso use, for instance, is described as frequent in Quebec French. While the use of hands and arms is described as frequent in Matukar Panau and Quebec French, it is reported as rarer in American English. This discrepancy might be a consequence of the exclusive focus on sequences of constructed dialogue instead of studying constructed action more broadly. Lastly, the use of voice and constructed dialogue was similarly shown to be frequent in Matukar Panau while voice was only marginally used in Quebec French. Here too, this difference could result from a difference in elicitation materials since Quebec French speakers retold short silent vignettes which may have been less likely to trigger the use of constructed dialogue. Finally, the reported articulatory index is similar to the one reported for American English constructed dialogue (2.80) but is higher than the one reported for Matukar Panau speakers' enactments (1.68). In addition to a difference in elicitation stimuli and performed task, the difference between Belgian French and Matukar Panau stories is likely to be caused by a higher reliance by most Matukar Panau speakers on speech-centered articulators like voice and constructed dialogue. By comparison, a majority of French speakers seem to have recruited more multimodal enactment strategies in Task 12.

How can this discussion inform our understanding of the reported statistics and visualisations of articulator contribution in the FRAPé Corpus? The high frequency of enacting head movements across both tasks in Belgian French can be explained in the same way as for LSFb signers: most of the actions depicted by French speakers somehow involved head movement. As described earlier, these movements spanned different meaning domains such as head-centered actions, e.g., attending to a referent, attitudes, or even imitating the typical head movements that accompany speech in enacted utterances. Hence, head was probably the most prominent enacting articulator in French because of coarticulatory considerations as well as because of its predominant role in the realm of human action.

A similar reasoning could be applied to the enacting use of gaze. However, some participants appeared to recruit this articulator more rarely and instead maintained mutual gaze with their addressee. Several reasons may account for this relatively high degree of inter-individual variation. First, speakers seemed to rely on the surrounding space more rarely as an affordance for meaning-making and hence had fewer instances in which an invisible surrogate could be projected and looked at. This claim is indirectly supported by acquisition studies showing how hearing L2 learners of signed languages struggle to use eye gaze to project and interact with invisible referents or scenes in spatial language (Ferrara, 2019), or to enact referents during narrative retellings (Gulamani et al., 2020). Second, it may also be that signers denoted actions in which gaze played a secondary role or for which French speakers deemed eye gaze not to be relevant. As already mentioned, some of French speakers' instances of constructed dialogue were not highly multimodal, if at all. This may be due to a focus on presenting utterances for their formal characteristics rather than to portray the context in which they were uttered. Furthermore, even

when utterances were enacted with a focus on the context in which they occurred, many of these tokens were portrayed as addressed to or uttered by indefinite referents, e.g., ‘on dit’ (‘it is said’ / ‘people say’) or groups of referents (children at a camp, students in a classroom). Hence, few tokens of constructed dialogue were construed as one-on-one face-to-face interactions. This may have affected the ways in which articulators such as eye gaze were used. Finally, FRAPÉ Corpus informants may also have preferred to maintain mutual gaze for local interactional purposes.

The rare use of facial expression could result from the fact that part of French speakers’ face, i.e., their mouth, is already being used to produce speech (Parisot & Saunders, 2022). Another potential explanation is that facial expression is co-functional with another articulator, namely voice. Since both articulators are recruited to convey referents’ stances and affective states in a spoken language like French, this division of labour may lead to facial expression being less frequent. Finally, it might also simply be that French speakers did not find referents’ facial behaviour, including their emotions, relevant or worth selecting in their depictions. This last explanation is also the best candidate to account for the paucity of constructed dialogue and voice in the FRAPÉ Corpus informants’ conversations and narrations. As was the case in LSFBS signers’ use of constructed dialogue, it may well be that referents’ vocal sounds and/or utterances were such specific types of action that they were not deemed central to most of the informants’ depictive intents.

8.2.3 Comparative explanations of articulator use in LSFBS and Belgian French

LSFBS signers and Belgian French speakers were similar in their preference for using head and eye gaze to enact referents while using constructed dialogue (together with voice, in French) more marginally, at least for most French-speaking participants. These similar observations were previously explained by the same causal mechanisms related to the animate nature of enacted referential targets and their actions. However, the present study has also shown that LSFBS signers more consistently and frequently recruited eye gaze, head, torso, and facial expression into enactments than French speakers did. It also showed that French speakers used their hands and arms more than LSFBS signers did. These results are in line with those of previous comparisons of several spoken and signed languages. In what follows, different mutually compatible causal accounts are offered to explain the similarities and differences observed between the two groups.

8.2.3.1 *Social norms of depiction: when to enact?*

A first reason for a higher use of non-manual articulators in LSFBS than in Belgian French might be related to a more positive attitude towards and a preference for depiction in the community of LSFBS signers with respect to the hearing (Belgian) French-speaking community. Differences in social norms with respect to the acceptability of depictive meaning-making have been reported across different

communities (Dingemanse, 2014; Kendon, 2014). A cultural preference for depiction was also used to explain the more frequent use of constructed action in LSFb (see Section 8.1).⁴¹ This more pronounced preference for depiction and, by extension, constructed action could have resulted in LSFb signers including more articulators to provide more detailed depictions of enacted referents. This account is supported by prior observations that signers are usually more detailed in their retellings than speakers of the ambient spoken language (Earis & Cormier, 2013; Marentette et al., 2004; Quinto-Pozos & Parrill, 2015; Rayman, 1999).

8.2.3.2 *Combining depiction with descriptive semiotics: simultaneity and linearity in managing concurrent and competing functions*

Other possible explanations of differences in articulator use lie in synchronic (the language items as they exist in a system and interact) and microgenetic considerations. The use of facial expression was much more frequent in LSFb signers' enactments than it was for Belgian French speakers. Conversely, French speakers recruited their hands to enact referents' manual actions more than LSFb signers did. Both differences may relate to the main channel used for (relatively) linear descriptive meaning-making in each community: voice in French and hands and arms in LSFb. Signers frequently use descriptive meaning-making while enacting, i.e., during sequences of reduced and subtle constructed action. When producing non-overt forms, signers' hands are not free to be recruited into enactments (unless iconicity enables that, as is the case with iconic lexical signs). By contrast, speakers' main descriptive channel is voice, leaving hands free to enact. A high use of facial expression, because it may involve mouth actions, may similarly be hindered in spoken language use (see Parisot & Saunders, 2022; Hodge et al., 2023; and Vandennitte, 2023, for a similar account of these differences). Another possibility would be that French speakers, unlike LSFb signers, frequently use voice for functions that facial expression fulfills in LSFb, namely stance and enacting affect. Finally, the same linearisation issue may partly account for the comparatively rarer use of constructed dialogue in both communities: because of its referential target, constructed dialogue obviously takes over the main descriptive channel. This may only occur when languagers assess that enacting an utterance is worth halting serious meaning-making.⁴²

In the same vein, one could ask whether non-manuals are more frequently recruited in LSFb because of these instances in which the strategy co-occurs with descriptive meaning-making. First, it is known that constructed action is often used to refer to previously introduced – maintained or reintroduced – referents. Second, several studies have shown that constructed action may single-handedly provide core meaning contributions to clause-like units in signed languages. In such contexts,

⁴¹ The qualitative observation of the participants' language ideologies expressed in Task 05 also supports this idea. It is likely that LSFb signers' preferences for signing styles that are "lively", "that make me imagine", etc. partly refer to depictive semiotics. Speakers, by contrast, never mentioned using one's body in conversations about language attitudes. Rather, they focused on variations and social prescriptions about speech and writing.

⁴² This claim may be nuanced: this linearisation issue is occasionally circumvented when languagers superimpose both semiotics by using hybrid forms.

one could ask whether non-manual salience may be recruited to ensure a recognition of the depictive intent as well as of the enacted referent, guaranteeing a smoother reference-tracking in discourse. It is questionable that the same pressures would apply to Belgian French speakers' reference-tracking strategies. It is unlikely that constructed action *single-handedly* provided key meaning contributions in French clauses (apart from unframed constructed dialogue sequences where the whole sequence could be the very contribution). A look at the examples provided in this manuscript shows that enacted actions were frequently framed by descriptive semiotics. Enacted physical actions often co-occurred with lexical affiliates or could be inferred from context. The referents who performed the enacted actions were frequently named, including in constructed dialogue, or were very accessible in context as well as in the nearby co-text. Hence, the combination of different semiotics in the reference-tracking strategies of LSFB signers and Belgian French speakers might also play a role in the use of different articulators.

8.2.3.3 *From constructed action to action constructions?*

So far, our discussion of differences between LSFB and Belgian French has been largely limited to causal accounts that did not directly involve diachronic change, unlike some proposals that depictive forms may conventionalise and/or grammaticalise over time in signed languages. In this section, I will argue that there may be grounds for claims of local conventions, but not just for signed languages. Because of the operationalisation of constructed action in the present analysis, tokens of LSFB lexical signs were not included in the annotation procedure unless they exhibited a clear depictive component. In Task 05 of the LSFB Corpus, many but not all tokens of LS were therefore included. In the FRAPé Corpus, all enactment forms were included. Hence, the annotation procedure clearly aimed to disregard highly conventionalised LSFB lexical signs and remained agnostic as to the conventionalisation status of French speakers' enacting (hand) actions.

Yet, qualitative observation of the FRAPé Corpus suggests that French speakers may have locally relied on more conventionalised ways of representing actions. As already explained in Section 8.2.2.4, some manual forms depicting physical actions have been described as repetitive and reduced in form. These forms sometimes occurred without the presence of other enacting articulators. Therefore, they might be good candidates for a conventionalisation account, e.g., the enactment of punching in Figure 97 and that of sweeping away in Figure 99. Another example is found in the use of clutched fingers to enact referents' nervousness or irritation (see Figure 90, Figure 94, and Figure 96). Finally, a last example is found in the enactment of the animal flinging the boy into a body of water in the *Frog Story* retellings. Interestingly, all LSFB signers who did include that event in their retellings leaned their body forwards, which closely parallels and clearly depicts the animal's action in the story. Among French speakers who retold the event, three adopted the same depictive strategy. However, two informants represented the action in a different way: they used their hands to enact the pushing (e.g., Figure 100). These instances could be examples of more schematic forms recruited to enact. It is interesting to note that if this claim is empirically backed by future research, it could also partly account for the less frequent use of non-manuals in

French with respect to LSF. Indeed, schematised forms have been claimed to occur on their own or with few other enacting articulators (Bresse et al., 2018). It is noteworthy that hands and arms were the recruited articulators for a majority of enactment forms identified in the FRAPé Corpus with only one ‘active’ articulator. These tokens, because of their reliance on the hands only, lowered the frequencies recorded for other articulators. Hence, it may be that French speakers sometimes recruited more conventionalised and schematic manual actions instead of and concurrently with their more depictive representations.

In addition to these manual forms, the recurrence of some ‘nonmanual’ form-meaning regularities could also be potential candidates exhibiting similar processes of conventionalisation. In the conversational tasks, some LSF signers and Belgian French speakers referred to meanings related to overconfidence or misplaced pride. When enacting referents portrayed as overconfident, these participants recruited backwards head and torso movements (as though the enacted referent made themselves look taller than they are). Examples of this behaviour in LSF and Belgian French were already provided in Figure 66 and Figure 91. Figure 108 provides another one in Belgian French. The described head and torso lean occurs in the third still while the informant utters “*pour montrer qu’on les maîtrise*” (“to show you’ve mastered them”).



Figure 108. CFRAPé L019 T05 (00:06:23.105 – 00:06:28.466)

Ça n’a pas d’intérêt d’avoir des règles de haute voltige pour montrer qu’on les maîtrise.

It doesn’t make sense to have acrobatic rules (just) to show you’ve mastered them.

Another potential candidate for conventionalised or ‘recurrent’ enactment is found in FRAPé Corpus informants’ depictions of utterances which they disagreed with and mocked. In several instances, enacted utterances co-occurred with repeated side-to-side tilts of the head and, sometimes, of the torso. Together with facial expression and prosody, this head action had an effect of portraying the enacted utterer and/or their utterance as silly, unjust, or simply unwelcome. This behaviour was found in three previously illustrated utterances, namely in Figure 90, Figure 102, and Figure 103. In these three utterances, referents are enacted as being overly prescriptive in their language ideologies. This way of mocking prior utterances is reminiscent of the pejorative spoken sequence ‘blah blah blah’. Similar sequences are found in slightly different but convergent forms across several languages (Šipka, 2021). Finkbeiner (2016) describes the use of the sequence ‘bla bla bla’ in turn-initial replies as a “*conventional discursive pattern that is directly associated with a pejorative meaning*” in German (2016, p. 297). Pejorative meanings

conveyed by ‘bla bla bla’ in this interactional context would portray previous utterances as “*silly, insincere, prolix, irrelevant, boring, or unwarranted*” (2016, p. 272). Interestingly, Finkbeiner also observes that ‘bla bla bla’ is sometimes paired with multimodal cues. While further investigation is required, one may wonder whether the ‘bla bla bla’ construction may extend to multimodal behaviour.

If confirmed in more detailed and larger analyses, these observations would support the idea that represented actions in any community have the potential to lie on a continuum between largely improvised and conventionalised. Where they are located on this continuum hinges on the community who uses them and the extent to which an individual intends to show rather than tell an action, provided a type ‘to be told’ has indeed emerged in the community’s repertoire. For such types to emerge, the enacted action should be frequent but also conceptually simple (Wilcox & Xavier, 2013). However, the examples shown here also point to the fact that the represented actions should be relevant to the community. Under these selective pressures, local conventional schemas may emerge as more or less constrained templates. This is attested for speakers and signers’ enactments of manual actions and may also be true of other articulators. A better understanding of these conventionalisation phenomena could be achieved by investigating how specific actions are enacted. This research agenda will also require particular attention to the physical and social-interactional contexts in which some degree of conventionalisation occurs (Harrison & Ladewig, 2021). We now turn to claims in the literature that constructed action schematises or grammaticalises at a higher-order level to mark ‘viewpoint shift’.

8.2.3.4 *Role-shifting: From construing (inter)action to a construction of (inter)action?*

As the presentation and discussion of the results has suggested, the comparison of LSFb and Belgian French carried out in this study does not point to the existence of a frequent and obligatory role-shifting construction in LSFb as against unconstrained depictive enactments in Belgian French. The results reported have shown that tokens of enactment across both languages exhibited clearly depictive qualities, as supported by the frequency and variability across individuals and discourse types of (a). constructed action use, and (b). recruited enacting articulators, which were also shown to be optional. It was also argued that differences between the two language groups could be explained by different cultural preferences for depiction, microgenetic factors, and possibly different degrees of conventionalisation for the representation of specific actions. This last point does not seem fully compatible with Wilcox & Xavier’s proposal for a broad constructed action scenario (Section 3.5.2).

Perhaps a reason why an all-encompassing schema would fail to emerge is because of both the vast functional domain and formal repertoire (or ‘conceptual’ and ‘phonological’ complexity respectively, in Wilcox & Xavier’s terms) that would need to be abstracted away from. Because the processes at play emerge from individual events whose repetitions lead to entrenched routines which can spread

and conventionalise, it is hard to conceive of one ‘marking’ of broad functional categories like ‘action’ or ‘internal viewpoint’. Indeed, these meanings (the reference to an action and the shift to another viewpoint) are already transparent when depiction occurs in face-to-face communication: acts of depiction are foregrounded in ways that enable perceivers to infer that an action is non-seriously performed (Clark, 1996, 2016; Dingemanse, 2014). This inference then evokes the representation of a subjective other performing that action. So far, evidence rather indicates that when enactment forms conventionalise, they do so from repetition of individual usage-events, i.e. enactments of specific actions.

However, this does not necessarily exclude a ‘role-shifting’ construction in LSFb. LSFb Corpus informants did exhibit a few clear-cut instances of sequential posture reorientation movements that were congruent with forms described in role shifting approaches. In addition, similar forms have been observed across many signed languages (see 3.5.2).⁴³ If such a construction does exist, Jarque and Pascual’s (2014) proposal seems well-equipped to account for several causal processes at play.⁴⁴ The consequences of the necessarily situated, face-to-face, interactions in signing communities are manifold (Johnston, 1996). When enacting utterances, LSFb signers did more frequently enact conversations than Belgian French speakers, who rather enacted referents’ thoughts. This intriguing difference might point to a mediation of a conversational frame in the creation of some tokens of enactment in LSFb. In light of the semiotic framework adopted here, one could point out that the indexical/placing dimension likely derives from the emergence of a diagrammatic rather than simply imagistic iconic reading (Hodge & Ferrara, 2022), where conversations are conceptualised as structures involving two conversationalists. This proposal should, however, be broadened in scope: the head and torso reorientations observed in LSFb signers’ enacted conversations are also found when signers simply enact an interaction between two referents, regardless of the presence of any ‘dialogue’. This reorientation behaviour in enacted interactions is notably similar to what Meurant (2008) describes as ‘shot and reverse shot’ structures in LSFb. Other caveats may be in order when conjecturing about a potential ‘interaction’ construction. As Figure 85 exemplified, these form-meaning pairings would be but one of the options that LSFb signers have at their disposal when enacting interactions. In addition to their optionality, their use could be characterised as marked and is likely to remain largely tied to the discourse genre in which they would have originated, probably narration.

In the preceding paragraphs, several causal accounts of the contribution of articulators observed in the LSFb and FRAPé corpora were provided. A first difference was argued to lie in the referential targets enacted by the languagers. Partly different topics or foci led LSFb signers and French speakers to depict different actions involving partly distinct articulators (e.g., using constructed dialogue together with other articulators to emphasise a referent’s illocutionary

⁴³ Methodological issues, such as less authentic languaging contexts, might have favoured their occurrence.

⁴⁴ However, Jarque and Pascual’s (2014) conception of these constructions only partly overlaps with what is intended here: many of Jarque and Pascual’s examples would fall into what has simply been called constructed action or dialogue here.

force as against enacting an utterance in a metalinguistic fashion to exemplify a deviation from a norm). Second, it was proposed that different attitudes towards depictive meaning-making and enactment could account for a higher use of several articulators in LSF than in French. The higher preference for enactment could lead LSF signers to produce more detailed depictions, involving more body parts. Third, differences in the uses of facial expression and hands and arms were explained by microgenetic differences. The lower use of hands and arms in LSF was related to a linearisation issue as signers' hands are also the main channel used for descriptive meaning-making. Similarly, FRAPÉ Corpus informants' lower use of facial expression was accounted for by speakers' use of their mouth to produce descriptive speech as well as by a division of labour with voice in the expression of affect and stance.

Finally, our discussion ended with more conjectural considerations of conventionalisation of constructed action. The results found in the present study did not provide grounds to back claims that signers' constructed action practices were differently used to systematically mark for viewpoint shifts (as explained earlier, other causal frames account for observed differences), though an optional and marked construction to explicitly contrast two referents in constructed interactions was not ruled out in narrative discourse. A few candidates for more specific instances of conventionalisation were however presented. These candidates stemmed from specific physical behaviours, e.g., 'pushing' events, and/or from specific social actions motivating the use of enactment, e.g., ridiculing a referent. Local meaning domains were claimed to be a good starting point for the investigation of conventionalised 'enactments'. As noted earlier, this does not mean that languagers can no longer use depiction to refer to an action with a schematic type. A metaphor helps make this point clear.

The metaphor will be biased towards languagers' hands but should apply to other articulators, sometimes in concert, as well. When representations of manual actions schematise and conventionalise, they become like a pair of gloves. Some property of these gloves, say their colour, becomes a conventional code to 'describe' that action. When intending to refer to a manual action, a languager may then (a). simply depict it by improvising a form corresponding to their referential target (leaving the gloves in the cupboard), (b). put on the gloves, remain static, and let the colour conventionally signal what action they intend to refer to, or (c). put the gloves on and move their hands to simultaneously describe and depictively enact the action. These three possibilities should be seen as prototypes on a continuum and many usage-events may well be closer to the middle rather than located at either of its ends. As the metaphor hopefully makes clear, this proposal does not predict that schematised/conventionalised ways of representing actions become the obligatory way to refer to them. It does however account for the fact that some enactment forms may at times 'feel' less depictive and more weakly profile the image of a referent performing the action (as recently claimed by Beukeleers & Vermeerbergen, 2022).

8.3 Degrees of constructed action

Using the results reported in Section 7.4, the distribution of subtle, reduced, and overt forms across LSFB and Belgian French conversations and narrations can now be discussed. After discussing the results for each task performed by the language groups, the extent to which they compare and potential causes for these results are laid out.

8.3.1 Belgian French

As already discussed when reporting the results, the reliability of some of the patterns observed in Task 05 of the FRAPé Corpus should be questioned because of the paucity of tokens of enactment (and of enacting time) for some participants. Nevertheless, for four informants who did frequently enact referents, overt constructed action was a prominent strategy. For three of them, overt forms were used in over 75% of the time spent on enacting referents during Task 05. In some rare cases, these overt forms were instances in which speakers visibly enacted a referent or an action while momentarily pausing the production either of French words or of any type of vocalisation. An example of the former scenario was provided in Figure 96, where the speaker enacts his irritation when reading a spelling mistake by producing a vocalisation akin to a glottal stop. An example of the latter case is provided in Figure 109. The informant is reacting to an utterance in which the verb appears not to agree with the grammatical number of the subject, i.e., the verb is produced in a singular form whereas the subject is plural: *‘les psychologues a mangé’* (‘the psychologists has eaten’). In French, this results in the utterance being potentially misinterpreted as the homophonic utterance *‘les psychologues à manger’* (roughly translatable as ‘the edible psychologists’ or ‘the psychologists to be eaten’). Hence, in the example illustrated, the speaker enacts the real sense of the initial utterance, namely someone eating. As the informant explains what the negatively assessed utterance actually meant, he momentarily stops speaking to show the eating process.



Figure 109. CFRAPé L016 T05 (00:02:05.020 - 00:02:07.910)
C'est pas le- les psychologues (silence) qui- qui se sont nourris.
It's not the- the psychologists (silence) who- who ate.

(Speech-)‘silent’ forms only constituted a few of the overt enactment forms. The rest – and vast majority – of overt forms were enactments of languaging events. As discussed and illustrated in the section devoted to the contribution of articulators,

four French-speaking participants frequently enacted referents as thinking or speaking. This is again shown in the second and third still of Figure 110 where the speaker enacts her own reaction to a colleague’s spelling mistake (see also Section 8.2.2.5 for other examples).



Figure 110. CFRAPé L020 T05 (00:03:02.874 - 00:03:11.183)

Parfois, il ajoute des -s ou des -x ou des trucs des trucs qui sont au singulier puis t’es là: *‘Mais (Nom), là, il était pas nécessaire ton ‘x’*”.

Sometimes he’ll add some -s or -x or things, things that are singular and then you’re like: *‘No, (Name), your ‘x’ wasn’t necessary here’*.

More rarely, speakers also combined enactment with descriptive speech in their conversations about language attitudes. Figure 111 shows an instance of reduced constructed action: the speaker recruits both a head and torso lean (and head rotations), eye gaze, and facial expression to enact the denoted referent’s confusion. Because many articulators were used for enactment, this token was deemed to predominantly feature a referent-internal perspective.



Figure 111. CFRAPé L001 T05 (00:04:58.313 – 00:05:00.625)

Nous on est parfois trop dedans et on voit pas, on voit plus euh le point essentiel.

Even we are sometimes in too deep and we don’t see, we don’t see erm the essential point anymore.

In Figure 112, the speaker enacts someone raising their hand to ask a question. The only recruited articulator is the speaker’s hand (and arm). While enacting, the participant’s speech flows uninterrupted. In this multimodal ensemble, the enacting speaker’s perspective was felt to be dominant, leading to an annotation of this token as ‘subtle’ constructed action.



Figure 112. CFRAPé L016 T05 (00:02:36.216 - 00:02:38.646)

Et il y a une meuf qui lève la main.
And there's a girl who raises her hand.

It is unclear what patterns would have emerged if more tokens had been collected for the other informants. A first possible outcome could have been the production of overt constructed action (in the form of constructed dialogue) by the other participants. However, differences might simply reflect diverse preferences for specific types (and constructed dialogue) across the FRAPé Corpus informants. Inter- and intra-individual variation is after all attested for participants for whom more enacting time has been identified and whose use of the different types cannot be reduced to instances of overt constructed action. For instance, L019 produced 22 tokens of constructed action in Task 05 but appears to use a roughly similar share of overt and subtle forms, possibly hinting at a less marked preference for overt enactment.

Likewise, one should not necessarily assume that participants who spent less time on enactment would have produced a larger amount of overt forms had they produced more or longer tokens. If expressivity or liveliness is a predictor of both the use of constructed action in general and of the use of overt forms, it could also be that participants who spent less time on enacting referents would be more likely to favour subtle or reduced forms. In summary, it appears that the four FRAPé speakers who produced considerable amounts of constructed action in Task 05 frequently recruited constructed dialogue, resulting in a high representation of overt enactment forms. As for the participants who produced little constructed action in this task, it remains unclear whether analyses within a larger and more diverse dataset would have led to an increase in overt forms.

Turning to the narrative retelling task, in which all participants produced a more substantial amount of constructed action, subtle forms appeared to be very prominent while overt ones were marginal for most informants. Only two French speakers, L016 and L029, exhibited a more balanced share of subtle and overt enactment forms. Both informants produced frequent sequences of constructed dialogue, as in Figure 113.



Figure 113. CFRAPé L029 T12 (00:01:58.852 – 00:02:01.623)

Son patron le zyeute en disant: ‘Qu’est-ce qu’il fait cet énergumène?’.
 His boss is staring at him saying: ‘What’s that weirdo doing?’.

L016 also instilled short sequences of (speech-) silent enactment in his stories. This strategy could have been used to build suspense and to foreground visible referents and their actions. While L016 and L029’s frequent use of overt constructed action in Task 12 is interesting, it is restricted to a marginal share of the dataset. As mentioned, the subtle type was predominant for the other participants. Indeed, most French speakers produced fewer tokens of constructed dialogue and typically performed enactment that co-occurred with the use of semiotically descriptive speech. Figure 114 illustrates the use of subtle constructed action in Task 12 of the FRAPé Corpus: the speaker only uses facial expression to enact the referent’s shock upon realising that he has a huge amount of work to do.



Figure 114. CFRAPé L001 T12 (00:04:58.042 - 00:04:58.986)

Et donc là il voit l’énorme tas de papier.
 So then he notices the huge pile of paper.

Figure 115 illustrates how a French speaker can shift from a slighter to a stronger enactment, thereby transitioning from a form tagged as subtle to a segment of reduced constructed action. In the first part of the enactment token (second still), the speaker only recruits facial expression to show the boy’s fear. Next, the speaker adds a backwards head and torso lean (third still), annotated as a reduced form of enactment.



Figure 115. CFRAPé L020 T12 (00:04:55.031 - 00:04:57.499)

Et euh il en fait il y a (un a un Monsieur Hibou qui sort comme ça et qui fait tomber le petit garçon).

And erm there's so there's a (Mister Owl who gets out like this and who makes the little boy fall).

These results are unexpected for at least two reasons. First, there is a clear discrepancy between the rare use of overt forms in Task 12 and the prominence of this type for some participants in Task 05. For instance, L027 exhibited an extensive use of overt constructed action in Task 05 but barely did so in Task 12. Second, this result clashes with well-known descriptions of storytelling as eliciting more liveliness, notably by means of visible bodily actions and constructed dialogue (e.g., Tannen, 1986; Stec et al., 2016). One would have therefore expected more reduced and overt forms to occur in this discourse type.

What could explain this result? Part of the answer could lie in the more controlled nature of the narrative retelling task compared to the conversation about language attitudes. The cognitive strain associated with the need to memorise an unfamiliar story combined with the performative dimension of retelling it in a monologue could have led the participants to feel less comfortable during that part of the recording session. Another possible way to account for the salience of subtle enactment forms could have to do with the extent to which informants related to the narrative and its characters. Task 05 led participants to retell personal anecdotes and elicited stance-taking, both of which have been associated with constructed dialogue (hence with the overt type). In comparison, in the storytelling task, participants retold a story from a picture book or an animated film, both without dialogues. Hence, because the elicited stories were less relatable and did not include dialogues, speakers may have favoured enacting physical actions while using voice to describe the stories.

As a summary, whereas some French speakers showed a clear preference for overt constructed action, by means of constructed dialogue, in the conversational task, most FRAPé corpus informants heavily relied on subtle forms in their narrations. The use of overt forms has been explained by participants' goal to involve addressees and take a stance in lively personal narratives (though two participants did use this strategy in Task 12 too). By contrast, French-speaking participants may have felt less comfortable adopting this strategy in Task 12 due to feeling less at ease in the more controlled setting of the narrative task and/or because of a lesser identification with the story topics. The remainder of this section now turns to the comparison of these results with those of other studies.

Perhaps because the concept of types of constructed action (and, to some extent, that of constructed action) emerged in the field of signed language linguistics, there is only one other study which reports on the distribution of types in a spoken language. Quinto-Pozos et al. (2022) report the following distribution of degrees for specific events selected in narrative retellings of silent films by American English speakers: 14%, 21%, and 65% for exaggerated, moderate, and slight forms of constructed action respectively. The authors also highlight inter-individual variation in the distribution of types across the twenty recorded participants: “*Only nine [...] gesturers (< 50%) produced exaggerated enactments. And, of that group, five individuals produced 83% of the [exaggerated] enactments, and one of the five produced more than double of the other four in that set*” (Quinto-Pozos et al., 2022, pp. 206-207).

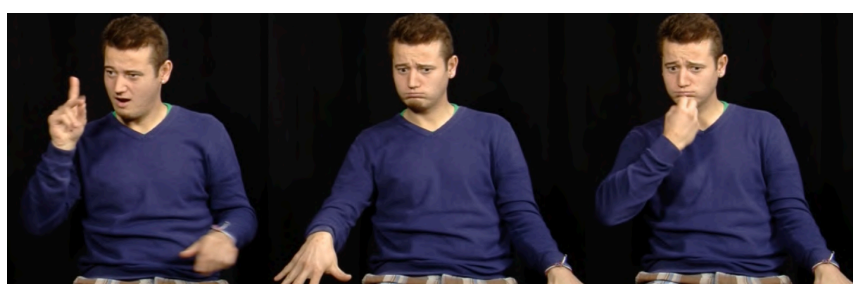
Before attempting a comparison, it is worth repeating that, in addition to different elicitation stimuli, the methodology used by Quinto-Pozos et al. to annotate degrees also largely differs from that of Cormier et al.’s which was adopted here. First, exaggerated, moderate, and slight forms overlap with our working definitions of overt, reduced, and subtle forms but do not match them perfectly. In Quinto-Pozos et al.’s study, degree was determined not based on the involvement of a number of articulators nor on the prominence of either the signer’s or the enacted referent’s perspective but rather by the intensity of enacting movement. Hence, “*multiple articulators could be actively representing a character’s actions, but in a highly reduced (subtle) manner*” (Quinto-Pozos et al., 2022, p.199). Second, in Quinto-Pozos et al.’s study, a single degree value was attributed to each token of constructed action and the reported frequencies correspond to the proportion of tokens rather than to the proportion of time spent on each type.

Despite a low degree of comparability, it is interesting to note that, like in the present study, the overt/exaggerated type was relatively infrequent in English and was produced by just a few speakers. This suggests that, like for Belgian French speakers in the narrative retelling task, English-speaking participants did not favour using highly prominent forms. However, reduced/moderate constructed action is reported to be more frequent in English than in the present study on French. It is likely that this discrepancy results from a combination of methodological differences between the two studies. As will be further explained when comparing LSFB and French (see Section 8.3.3), the typology used to study degrees of constructed action in Belgian French emphasises role or viewpoint prominence. In this framework, reduced and subtle constructed action are distinguished by which perspective – the enacting speaker’s or the enacted referent’s – is deemed more salient. However, whenever speech and enactment co-occur in a spoken language, the former may often appear more prominent because of its omnipresence, thereby leading to a frequent annotation decision to tag such instances as subtle ones. Annotations of reduced constructed action, found in a small portion of the enacting time in the FRAPé dataset, exhibited both descriptive speech and highly salient visible enactment. By contrast, without a similar focus on role, the method used in Quinto-Pozos et al.’s study may lead analysts to categorise some subtle cases as moderate and some reduced instances as exaggerated ones. Both approaches could

be included in future studies to maximise comparability and provide complementary perspectives about degrees of constructed action.

8.3.2 LSFB

In their conversations about language attitudes, LSFB Corpus informants recruited all three types, though they favoured reduced and subtle enactment over overt forms. The latter type was very often recruited to enact utterances. Several examples of constructed dialogue were provided in Section 8.2.1.5. In rarer cases, LSFB signers also recruited their hands to enact referents without using more conventionalised semiotics. In the second still of Figure 116, the LSFB signer spreads his hands wide apart and holds them still to enact the referent's shock.



LH		CA:STUPEFIED	CA:STUPEFIED
RH	DAD	CA:STUPEFIED	DE:THROAT.FEAR

Figure 116. CLSFB S060 T05 (00:02:55.484 - 00:02:57.156)

Your dad was stupefied.

Non-overt forms in LSFB signers' conversations were characterised by the co-occurrence of constructed action with more conventionalised meaning-making. Tokens of reduced enactment were instances in which the referent's perspective was deemed to be dominant compared to that of the enacting signer. Figure 117 provides another example of reduced constructed action. During the sixth and seventh stills (PT:PRO3 PT:PRO3), hearing parents of deaf children are enacted as briefly looking at their child to acknowledge their presence. During that token of enactment, the signer recruits gaze, facial expression, head, and torso to enact the parents while producing the lexical sign PT:PRO3 to indicate the patient of the looking action, namely the child. Due to the combined use of one lexical sign and of several enacting articulators, this token was annotated as an instance of 'reduced' enactment. By contrast, subtle instances exhibited a stronger 'narrator' perspective, often because fewer articulators were being recruited. Figure 118 illustrates the use of subtle constructed action in Task 05 of the LSFB Corpus. In the last still (PT:PRO3/LOOK), the signer enacts herself observing her sibling by slightly leaning her head and torso backwards. This token was annotated as a subtle instance of enactment: two articulators were recruited in a slight fashion.



LH
RH NINETY PERCENT HEARING LEAVE.SIDE
LEAVE.SIDE



LH
RH DEAF PT:PRO3 PT:PRO3 PT:PRO3

Figure 117. CLSFB S030 T05 (00:03:47.284 - 00:03:49.695)

Ninety percent of hearing (parents) neglect their deaf (child). They'll give them the occasional glance.



LH PT:PRO3 PT:PRO3 LS
RH SISTER MORE LS



LH
RH PT:PRO3 BROTHER LESS LESS PT:PRO3
LOOK

Figure 118. CLSFB S029 T05 (00:05:14.819 - 00:05:17.266)

I've observed that my sister is a faster and more confident signer than my brother.

Figure 119 shows how the degree of overtness may shift within one and the same sequence. In the fourth still, an individual whose signing is influenced by French mouthing is only enacted through a mouth action at first. This short stretch of

discourse was annotated as ‘subtle’ constructed action. In the continuation of this token of enactment, the signer then also recruits his head, gaze, and hands by exploiting the iconic potential of the lexical sign FRENCH.LS-ORAL. With the recruitment of more articulators, a referent-internal perspective was felt to be more prominent, resulting in this second sequence being annotated as ‘reduced’.



Figure 119. CLSFB S052 T05 (00:00:46.330 - 00:00:48.955)

Also, it’s not pleasant when someone mouths a lot and signs in a robotic manner.

In Task 12, LSFb signers exhibited a different distribution of types: overt constructed action was the preferred type, subsequently followed by reduced and subtle forms. This result dovetails nicely with reports of narratives leading to livelier depictions, including instances of full-body enactment and constructed dialogue. In the third still of Figure 120, the signer recruits his hands and arms to enact the dog shaking its paws to dry them. During that stretch of the utterance, the signer was considered to use all of his body to take on the dog’s perspective, leading to the annotation of that sequence as ‘overt’ enactment.

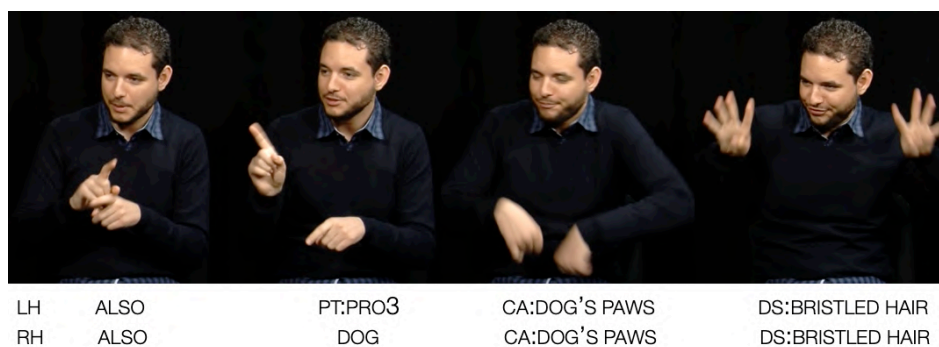


Figure 120. CLSFB S052 T12 (00:03:55.705 - 00:03:57.288)

The dog then shakes its fur to dry its hair.

To a lesser extent, LSFBS signers also recruited reduced and, more rarely, subtle forms of constructed action, in which enactment was contextualised and complemented by the enacting signer’s descriptive semiotics. Figure 121 exemplifies the use of the reduced type in a retelling of the Frog story. In the last still, the signer enacts the worried boy leaning his head and gazing downwards as he looks for the frog. Simultaneously, the signer repeatedly uses the lexical sign LOOK-FOR. Because the enacted referent’s perspective is vividly depicted, the character’s perspective was considered dominant.



LH	NAME	SHOUT	FROG	LOOK-FOR+
RH	NAME	SHOUT	FROG	LOOK-FOR+

Figure 121. CLSFB S097 T05 (00:05:20.338 - 00:05:22.637)

The boy shouts the frog’s name and scans the forest floor as he looks for it.

In Figure 122, the signer enacts the male protagonist in *Paperman* staying still as he holds a sheet of paper and a folder. While the second still shows a sequence of overt constructed action, the first and the last ones exemplify the use of the subtle type. The signer keeps on using descriptive semiotics while few articulators – the signer’s hand in the first still, a head movement and facial expression in the last one – are recruited for enactment.



LH	CA:HOLDING	CA:HOLDING	CA:HOLDING	ALSO
RH	STAY	CA:HOLDING	STATUE	ALSO TOUCH.HEART

Figure 122. CLSFB S059 T12 (00:04:47.236 - 00:04:49.608)

He stays still, keeps on holding the folder and sheet of paper, and is like love-struck.

In LSFBS, the difference between the distributions of types across tasks was shown to be statistically significant at both ends of the continuum, namely for overt and for subtle, but not for reduced forms. This indicates that different discourse types lead to a gradual shift towards different ends of the continuum in LSFBS, preserving a relative stability in the presence of the three types of constructed action.

In the following paragraphs, the discussion turns to the extent to which reported results compare with those of other studies on signed languages. As was the case for Belgian French, comparing the distribution of degrees in LSFb with results reported in studies on signed languages proves difficult because of methodological differences. Quinto-Pozos & Mehta (2010) annotated the overtness degree of enacting articulators in the retelling of the several anecdotes about a late member of the US deaf community. The retellings took place across contexts involving different audiences (children and adults) and levels of formality (informal and formal setting with adults as an audience). The authors found that, compared to the other settings, anecdotes addressed to children exhibited fewer cases of slightly enacting articulators. By contrast, adult-directed anecdotes in a formal setting contained the least amount of ‘exaggerated’ constructed action. While the anecdotes in Quinto-Pozos & Mehta’s study constitute narratives, the heightened use of exaggerated forms with children as against adults and the lesser use of these forms in formal adult-directed discourse might partly reflect the narrators’ intent to enhance liveliness in the stories addressed to children.⁴⁵ Though cross-study comparability is limited, this interpretation could mirror the increase in overt forms observed in LSFb signers’ narratives compared to their conversations.

Saunders (2016) reports on LSQ signers’ use of degrees of constructed action in the description of stories shown in short silent vignettes. For each story, two versions were shown to the participants, a ‘factual’ and an ‘emphatic’ one. The main difference between these versions is that the comedians who acted as characters in the vignettes adopted a more dynamic style in the emphatic versions. As was done here for LSFb, Saunders (2016) uses Cormier et al.’s annotation protocol to code for degrees. The results show that LSQ signers used a significantly higher proportion of overt forms to retell emphatic stimuli compared to the factual ones. Again, the ability to compare study results is limited by the differences in stimuli and tasks performed. However, one could conceive of emphatic stimuli as closer to the narrative retelling task found in the LSFb Corpus because of their more dynamic dimension. The distribution of degrees in LSFb would then partly parallel that of LSQ signers since overt constructed action appears to be more frequent in more narrative-oriented discourse types.

In ASL narrative retellings of specific events from silent films, Quinto-Pozos et al. (2022) report that moderate (reduced) forms made up 40% of tokens, while exaggerated (overt) and slight (subtle) constructed action respectively constituted 36% and 21% of analysed instances of enactment. As was the case with the comparison of Belgian French with English in that study, comparability is partly hindered due to methodological differences. While the proportion of subtle constructed action is similar, it appears that ASL signers recruited more moderate (reduced) forms than exaggerated (overt) ones whereas LSFb signers favoured overt over reduced enactment in their enacting time. In addition, the authors specify that while all ASL signers produced exaggerated forms, the retellings of four out of the ten participants accounted for the bulk (70%) of this type. This result differs

⁴⁵ Quinto-Pozos and Mehta (2010) point to a different potential factor, namely an attempt at clarity, which they liken to ‘teacher’ talk.

from that found for LSFb signers' narratives inasmuch as all LSFb Corpus frequently recruited overt forms.

Puupponen et al. (2022) report on the distribution of degrees across FinSL conversations and narratives. Though the authors also adopt the methodology proposed by Cormier et al., comparability with the results obtained for LSFb signers remains limited because of their measuring the proportion of types in the total discourse time rather than in the time spent on enactment. Puupponen et al. report a significantly different proportion of each type across discourse genres. This result might be partly expected with their methodology given that narrations and conversations differ in the extents to which they elicit constructed action. However, the authors also make two additional observations that can be compared with LSFb signers' use of different degrees of constructed action. First, overt constructed action was the most frequent type across FinSL conversations and narrations. Second, FinSL signers were more likely to use reduced and subtle forms in the conversational than in narrative task. While the second statement also applies to LSFb signers, the first one only does so partly. Indeed, overt constructed action was only the most frequent type in narratives. In conversations, this type was the least used one.

In summary, comparing the distribution of degrees of constructed action observed in LSFb with reports on other signed languages proves no easy task. Because studies differ in collection procedures, annotation, and measurement of overtness type, direct comparisons of reported proportions might not be interpretable. However, some consistency emerges across studies comparing types across different communicative situations. Like in LSFb narratives, those communicative situations which could be linked to an intent on the signer's behalf to be livelier and more strongly involve addressees appear to elicit more overt or exaggerated constructed action. This was the case for anecdotes that are aimed at children in a classroom setting as against adult-direct anecdotes in formal settings in ASL (Quinto-Pozos & Mehta 2010). A similar trend was observed in LSQ by Saunders (2016) where emphatic stimuli elicited significantly more overt enactment than less dynamic, factual ones. Finally, in FinSL, Puupponen et al. (2022) show that conversations are more likely to include subtle and reduced forms than stories (though overt constructed action remained the most frequent degree across discourse types).

8.3.3 LSFb-Belgian French comparison

When contrasting the preceding discussions, it becomes clear that LSFb signers and Belgian French speakers exhibit different distributions of types across both tasks. This difference between the two language groups was shown to be statistically significant in narratives. While LSFb signers exhibited a cline from overt to subtle forms, most French speakers turned mostly to subtle constructed action, with a marginal use of the other two degrees. This result is partly congruent with Quinto-Pozos et al.'s (2022) results inasmuch as ASL signers' narratives featured a higher proportion of exaggerated forms than English speakers' retellings. While 'overt' and 'exaggerated' constructed action are slightly different concepts,

Quinto-Pozos et al.'s account of this difference between ASL and English can be likened to the one observed in LSFb and Belgian French. Indeed, the authors notably explain this difference in the use of exaggerated forms by the fact that ASL narratives exhibited more instances of enactment without co-occurring lexis than the stories retold by English speakers. Crucially, such instances of enactment without lexis were coded as overt constructed action in the present study on LSFb and Belgian French.

The observed contrast in the use of types in LSFb and French can be accounted for by several factors influencing the criteria for role annotation, namely the co-occurrence patterns of enacting and non-enacting signing as well as role dominance when two roles, i.e., character and narrator, were identified. First, whether constructed action co-occurred with non-enacting signing determined whether a sequence was tagged as overt or non-overt (reduced or subtle). The higher proportion of overt forms in LSFb than in Belgian French results from the fact that signers readily produced full-body enactments whereas this strategy was rarer in Belgian French narratives (except for those few participants who frequently enacted utterances). The nature of the narrative task is one factor that can be invoked to account for this difference. Storytelling has been described as a genre in which languagers make their discourse livelier, appealing to imagery, to ensure involvement (Tannen, 2007). That LSFb signers should recruit more overt and reduced forms of enactment in stories than French speakers could be related to claims about the importance of storytelling in deaf signing communities compared to some speaking communities, like the Western ones (see Section 4.4.4). Hodge & Ferrara (2014) explain the pervasiveness of enactment in Auslan narratives by the fact that “*storytelling constitutes a conventional ‘script’ of expression for many Auslan signers across many communicative domains*” (p. 391). Hence, LSFb signers’ likely familiarity and skills with this discourse genre could have led them to recruit more enacting articulators as well as to more frequently include discourse sequences in which they only showed the story characters instead of telling about them.

An additional explanation for the higher use of full-body enactments in LSFb than in French has to do with the channels most frequently used by the participants to produce non-enacting languaging. Informants from both groups were shown to use their hands to enact story characters’ manual actions in Task 12 (see Section 7.3.1.5). Since LSFb signers heavily rely on their hands to produce non-enacting signing, the enactment of story characters’ manual actions leads to a lesser availability of their hands to produce more conventionalised signs such as fully-lexical or depictive signs. By contrast, enacting hand movements did not affect French speakers similarly because speech was the main channel they used for descriptive semiotics. However, because all French speakers pervasively used speech to describe the stories and few of them produced tokens of constructed dialogue, overt forms were rare in Task 12 of the FRAPé Corpus.

Second, the different distributions of non-overt degrees – reduced and subtle – have been determined by patterns of role dominance when the perspectives of the enacted referent and that of the enacting languager overlapped. Role dominance was

assessed using several criteria, including the number of enacting articulators as well as the extent to which enacting actions were perceived as ‘articulatorily’ foregrounded. As the articulatory indices discussed in Section 7.3.2 showed, LSFb signers drew on a higher average number of articulators than French speakers did in their narratives. This could have led to a more frequent impression of character perspective dominance in the LSFb Corpus narratives whereas narrator perspective remained pervasive in French speakers’ narrations. Hence, the larger share of tokens of constructed action with more enacting articulators in LSFb than in French partly explains the opposite trends in the distributions of reduced and subtle forms observed in the two language groups.

To conclude, several phenomena can shed light on the differences in the distributions of types of constructed action across the LSFb and FRAPé narratives. These are phenomena that directly impact the criteria used to determine roles and role dominance in the annotation scheme: the presence of non-enacting languaging and characteristics related to the use of enacting articulators. These were explained by a more customary storytelling culture in the LSFb community and by differences in how non-enacting and enacting discourse can combine depending on the nature of the referential target.

In the conversational task, LSFb signers flexibly used all degrees of constructed action, with a frequency cline from more subtle enactment to less overt forms. While little information could be retrieved for most Belgian French speakers, some of them appeared to favour overt constructed action over other degrees. Qualitative observations reported in the discussion sections devoted to each language can help account for the different pattern. It was shown that those French speakers who contributed most enacting time frequently discussed language attitudes by enacting utterances either denoting ways of speaking or ideological statements about language variation. These constructed dialogue sequences were systematically annotated as overt forms in the present study. When addressing language variation and attitudes, LSFb signers also used constructed dialogue to enact themselves or others reacting to diverse signing styles. In addition, LSFb signers often descriptively retold stories and commented on signing styles or attitudes while enacting their own reactions, showing themselves as pleased, entertained, bored, or annoyed with respect to varied types of signing as well as hypothetical or past interactions. How did signers enact diverse signing styles? They often recruited the iconic potential of the lexical LSFb sign glossed LS (Vandenitte, 2022b). Because LS retained more descriptive characteristics than more improvised enactments of manual actions, these sequences were annotated as reduced or subtle forms. Very interestingly, however, LSFb signers did not exemplify signing styles through constructed dialogue.⁴⁶

Hence, the following questions emerge: Why did LSFb signers recruit a wider array of strategies when French speakers invariably used constructed dialogue? Why did LSFb signers depict through LS rather than enacting utterances to depict signing

⁴⁶ The only exception consists in an LSFb signer enacting someone using ‘signed French’: PT:PRO1 ALLER A L-A MAISON, PT1 GO T-O T-H-E HOUSE).

styles and why did French speakers not similar modify lexical items like LSFb signers did? These differences, I argue, could be related to distinct norms about when and how to use constructed action. Two types of norms are subsequently considered here: some relate to the sociolinguistics of these communities while another one relates to the material combination of description and depiction in LSFb and French discourse.

While language variation is likely to play an important role in the discourse of both communities, its manifestations are different (see Section 2.3.6.3 about the sociolinguistic situation of deaf signing communities like the LSFb community). Therefore, both discourse about language variation and its social implications may differ too. This could affect community members' need or readiness both to address specific topics, e.g., a specific way of speaking/signing, and to rely on constructed action to refer to them.

In their conversations about language attitudes, LSFb signers discussed themes with particular relevance to the community (Kusters et al., 2022; Kusters & Lucas, 2022). They described the central role of understanding by referring to varied situations featuring successful communication or lack thereof (Friedner, 2016). Described interactions involved well-known profiles in the community, to which one has to adapt when producing or trying to understand LSFb use, e.g., community members with hearing/deaf parents, children, interpreters, elderly signers, and hearing learners. They also explained that some of these interactions featured contrasting attitudes such as overconfidence or linguistic insecurity. When discussing different signing styles, they described criteria for 'pleasant signing' in terms of clarity, liveliness, signing pace, the use of facial expression, or the degree of influence of spoken French.

Belgian French speakers also brought up topics that were relevant to the Belgian French-speaking community. They discussed and took a stance on spoken and written language change, diatopic variation (accents and regionalisms), size of lexical repertoire, language contact (lexical borrowing) with English. In their evaluation of these topics, they stressed the importance of mutual understanding and of adapting one's language practices to speakers and contexts but also discussed feelings of guilt and insecurity related to performing or being subjected to forms of language policing. Overall, French speakers assessed language practices in terms of how well they adhere to norms related to pronunciation, spelling, word choice, language register and morphosyntax.

One could ask whether discussed topics, as a partial reflection of the communities' sociolinguistic situations and language ideologies, could account for different ways of enacting speaking/signing styles, i.e., the use of enacted utterances in French and the enacting tailoring of LS in LSFb. Besides accents, French speakers notably used constructed dialogue featuring deviations from orthographic, lexical, and grammatical norms. By contrast, LSFb signers used LS to depict signing styles in terms of liveliness and clarity, notably by altering parameters related to the size of the signing space or handshape configurations. Perhaps the physically different nature of these topics influences how straightforward they are to exemplify either

through constructed dialogue, or by tailoring a readily available iconic lexical item. French speakers could have favoured constructed dialogue because this strategy provides an easy way to demonstrate what is considered as a deviation or a mistake. Notably, constructed dialogue can provide a long enough stretch of discourse to contextualise the part that is considered as erroneous, e.g, in a sentence deemed ungrammatical. LSFb signers' favouring of LS could result from its combining both descriptive and depictive qualities in a succinct way. Its depictive potential enables signers to show relevant dimensions of signing styles. While they could demonstrate these characteristics by means of constructed dialogue, LS might be a more suitable alternative. Not only does it not require providing an utterance to depict (which is not the aspect signers referred to and evaluated in their discussions), LS also constrains inferences on their intended meaning by conventionally specifying that they are referring to signing. Hence, differences in the aspects of languaging that mattered most to each group of languagers could at least partly explain their choice of enacting strategies and resulting degrees of enactment.

In addition to the nature of referential targets, different norms about how languaging styles are discussed in these communities could explain LSFb signers' and Belgian French speakers' decision to use constructed dialogue or iconic lexical items. For instance, one could ask to what extent sociolinguistic discourse should remain general or recruit specific examples in a given community. In the studied sub-corpora, depictions of languaging styles differed in how specific they were about enacted languagers: LSFb signers referred to general signing profiles with LS whereas French speakers used more specific examples by means of constructed dialogue, sometimes even naming enacted referents. Similar cultural accounts of differences in what and how languagers enact have been formulated for Auslan and Matukar Panau: Hodge et al. (2023) report that Auslan signers and Matukar Panau speakers enacted different types of actions. Auslan signers mostly enacted visible actions, less frequently enacting thoughts and, to some extent, utterances. Matukar Panau speakers frequently enacted thoughts and dialogues of story characters and more rarely physical actions. The authors account for this discrepancy by different cultural practices related to each community's social and sensory experiences as well as "*preferences for how signers and speakers of different languages and cultures [...] signal epistemic authority and other evaluations on self and others' utterances*" (p. 116). Future studies combining sociolinguistic and ethnographic approaches could shed more light about the role played by social norms in the expression of language ideologies (Hodge & Goico, 2022; Kusters & Hou, 2020).

After addressing referential and sociolinguistic causes, we now turn to another potential explanation for the different distributions of types. Our focus shifts to community norms about when and how depiction and description combine and integrate in LSFb and Belgian French. Discussing the integration patterns of these two semiotic modes, several authors have shown a negative association between the degree of expressivity of a depiction and its morphosyntactic integration (Dingemanse & Akita, 2017; Genetti, 2011; Park, 2020). The inverse relationship has been described by Dingemanse & Akita (2017) for ideophones. Reviewing studies on diverse languages and gathering empirical evidence from Japanese, they

show that less syntactically integrated ideophones are more likely to feature expressive characteristics, i.e., “*intonational*” and “*phonational foregrounding*” as well as “*expressive morphology*” (p. 504), e.g., lengthening or reduplicative morphology.⁴⁷ Because ideophones feature a depictive dimension, using them within a speech stream that otherwise mostly features descriptive meaning-making can be challenging. Dingemans & Akita argue that the observed inverse relation between expressiveness and syntactic integration can be seen as a trade-off to tackle this challenge (pp. 526-528):

These two methods place different requirements on the material use of speech: in description, discrete segments like phonemes and morphemes are combined, integrated and linearised into ordinary utterances; in depiction, speech is used in a more gradient way to suggest meaning by means of iconic form–meaning mappings. Yet both are inevitably part of the same single linearly unfolding speech stream, which leads to a challenge akin to the linearisation problem in psycholinguistics. [...] [W]ithin the confines of the modality of speech, the main way to differentiate depiction from description is to exploit the temporal and material properties of the speech stream. This is why depictions in speech often occur at utterance edge, clearly distinguished from the adjacent descriptive material.

In LSFb conversations, enactment and descriptive semiotics showed varied patterns of combination or lack thereof: constructed action could occur on its own, e.g. when depicting a referent’s manual actions. However, it was more regularly paired with descriptive meaning-making, as attested by the frequencies of reduced and subtle forms. In the specific case of iconic items like LS, both descriptive and depictive semiotics could also be strongly profiled in the same articulatory channel. This flexibility is congruent with several studies showing how different semiotics co-occur in signed languages. For instance, signed enactment is known to function as its own whole utterance or to single-handedly contribute core meanings when co-occurring with description (Ferrara & Halvorsen, 2017; Ferrara & Johnston, 2014; Hodge & Johnston, 2014; Jantunen, 2017; Johnston, 2019; Quinto-Pozos et al., 2022). By contrast, FRAPé Corpus informants seemed to have shown less flexibility in the integration of these two semiotic modes. French speakers continuously recruited their voice, mostly for descriptive meaning-making, even while enacting with other articulators. The main exception to this was when French speakers enacted utterances. Based on the studied corpus, constructed dialogue appears to have been an acceptable slot for vocal depictions to interrupt the stream of descriptive speech.

Differences between LSFb signers’ flexibility and French speakers’ tendency to either clearly favour description or only use depiction (in speech) may be interpreted as reflecting different norms for integrating the two modes. Whereas signers may more seamlessly integrate description and depiction, interactional contexts in which French speakers are comfortable interrupting the flow of descriptive speech for depiction to co-occur (like it does in LS for LSFb) may be rarer. There was, for instance, no occurrence of iconic lexical items (apart from rare hybrid quotes) being depictively used in the middle of an otherwise descriptive chunk of discourse. One such attempt would result in an abrupt shift towards the depictive mode, potentially slowing down the (descriptive) discourse pace to an

⁴⁷ Visible depictions were also shown to be more likely to co-occur with the expressive instances.

extent that might not fit French-speaking cultural standards.⁴⁸ Dingemanse (2014, p. 309) observes that cultural norms on the integration of different semiotics may account for such differences:

[T]he depictive use of speech, too, places requirements on conventions and common ground. An important requirement is people's readiness for this kind of appeal to the imagination. If there are no shared practices in place that make excursions into the depictive mode acceptable and expected, any such appeals will fall flat. There is some evidence that societies maintain different attitudes and language ideologies with regard to the value of depictive strategies in communication (Nuckolls 2004), so that for some, it may be more acceptable to use creative depiction than it is for others.

Whereas LSFb signers may appreciate (and expect) the frequent combination of description and depiction, French-speaking cultural norms likely place more emphasis on a different integration of semiotic modes. While constructed dialogue appears to be a slot in which depiction is sanctioned to take centre stage, uninterrupted descriptive speech seems to be a norm in most other contexts. Hence, French speakers might enchronically avoid deviating from that norm for social accountability reasons.

In the discussion of degrees of constructed action, LSFb and Belgian French different storytelling cultures as well as referential targets featured in the elicitation materials, e.g., story characters' manual actions that could be straightforwardly enacted, were used to explain the observed distribution of degrees in the narrative retelling task. More specifically, it was argued that these factors impact both criteria that were used to determine roles and role dominance, namely the articulatory index and the extent to which enacting and non-enacting signing co-occur. As for the conversational task, the predominance of overt enactment forms for some French speakers was explained by their frequent use of constructed dialogue to enact speaking styles, language attitudes, as well as reactions both to ways of speaking and to language ideologies. LSFb signers exhibited a similar use of constructed dialogue to illustrate attitudes and reactions to attitudes or signing styles. However, most enacting time in LSFb conversations was devoted to subtle and reduced enactment. These forms were characteristically found when LSFb signers concomitantly described and enacted their reactions and attitudes or when they depicted signing styles by manipulating the iconic potential of the lexical sign LS, a strategy for which no counterpart was found in the FRAPé Corpus. Differences in relevant sociolinguistic topics and how they were expressed in the two language groups were shown to partly explain observed differences. Another potential factor was identified in different expectations related to the incursion and integration of depiction in LSFb and Belgian French discourse.

8.4 Limitations and suggestions

In this section, I address methodological shortcomings of the study in light of the criteria discussed in Section 5.2. The collected corpus consists in semi-guided

⁴⁸ Duration and pace are also mentioned as potentially foregrounding depiction in Dingemanse and Akita (2017) and Ferrara and Halvorsen (2017).

dyadic interactions recorded in a laboratory setting in front of a moderator. As a consequence, the analysed data may not be fully representative of language users' natural use of constructed action in diverse settings involving, e.g., multiparty interactions, different degrees of formality and audiences, and varying interactional goals (Quinto-Pozos & Mehta, 2010; Shaw, 2019). In what follows, more specific limitations of the study are discussed.

8.4.1 Sample diversity

A first limitation of this study lies in the profile of the LSFB signers whose constructed action practices were analysed. Most of them were lifelong signers exposed to LSFB from birth ('native' signers in the LSFB Corpus acquisition categories). However, because of the interrupted transmission patterns of deaf signed languages like LSFB described in Section 2.4.2, signers with this acquisition profile are a minority within these communities. Because hearing learners of a signed language have been shown to struggle using constructed action (Gulamani et al., 2020), it is worth asking whether diverse acquisition histories across members of a signing community result in different uses of enactment (Puupponen et al., 2024). Therefore, additional research including signers with more diverse language backgrounds is warranted.

8.4.2 Selected tasks and elicitation materials

Another limitation of this study lies in the distinction made between the two tasks selected in the LSFB and FRAPé corpora. Task 12 can be safely defined as a narrative task. Informants retold two possible stories: *Frog, Where Are You?* and *Paperman*. Task 05, by contrast, has been defined as a conversational task in which participants are asked to discuss their language attitudes. These conversations were prompted by questions such as 'What do you think constitutes good LSFB/French?', 'What makes you feel drawn to certain ways of signing/speaking?', or 'What do you think of certain varieties?'. While this task indeed led to more dialogic exchanges (e.g., more changes in turn-taking), it may well be partly described as narrative too. Indeed, participants often justified their stances by providing examples drawn from their own experiences. These justifications sometimes took the form of short personal stories (see also Puupponen et al., 2022). It is therefore questionable whether the two selected tasks may be fully representative of distinct discourse genres, as both featured narrations.

Another limitation could lie in the homogeneity of narrative practices in Task 12. Conversational partners each retold a different story (*Paperman* or *Frog, Where Are You?*). The grouping of these two different stimuli under Task 12 may have led to a reduced comparability across participants' stories, as the different plots and nature of the stimuli (picture book or animated film) could have affected the frequency and forms of constructed action (Ferrara, 2012; Puupponen & Kanto, submitted).

8.4.3 Identifying enactment

Another potential caveat of the study is that, if French speakers do exhibit schematic enactment forms, their inclusion in the annotation procedure has an effect on how the study results can be interpreted. These schematic forms may occur with fewer or no other enacting articulators (as tokens of iconic lexical signs with a strong descriptive profile) and therefore make French speakers' uses of other articulators look less frequent than they really are. It is also likely that LSFb signers may also exhibit some conventionalisation for enactment forms beyond manual actions like LS. If future investigations do identify such schematic forms, devising new comparative concepts whereby these forms are acknowledged as somewhat more similar to iconic lexical signs may help redress potential misinterpretations. While future research should be cautious to consider different sites of conventionality for regular form-meaning pairings, adopting a bottom-up approach focusing on specific actions avoids the pitfall of essentialising distinctions between signers and speakers' practices based on modality and redresses the idea that speakers' enacting behaviours are purely improvised. On the contrary, each community has room for conventionalisation of specific 'action domains - articulator(s)' pairings depending on their own experiences of seriously performing these actions and (non-seriously) showing them. In addition, it should be clear that languagers may not necessarily opt for a schematised type, provided that type exists, when they intend to denote an action. Some questions for future research include: What factors account for opting for a more strongly depictive or a more conventionalised form when both exist? And does (LSFB) signers' higher preference for depiction mean that they depict actions more frequently, and that these enacted actions may therefore more often find their way to more schematised form-meaning pairings?

8.4.4 Measuring frequency of constructed action

The frequency of constructed action was only measured as the proportion of time spent on performing enactment. In other studies, the number of tokens are measured. It might be fruitful for future investigations to include both these measures and compare their respective insights. This may be particularly relevant to comparisons of signed and spoken languages. On the one hand, like in the narrative task, signers tend to perform overt tokens of constructed action. These tokens, because of their stronger depictive profile and due to the recruitment of more bodily articulators, are likely to last longer than other degrees of constructed action. On the other hand, qualitative observation of tokens of constructed dialogue indicates that enacted utterances last longer in Belgian French than in LSFb, which may also make their contribution to the proportion of time spent on enacting referents larger than enactments of other types of actions. Hence, a clearer understanding of how frequent enactment is could be reached by taking both types of measures into account.

8.4.5 Measuring contribution of articulators to constructed action

The opposite issue is found in measures of articulator contribution, where the activation of an articulator, regardless of how long it is enacting, has often been measured. In very short tokens of constructed action, most of the articulators may simultaneously enact. In longer stretches of enactment, however, enacting articulators may change over time, with some articulators being active only for a short amount of time. Using the proportion of time spent on using a specific articulator as a complementary measure could therefore also provide insightful information (see, e.g., Saunders & Parisot, 2023). Yet another issue, already raised in the discussion of articulator contribution to enactment, is that frequency measures only provide limited information. A better understanding of how articulators are used would further our understanding of how language users deploy their body and/or voice to enact referents (Vandenitte, 2022a; Saunders & Parisot, 2023). This may include what kinds of movements are being performed, e.g., Puupponen's (2018) typology of head and torso movements. Another point of interest could be the kinematics of constructed action (Jantunen et al., 2020).

In parallel to how articulators are used for enactment, what is needed is a better understanding of what they are used for. Concretely, this could be done by categorising different types of actions that are enacted. A traditional distinction is made between the enactment of languaging and non-languaging actions. However, alternative, or more complex distinctions could be relevant, e.g., distinguishing between interactive and non-interactive actions or between outward physical actions (actively acting upon one's environment like holding and throwing) and inward action (thinking, feeling). Hodge et al. (2023), for instance, distinguish between (physical) 'actions', 'dialogue', and 'thought'. In a very large and/or in a thematically homogeneous corpus, one could even think of devising action-specific categorisations. This could be particularly useful to see which regularities or differences emerge when language users represent a similar type of action.

8.4.6 Identifying viewpoint prominence and degrees of constructed action

8.4.6.1 Degrees of constructed action as a measure of viewpoint expression and/or prominence?

Cormier et al.'s (2015) typology is partly based on the co-occurrence of enactment and of non-enacting material. Identifying these two dimensions enables the researcher to tag whether only one perspective is profiled, that of the enacted referent, or whether both 'narrator' and 'character' perspectives emerge in the enactment sequence. However, this binary approach rests on somewhat questionable premises. First, the enacting language user's perspective may also be salient in overt enactment. For instance, when a language user depicts a referent in a pejorative light, that language user's stance is implicitly expressed. Second, enactment is not the only strategy which may profile a referent-internal perspective: viewpoint can rather be seen as cued by a constellation of indices (Dancygier & Vandelanotte,

2016, 2017; Frederiksen, 2017; Janzen, 2004; Vandelanotte, 2017). While offering a procedure that can be ‘easily’ operationalised in both signed and spoken languages, this binary approach may not exhaustively account for the complexity of viewpoint expression when languagers enact.

Another issue is that, if researchers are more interested in how intensely an enactment is performed rather than in whether it combines with more conventionalised meaning-making, using only perceived intensity might be more fruitful.⁴⁹ This is the methodological choice made by Quinto-Pozos & Mehta (2010) and Quinto-Pozos et al. (2023) who use perceived kinematic prominence to assess whether a token of constructed action is slight, moderate, or exaggerated. While all approaches are likely to contribute complementary insights and could both be used in future studies, it might be important to tease apart what kinds of research questions different operationalisations may answer.

8.4.6.2 Enactment prominence with respect to what?

We now turn to considerations of what it means for enactment to be prominent. In the typology which emerges from viewpoint/role combinations, Cormier et al. (2015) distinguish between instances in which character viewpoint is ‘fully’ prominent (overt forms), more prominent (reduced enactment), and those in which a narrator viewpoint is more strongly profiled (subtle enactment). Cormier et al. acknowledge that these types are best seen as on a continuum. However, they also provide criteria to distinguish between these different types which include the number of enacting articulators, their intensity, and ‘native’ user impressions. Future studies seeking to apply a typology of degrees of constructed action may want to fully consider the local factors which might come into play for enactment to be more or less prominent. In what follows, a deeper dive into the issues one may run into when trying to annotate for types is offered by subsequently discussing how character and narrator roles may vary in prominence.

A first consideration one might want to take note of is the extent to which different actions are bound to be enacted in more overt ways than others. Some actions require specific articulators, which have different kinematic affordances (Puupponen 2019). One may stretch one’s hands and arms wide apart, move one’s head and torso to enact desperately calling for someone’s attention, but smaller and fewer articulators will do for enactments of other ‘actions’, like being sad. The first token of enactment would probably be annotated as overt while the second could be annotated as reduced or subtle in its likely co-occurrence with descriptive semiotics. While differences between actions that are enacted may seem trivial, their influence on the results may not have been extensively considered. Perhaps comparisons of degrees of enactment should be performed for categories of enacted actions, rather than for constructed action overall. In the same vein, different enacting articulators may have intrinsically different potentials for being prominent. Hands and arms, because of their length and high degree of mobility, might be more

⁴⁹ The articulatory index, despite limitations addressed earlier, constitutes an interesting variable for such approaches: it is less subjective, and it is a continuous variable. Therefore, it eliminates the need for separate categories.

salient than an enacting use of face. Note, however, that articulator size may not be the only factor playing out. The interactive functions of different articulators may impact how prominent their use feels. The prime example for this may be eye gaze. In cases of uncertainty, gaze aversion was often felt to tip the balance in favour of a reduced rather than subtle interpretation. This is because gaze was felt to be a strong cue that a language user is attending to the interaction with their interlocutor and therefore that they are still making their perspective explicit.

When co-occurring with more conventionalised semiotics ('narration' in Cormier et al.'s terminology), role salience is necessarily also a function of the perceived prominence of concurrent descriptive meaning-making. Suprasegmental characteristics are likely to influence how prominent 'narration' is perceived to be. While speaking, one may increase one's volume. While signing, one may sign faster and/or in a larger signing space. These aspects may contribute to the foregrounding of a narrator role. Compare, for instance, a speaker combining constructed action while normally delivering more conventionalised semiotics with a speaker whispering as they enact. Another dimension which may affect the prominence of a narrator role is the information it delivers. In a stretch of non-overt constructed action where only head and gaze are recruited and co-occur with many different lexical items, narrator role may be more prominent, making the enacted referent's perspective more peripheral. By contrast, other non-overt instances could consist in the similar use of few enacting articulators but with a lighter contribution of 'narration'. LSFBS signers sometimes repeatedly used a lexical sign while enacting its meaning. For instance, they repeated the sign LOOK-FOR while recruiting eye gaze and head to enact the boy scanning the forest floor to look for the frog. In such cases, description appears to play a more peripheral role. Dingemanse & Akita (2017) show that the degree of expressivity of ideophones is inversely correlated with their degree of morphosyntactic integration. They explain this relationship between the two variables by a 'linearisation' issue when depictive and descriptive semiotics are combined in the same channel (see Section 8.3.3). One could ask to what extent the combination of description and enactment, even with separate channels or articulators, may have a similar effect.

Considering how prominence of character and narrator viewpoints is relative and influenced by local pressures, one might want to ask to what extent they differently apply to Belgian French and LSFBS, and by extension, to other spoken and signed languages. Different types of constructed action were relatively balanced in LSFBS, with some variation as a function of text type. By contrast, apart from enacted utterances which were annotated as 'overt', a large proportion of the time French speakers devoted to enactment fell under the 'subtle' category. Why was French speakers' own perspective so salient while they were simultaneously narrating and enacting? One possibility lies in the material difference between descriptive signing and speech which may lead to a different attentional treatment. The former is visible and is attached to other articulators which may be enacting. It may be that conventionalised signs are more easily perceived as part of the moving bodily ensemble, despite different semiotic characteristics. By contrast, descriptive speech relies on the aural-oral modality and might be perceived as more detached and prominent with respect to concurrent enacting bodily movements. For example, in

a signed language like LSFB, the simultaneous use of gaze, face, head, and torso for enactment combined with manual description is more likely to lead the annotator to tag the sequence as reduced rather than as subtle enactment. Analogue cases in a spoken language like Belgian French did not systematically trigger the same interpretation. As a result, when narration and enactment co-occur, narration may more easily get assigned a main-track status in a spoken than in a signed language.

Relating to the linearisation issue, one might also ask whether visible depiction through, e.g., face, head and gaze, affects descriptive signing and descriptive speech in similar ways. These considerations may explain some researchers' unease when contemplating the application of Cormier et al.'s criteria to spoken language data. Saunders & Parisot (2023, p. 257) comment on the difficulty of using the typology of degrees of constructed action for Quebec French:

[T]here is also evidence of partial dominant enactment in Quebec French. However, although the literature has provided details on how the two different partial forms of enactment may be distinguished for signed discourse, none has been suggested for spoken language data.

Methodological choices ultimately hinge on research questions. If one wants to compare the intensity of speakers and signers' enacting movements, Quinto-Pozos et al.'s (2023) approach might be more fitting. It could also be complemented by articulatory index measures. If one is interested in comparing perspective dominance, Cormier et al.'s (2015) criteria might be a good start, bearing in mind the highlighted limitations.

9. Conclusion

In this thesis, LSFB signers' and Belgian French speakers' use of constructed action has been compared in a corpus of conversations and narrative retellings. Three aspects of enactment practices were studied: the frequency of constructed action, the articulators recruited to enact referents, and the degrees of constructed action.

The analysis of the carried-out annotations confirmed several claims previously made for other pairs of signing and speaking communities. LSFB signers spent a significantly larger share of their discourse time on enacting referents than Belgian French speakers did. In addition, informants from both communities exhibited substantial individual differences. Finally, languagers in both groups used constructed action more frequently in the narrative retellings than in the conversations about language attitudes (with a potential interaction of language group and task), in which some French speakers rarely relied on the strategy, if at all. The resulting picture is that if the frequency of constructed action is conceived of as a continuum, both ends are indeed occupied by members of different communities. Those French speakers who barely enacted referents lie at one end whereas LSFB signers who enacted the most occupy the other one. Around the middle of this continuum, one finds those French-speaking participants who enacted the most and LSFB signers who enacted the least. In some cases, these two profiles of languagers resemble each other in the frequency of constructed action more than they do with the extremes of the continuum.

The study results also corroborate previous studies in the contribution of different articulators to enactment. LSFB signers recruited a higher number of enacting articulators than French speakers on average. LSFB signers' articulator index was also shown to be higher in narrative retellings than in their conversations. This result can be explained by the higher recruitment of facial expression, torso, and of hands and arms in LSFB narrations than in conversations. A similar effect of task could not be ascertained in Belgian French due to the paucity of tokens identified for several FRAPé Corpus informants in Task 05.

Overall, the two language groups were similar in their frequent use of enacting head movements and of gaze as well as in the relative marginality of constructed dialogue (save for a minority of French-speaking participants). However, though enacting head movements and gaze actions were prominent in both groups, LSFB signers appear to have exhibited a more frequent use of these articulators and less inter-individual variation in their recruitment. Beyond the use of voice by French speakers, two striking differences reported in recent studies were also identified here: First, French speakers recruit their hands to enact referents more often than LSFB signers do, particularly in conversations. Second, LSFB signers exhibit a much higher use of facial expression than French speakers. Exploring the coordination patterns of these articulators in clustering analyses showed that LSFB signers' constructed action practices often recruited the combined uses of head, gaze, face, and, to a more limited extent, torso. French speakers showed more heterogeneous patterns, but most exhibited a positive association with head

movements and the use of hands and arms for enactment. A few French-speaking participants behaved in a very different way by mostly relying on constructed dialogue and/or voice to enact referents. In some of the performed analyses, this difference even led to heatmap dendrograms with a dedicated cluster for these behaviours.

While ‘indicating’ or ‘placing’ behaviours were not the focus of the present study, qualitative observation suggests that both language groups recruited this strategy. While an investigation of the frequency of these behaviours is left for future research, instances in which languagers clearly used articulators for exclusively indicating purposes, e.g., reorienting or leaning one’s head or torso not to enact a referent’s performance of these physical behaviours but rather to associate that referent with a location in the signing space, appeared to be rare.

Finally, significant differences in the distribution of the degrees of constructed action were found both between LSFb signers’ conversations and stories as well as between LSFb signers’ and Belgian French speakers’ narratives. LSFb signers exhibited opposite tendencies in the two tasks. Whereas a cline from more frequent subtle to rarer overt instances of constructed action was observed in Task 05, the reverse was true for Task 12, where overt enactment forms were prominent. The latter pattern also contrasted with Belgian French speakers’ high reliance on subtle enactment in their narratives. Information on the distribution of degrees of constructed action in Task 05 of the FRAPé Corpus is limited because the strategy was rare or absent in several informants’ conversations. However, descriptive statistics did show that those participants who frequently enacted referents in this task often enacted utterances which were tagged as overt enactment forms. This result, while it cannot be generalised across French speakers, also contrasts with LSFb signers’ use of different degrees of enactment in their conversations. Interestingly, while all three degrees of constructed action were well represented in LSFb, French speakers’ tokens of enactment tended to be located either at the ‘overt’ end or at the ‘subtle’ extreme of the continuum.

The reported results were interpreted in light of a broad causal framework by trying to consider diverse explanations for the observed patterns. Some of the reported results were attributed to microgenetic factors shaping the languaging practices of LSFb signers and Belgian French speakers. For instance, similarities in the hierarchy of recruited non-manual articulators, e.g., a higher use of head and gaze than of torso movements, could be attributed to a pressure towards minimal effort. Some differences between the two groups were also explained by microgenetic considerations. The sensory experiences of these two languaging communities have resulted in strategies capitalising on the semiotic affordances of articulators readily available in interactions between languagers of these communities (partly leading to the current ‘synchronies’ of LSFb and Belgian French as systems). For instance, LSFb signers’ high reliance on their hands and arms to describe meanings may explain their lower recruitment of these articulators to enact referents’ manual actions. Similarly, French speakers’ rarer enactment of referents’ facial expressions could result from the fact that their mouth, which is part of their face, is often recruited to produce conventionalised speech.

This clash between the use of different semiotics within articulators was also invoked to account for some of the differences in the distributions of degrees of constructed action. While signers' hands and arms and speakers' vocal tracts are heavily recruited in their languaging practices, non-languaging actions performed with these articulators are very different. What this means is that the enactment of a 'grasping' or 'taking' action impacts signers' and speakers' degrees of constructed action differently: signers are likely to halt the production of descriptive meaning-making and recruit their hands to enact (though such forms may exhibit some degree of schematicity and conventionalisation). Consequently, reference to manual actions is more likely to elicit 'overt' enactment forms in LSFb. By contrast, French speakers' use of their hands and arms to enact the same action may have little impact on their speech stream, leaving them free to continue describing meanings. Enactments of manual actions are therefore likely to result in subtle or reduced enactment in French. In a similar vein, microgenetic factors were also invoked as a potential factor involved in the perception of viewpoint dominance – which directly affected the annotation of degrees – in LSFb and Belgian French. As explained earlier in this summary, instances in which French speakers' simultaneous combination of enactment and descriptive speech tagged as 'reduced' were rare. In other words, when these strategies were concomitantly used, the enacting speakers' perspective appeared to be more dominant. One possible explanation for the rarity of reduced enactment in French lies in the fact that speech, because it is partly perceived through the aural-oral modality, is processed as more salient than visible enactment. By contrast, in LSFb, signers' hands are fully visible articulators like bodily articulators which contribute to constructed action.

In addition to microgenetic explanations, another causal frame which has been argued to account for observed patterns is enchrony. First, local and highly contextual considerations influence what an enactment looks or sounds like. This is a seemingly trivial fact but it may not often be acknowledged in the literature. Because enactment is probably the most isomorphic type of visual iconicity, its form is directly influenced by its referential target, i.e., the behaviour that is being enacted. One of the consequences is that no account of the form of enactment can be complete without a good understanding of what languagers are enacting. The relevance of this point was shown, e.g., in Task 05: When discussing language attitudes, LSFb signers and Belgian French speakers referred to different criteria and sometimes used enactment to refer to them. Because the denoted actions were different, the forms of enactment were too, which likely impacted articulator use and the distribution of degrees of constructed action.

Beyond more local considerations, one of the driving factors of several of the reported results is that the appreciation and expectation for the use of depiction in general and of enactment in particular varies across communities and across different contexts. Hence, different socio-cultural norms may impact when and how languagers enact referents. This understanding has guided the explanation of why the frequency of enactment is higher in LSFb than in Belgian French. The use of enactment is known to be appreciated in signing communities which have been described as having strong 'face-to-face' and 'story-oriented' cultures (as also

observed in the topics of the LSFB Corpus informants' exchanges in Task 05). The same principle was also used to account for the higher proportion of time spent on constructed action in narrative retellings than in conversations across both communities. In a signed language like LSFB, enactment may be even more expected in stories. In Belgian French, storytelling constitutes one of the discourse contexts in which participants found it more appropriate to enact referents, even for those participants who did not recruit the strategy or rarely did so in conversations. In addition, since it can be expected that different individuals within a community vary in their observance of social norms, individual styles and local choices to use enactment seem to be congruent with the inter-individual variation reported in both communities.

Again, the more prominent cultural drive to enact was invoked to interpret the more frequent use of some articulators, e.g., head and torso, eye gaze, and facial expression, in LSFB than in French (together with the subsequent higher articulatory index). If speakers exhibit less of an 'enacting' culture, this may not only lead to a lower frequency of the strategy but also to lighter forms of enactment involving fewer articulators. The same causal account applies to LSFB signers' higher use of some articulators in Task 12 than in Task 05 since storytelling is known to sanction liveliness and forms enhancing involvement.

Furthermore, it was also proposed that cultural norms about the use of enactment may be reflected more generally in whether the strategy occurs independently or co-occurs with other semiotics like (largely) descriptive signing or speech, thereby affecting the distribution of degrees of constructed action. This social accountability has been used to explain the effect of task on the distribution of degrees of constructed action in LSFB. The goal of delivering a lively narrative, as is culturally expected, may have led signers to favour more prominent and overt forms of constructed action in Task 12. Belgian French speakers, however, may feel less comfortable with excursions into a fully enacting mode. Overt performances were largely restricted to when speakers enacted utterances. French speakers otherwise almost never interrupted the flow of descriptive speech when enacting visible actions, explaining the high reliance on non-overt forms of constructed action in French.

The relative importance of enactment in LSFB or Belgian French culture cannot be separated from the social-cultural histories of these communities. As cultural norms evolve over time, diachrony is one of the factors involved in these observed patterns. In addition to different degrees of appreciation of enactment, qualitative observation in the present study has also pointed to potential candidates for diachronic evolution (together with all causal frames which are at play over time) of specific enactment forms towards entrenchment and conventionalisation. It was argued that future studies of these phenomena should focus on specific actions and/or local social actions performed with enactment. Because these claims are largely conjectural, an empirical study focusing on how languages denote certain actions with specific interactional goals is warranted.

The present study has attempted to integrate different causal accounts of why and how constructed action is used in two communities across different discourse contexts. The observed variation was analysed and interpreted by considering diverse factors while seeking to avoid sweeping generalisations. It is believed that future cross-linguistic comparisons, notably of signing and speaking communities, would benefit from cross-fertilisation of diverse research traditions, which often focus on specific (combinations of) causal frames. A more informed understanding of constructed action requires investigating what is referred to, and for what types of social actions. It can also be supported by a refined understanding of how (enacted) action is processed, i.e., performed, conceptualised, and stored in memory. Combining these local insights with research traditions looking at broader timescales, notably to study language change, may shed light on why and when cultural practices of enactment emerge as well as improve our understanding of how specific items or usage-events may schematise and conventionalise. Contributions to this research endeavour would involve bringing together the expertise from diverse and complementary fields, such as conversation analysis, anthropology, gesture research, linguistics, kinematics, and cognitive psychology among others.

Bibliography

- Aarons, D., & Morgan, R. Z. (2003). Classifier Predicates and the Creation of Multiple Perspectives in South African Sign Language. *Sign Language Studies*, 3(2), 125–156. <https://doi.org/10.1353/sls.2003.0001>
- Adone, D. (2012). 36. Language emergence and creolisation. In R. Pfau, M. Steinbach, & B. Woll (Eds.), *Sign Language* (pp. 862–889). De Gruyter Mouton. <https://doi.org/10.1515/9783110261325.862>
- Agha, A. (2005). Voice, Footing, Enregisterment. *Journal of Linguistic Anthropology*, 15(1), 38–59. <https://doi.org/10.1525/jlin.2005.15.1.38>
- Ajello, R., Mazzoni, L., & Nicolai, F. (2001). Linguistic gestures: Mouthing in Italian sign language (LIS). In P. Boyes Braem & R. Sutton-Spence (Eds.), *The Hands Are the Head of the Mouth: The Mouth as Articulator in Sign Languages* (pp. 231–246). Signum-Verlag.
- Andrén, M. (2014). Multimodal constructions in children: Is the headshake part of language? *Gesture*, 14(2), 141–170. <https://doi.org/10.1075/gest.14.2.02and>
- Andries, F., Brône, G., & Vermeerbergen, M. (2022). Stance in Flemish Sign Language: A multimodal and polysemiotic phenomenon. In A. Lepeut & I. Beukeleers (Eds.), *The Semiotic Diversity of Language: The Case of Signed Languages* (Vol. 36, pp. 16–45). John Benjamins Publishing Company.
- Archakis, A., & Papazachariou, D. (2008). Prosodic cues of identity construction: Intensity in Greek young women’s conversational narratives. *Journal of Sociolinguistics*, 12(5), 627–647. <https://doi.org/10.1111/j.1467-9841.2008.00385.x>
- Ariel, M. (1985). *Givenness marking*. Tel-Aviv University.
- Arita, Y. (2018). Enactment in Japanese talk-in-interaction: Interrelationship between there-and-then and here-and-now sequential organizations. *Journal of Pragmatics*, 123, 78–101. <https://doi.org/10.1016/j.pragma.2017.10.016>
- Arnold, B. M. (2024). *Investigating question-asking in Norwegian Sign Language: A multi-method approach*. [Unpublished doctoral dissertation]. NTNU-Norwegian University of Science and Technology.
- Bahan, B. J., & Suppalla, S. J. (1995). Line segmentation and narrative structure: A study of eye gaze behavior in American Sign Language. In K. Emmorey & J. S. Reilly (Eds.), *Language, Gesture, and Space* (pp. 171–191). Lawrence Erlbaum.
- Bally, C. (1912). Le style indirect libre en français moderne I. *Germanisch-Romanische Monatsschrift*, 6, 549-556;597-606.
- Barth, D., Evans, N., Arka, W., Bergqvist, H., Forker, D., Gipper, S., Hodge, G., Kashima, E., Kasuga, Y., Kawakami, C., Kimoto, Y., Knuchel, D., Kogura, N., Kurabe, K., Mansfield, J., Narrog, H., Eka Pratiwi, D. P., van Putten, S., Senge, C., & Tykhostup, O. (2021). Language vs. Individuals in cross-linguistic corpus typology. In G. Haig, S. Schnell, & F. Seifart (Eds.), *Doing corpus-based typology with spoken language data: State of the art* (pp. 179–232). University of Hawai’i Press.

- Bavelas, J. B., Chovil, N., Coates, L., & Roe, L. (1995). Gestures Specialized for Dialogue. *Personality and Social Psychology Bulletin*, 21(4), 394–405. <https://doi.org/10.1177/0146167295214010>
- Bavelas, J. B., Chovil, N., Lawrie, D. A., & Wade, A. (1992). Interactive gestures. *Discourse Processes*, 15(4), 469–489. <https://doi.org/10.1080/01638539209544823>
- Bavelas, J., Gerwing, J., & Healing, S. (2014a). Effect of Dialogue on Demonstrations: Direct Quotations, Facial Portrayals, Hand Gestures, and Figurative References. *Discourse Processes*, 51(8), 619–655. <https://doi.org/10.1080/0163853X.2014.883730>
- Bavelas, J., Gerwing, J., & Healing, S. (2014b). Including facial gestures in gesture-speech ensembles. In M. Seyfeddinipur & M. Gullberg (Eds.), *From Gesture in Conversation to Visible Action as Utterance* (pp. 15–34). John Benjamins Publishing Company. <https://doi.org/10.1075/z.188.02bav>
- Bellugi, U., & Fischer, S. (1972). A comparison of sign language and spoken language. *Cognition*, 1(2–3), 173–200. [https://doi.org/10.1016/0010-0277\(72\)90018-2](https://doi.org/10.1016/0010-0277(72)90018-2)
- Benveniste, É. (1966). *Problèmes de linguistique générale* (Vol. 1). Gallimard.
- Benveniste, É. (1974). *Problèmes de linguistique générale* (Vol. 2). Gallimard.
- Besnier, N. (1991). Reported speech and affect on Nukulaelae atoll. In J. Hill & J. Irvine (Eds.), *Responsibility and evidence in oral discourse* (pp. 161–181). Cambridge University Press.
- Beukeleers, I., & Vermeerbergen, M. (2022). Show Me What You've B/Seen: A Brief History of Depiction. *Frontiers in Psychology*, 13, 808814. <https://doi.org/10.3389/fpsyg.2022.808814>
- Bisnath, F., Lutzenberger, H., Jaraisy, M., Omardeen, R., & Schembri, A. (2023, October 5). Deconstructing notions of morphological “complexity”: Lessons from creoles and sign languages. <https://doi.org/10.31234/osf.io/gbeqj>
- Blackwell, N. L., Perlman, M., & Fox Tree, J. E. (2015). Quotation as a multimodal construction. *Journal of Pragmatics*, 81, 1–7. <https://doi.org/10.1016/j.pragma.2015.03.004>
- Bloomfield, L. (1933). *Language*. Holt, Rinehart & Winston.
- Blythe, J. (2009). Prosodic person reference in Murriny Patha reported interaction. In D. Barth-Weingarten, N. Dehé, & A. Wichmann (Eds.), *Where prosody meets pragmatics* (Vol. 8, pp. 21–52). BRILL.
- Blythe, J., Mardigan, K. C., Perdjert, M. E., & Stoakes, H. (2016). Pointing Out Directions in Murrinhpatha. *Open Linguistics*, 2(1). <https://doi.org/10.1515/opli-2016-0007>
- Bolden, G. (2004). The quote and beyond: Defining boundaries of reported speech in conversational Russian. *Journal of Pragmatics*, 36(6), 1071–1118. <https://doi.org/10.1016/j.pragma.2003.10.015>
- Boyes-Braem, P., & Sutton-Spence, R. (Eds.). (2001). *The hands are the head of the mouth: The mouth as articulator in sign languages*. Signum.
- Bressem, J., Ladewig, S. H., & Müller, C. (2018). Ways of expressing action in multimodal narrations – the semiotic complexity of character viewpoint depictions. In A. Hübl & M. Steinbach (Eds.), *Linguistic Foundations of*

- Narration in Spoken and Sign Languages* (Vol. 247, pp. 223–250). John Benjamins Publishing Company. <https://doi.org/10.1075/la.247.10bre>
- Brown, A. (2008). Gesture viewpoint in Japanese and English: Cross-linguistic interactions between two languages in one speaker. *Gesture*, 8(2), 256–276. <https://doi.org/10.1075/gest.8.2.08bro>
- Brown, L., & Prieto, P. (2021). Gesture and Prosody in Multimodal Communication. In M. Haugh, D. Z. Kádár, & M. Terkourafi (Eds.), *The Cambridge Handbook of Sociopragmatics* (1st ed., pp. 430–453). Cambridge University Press. <https://doi.org/10.1017/9781108954105.023>
- Bybee, J. (2006). From Usage to Grammar: The Mind’s Response to Repetition. *Language*, 82(4), 711–733. <https://doi.org/10.1353/lan.2006.0186>
- Bybee, J. (2007). *Frequency of Use and the Organization of Language* (1st ed.). Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780195301571.001.0001>
- Cameron, R. (1998). A variable syntax of speech, gesture, and sound effect: Direct quotations in Spanish. *Language Variation and Change*, 10(1), 43–83. <https://doi.org/10.1017/S0954394500001216>
- Cantarutti, M. N. (2021). Co-animation and the Multimodal Management of Contextualisation Problems when Jointly ‘Doing Being’ Others. *Social Interaction. Video-Based Studies of Human Sociality*, 4(4). <https://doi.org/10.7146/si.v4i4.128166>
- Cantin, Y., & Encrevé, F. (2022). Perspectives: On the Historicalness of Sign Languages. *Frontiers in Communication*, 7, 801862. <https://doi.org/10.3389/fcomm.2022.801862>
- Chafe, W. (1976). Givenness, contrastiveness, definiteness, subjects, topics, and point of view. In C. N. Li (Ed.), *Subject and Topic* (pp. 25–55). Academic Press.
- Chang, D. H. F., & Troje, N. F. (2008). Perception of animacy and direction from local biological motion signals. *Journal of Vision*, 8(5), 3. <https://doi.org/10.1167/8.5.3>
- Charrad, M., Ghazzali, N., Boiteau, V., & Niknafs, A. (2014). NbClust: An R Package for Determining the Relevant Number of Clusters in a Data Set. *Journal of Statistical Software*, 61(6), 1–36. <https://doi.org/10.18637/jss.v061.i06>
- Chomsky, N. (1957). *Syntactic Structures* (2nd ed.). Mouton de Gruyter.
- Cienki, A. (2017). Utterance Construction Grammar (UCxG) and the variable multimodality of constructions. *Linguistics Vanguard*, 3(s1), 20160048. <https://doi.org/10.1515/lingvan-2016-0048>
- Clark, H. H. (1996). *Using Language* (1st ed.). Cambridge University Press.
- Clark, H. H. (2003). Pointing and placing. In S. Kita (Ed.), *Pointing: Where language, culture, and cognition meet* (pp. 243–268). Lawrence Erlbaum Associates.
- Clark, H. H. (2016). Depicting as a method of communication. *Psychological Review*, 123(3), 324–347. <https://doi.org/10.1037/rev0000026>
- Clark, H. H., & Gerrig, R. J. (1990). Quotations as Demonstrations. *Language*, 66(4), 764–805.

- Clift, R. (2006). Indexing stance: Reported speech as an interactional evidential. *Journal of Sociolinguistics*, 10(5), 569–595. <https://doi.org/10.1111/j.1467-9841.2006.00296.x>
- Clift, R. (2007). Getting there first: Non-narrative reported speech in interaction. In E. Holt & R. Clift (Eds.), *Reporting Talk* (1st ed., pp. 120–149). Cambridge University Press. <https://doi.org/10.1017/CBO9780511486654.006>
- Cogill-Koez, D. (2000). Signed language classifier predicates: Linguistic structures or schematic visual representation? *Sign Language & Linguistics*, 3(2), 153–207. <https://doi.org/10.1075/sll.3.2.03cog>
- Cooperrider, K. (2011). *Reference in action: Links between pointing and language*. University of California.
- Cooperrider, K., Slotta, J., & Núñez, R. (2018). The Preference for Pointing With the Hand Is Not Universal. *Cognitive Science*, 42(4), 1375–1390. <https://doi.org/10.1111/cogs.12585>
- Corballis, M. C. (2002). *From hand to mouth: The origins of language*. Princeton University Press.
- Cormier, K., Quinto-Pozos, D., Sevcikova, Z., & Schembri, A. (2012). Lexicalisation and de-lexicalisation processes in sign languages: Comparing depicting constructions and viewpoint gestures. *Language & Communication*, 32(4), 329–348. <https://doi.org/10.1016/j.langcom.2012.09.004>
- Cormier, K., Schembri, A., & Woll, B. (2010). Diversity across sign languages and spoken languages: Implications for language universals. *Lingua*, 120(12), 2664–2667. <https://doi.org/10.1016/j.lingua.2010.03.016>
- Cormier, K., Smith, S., & Sevcikova-Sehyr, Z. (2015). Rethinking constructed action. *Sign Language & Linguistics*, 18(2), 167–204. <https://doi.org/10.1075/sll.18.2.01cor>
- Cormier, K., Smith, S., & Zwets, M. (2013). Framing constructed action in British Sign Language narratives. *Journal of Pragmatics*, 55, 119–139. <https://doi.org/10.1016/j.pragma.2013.06.002>
- Coulmas, F. (1986). Reported speech: Some general issues. In F. Coulmas (Ed.), *Direct and Indirect Speech* (Vol. 31, pp. 1–28). Mouton de Gruyter. <https://doi.org/10.1515/9783110871968.1>
- Coursil, J. (2000). *La fonction muette du langage: Essai de linguistique générale contemporaine*. Ibis rouge.
- Crasborn, O., & Sloetjes, H. (2008). Enhanced ELAN functionality for sign language corpora. In O. Crasborn, T. Hanke, E. Efthimiou, I. Zwitterlood, & E. Thoutenhooft (Eds.), *Proceedings of 3rd Workshop on the Representation and Processing of Sign Languages*. European Language Resources Association (ELRA).
- Croft, W. (1990). *Typology and universals*. Cambridge University Press.
- Croft, W. (2001). *Radical construction grammar: Syntactic theory in typological perspective*. Oxford University Press.
- Cuxac, C. (2000). *La langue des signes Française (LSF): Les voies de l'iconicité*. Ophrys, Gap.
- Cuxac, C. (2007). Une manière de reformuler en langue des signes française. *La linguistique*, 43(1), 117–128. <https://doi.org/10.3917/ling.431.0117>

- Dancygier, B. (2012). Negation, stance, and subjectivity. In B. Dancygier & E. Sweetser (Eds.), *Viewpoint in Language: A Multimodal Perspective* (pp. 69–96). Cambridge University Press.
- Dancygier, B., & Vandelanotte, L. (2016). Discourse viewpoint as network. In B. Dancygier, W. Lu, & A. Verhagen (Eds.), *Viewpoint and the Fabric of Meaning* (pp. 13–40). De Gruyter. <https://doi.org/10.1515/9783110365467-003>
- Dancygier, B., & Vandelanotte, L. (2017). Viewpoint phenomena in multimodal communication. *Cognitive Linguistics*, 28(3), 371–380. <https://doi.org/10.1515/cog-2017-0075>
- D’Arcy, A. (2015). Quotation and Advances in Understanding Syntactic Systems. *Annual Review of Linguistics*, 1(1), 43–61. <https://doi.org/10.1146/annurev-linguist-030514-125220>
- Davidson, D. (1979). Quotation. *Theory and Decision*, 11(1), 27–40. <https://doi.org/10.1007/BF00126690>
- De Brabanter, P. (2010). Uttering Sentences Made Up of Words and Gestures. In B. Soria & E. Romero (Eds.), *Explicit Communication* (pp. 199–216). Palgrave Macmillan UK. https://doi.org/10.1057/9780230292352_13
- De Brabanter, P. (2017). Why Quotation Is Not a Semantic Phenomenon, and Why It Calls for a Pragmatic Theory. In I. Depraetere & R. Salkie (Eds.), *Semantics and Pragmatics: Drawing a Line* (Vol. 11, pp. 227–254). Springer International Publishing. https://doi.org/10.1007/978-3-319-32247-6_14
- De Jorio, A. (1832). *La mimica degli antichi investigata nel gestire napoletano*. Stamperia e cartiera del Fibreno.
- de Vos, C., & Nyst, V. (2018). The Time Depth and Typology of Rural Sign Languages. *Sign Language Studies*, 18(4), 477–487. <https://doi.org/10.1353/sls.2018.0013>
- Debras, C. (2015). Stance-Taking Functions of Multimodal Constructed Dialogue during Spoken Interaction. In G. Ferré & M. Tutton (Eds.), *Proceedings of the Gesture and Speech in Interaction 4 Conference* (pp. 95–100). <https://hal.parisnanterre.fr/hal-01640486>
- Debras, C., & Cienki, A. (2012). Some Uses of Head Tilts and Shoulder Shrugs during Human Interaction, and Their Relation to Stancetaking. *2012 International Conference on Privacy, Security, Risk and Trust and 2012 International Conference on Social Computing*, 932–937. <https://doi.org/10.1109/SocialCom-PASSAT.2012.136>
- Debreslioska, S., Özyürek, A., Gullberg, M., & Perniss, P. (2013). Gestural Viewpoint Signals Referent Accessibility. *Discourse Processes*, 50(7), 431–456. <https://doi.org/10.1080/0163853X.2013.824286>
- DeMatteo, A. (1976). Analogue Grammar in the American Sign Language. In H. Thompson, K. Whistler, V. Edge, J. J. Jaeger, R. Javkin, M. Petruck, C. Smeall, & R. D. Van Valin (Eds.), *Proceedings of the 2nd Annual Meeting of the Berkeley Linguistics Society* (pp. 149–157). Berkeley Linguistics Society.
- D’Errico, F., & Poggi, I. (2016). “The Bitter Laughter”. When Parody Is a Moral and Affective Priming in Political Persuasion. *Frontiers in Psychology*, 7. <https://doi.org/10.3389/fpsyg.2016.01144>

- Dingemanse, M. (2014). Making new ideophones in Siwu: Creative depiction in conversation. *Pragmatics and Society*, 5(3), 384–405. <https://doi.org/10.1075/ps.5.3.04din>
- Dingemanse, M. (2015). Ideophones and reduplication: Depiction, description, and the interpretation of repeated talk in discourse. *Studies in Language*, 39(4), 946–970. <https://doi.org/10.1075/sl.39.4.05din>
- Dingemanse, M. (2018). Redrawing the margins of language: Lessons from research on ideophones. *Glossa: A Journal of General Linguistics*, 3(1). <https://doi.org/10.5334/gjgl.444>
- Dingemanse, M. (2019). Chapter 1. ‘Ideophone’ as a comparative concept. In K. Akita & P. Pardeshi (Eds.), *Iconicity in Language and Literature* (Vol. 16, pp. 13–33). John Benjamins Publishing Company. <https://doi.org/10.1075/ill.16.02din>
- Dingemanse, M. (2024). Interjections at the Heart of Language. *Annual Review of Linguistics*, 10(1), 257–277. <https://doi.org/10.1146/annurev-linguistics-031422-124743>
- Dingemanse, M., & Akita, K. (2017). An inverse relation between expressiveness and grammatical integration: On the morphosyntactic typology of ideophones, with special reference to Japanese. *Journal of Linguistics*, 53(3), 501–532. <https://doi.org/10.1017/S002222671600030X>
- Du Bois, J. W. (2007). The stance triangle. In R. Englebretson (Ed.), *Pragmatics & Beyond New Series* (Vol. 164, pp. 139–182). John Benjamins Publishing Company. <https://doi.org/10.1075/pbns.164.07du>
- Dudis, P. (2004). Body partitioning and real-space blends. *Cognitive Linguistics*, 15(2), 223–238. <https://doi.org/10.1515/cogl.2004.009>
- Earis, H., & Cormier, K. (2013). Point of view in British Sign Language and spoken English narrative discourse: The example of “The Tortoise and the Hare”. *Language and Cognition*, 5(4), 313–343. <https://doi.org/10.1515/langcog-2013-0021>
- Emmorey, K. (1999). Do signers gesture? In L. Messing & R. Campbell (Eds.), *Gesture, Speech, and Sign* (pp. 133–158). Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780198524519.003.0008>
- Enfield, N. J. (2009). *The Anatomy of Meaning: Speech, Gesture, and Composite Utterances*. Cambridge University Press. <https://doi.org/10.1017/CBO9780511576737>
- Enfield, N. J. (2014). *Natural causes of language: Frames, biases, and cultural transmission*. Language Science Press. <http://langsci-press.org/catalog/book/48>
- Engberg-Pedersen, E. (1993). *Space in Danish sign language: The semantics and morphosyntax of the use of space in a visual language*. Signum.
- Engberg-Pedersen, E. (2015). Perspective in signed discourse: The privileged status of the signer’s locus and gaze. *Open Linguistics*, 1, 411–431. <https://doi.org/10.1515/opli-2015-0010>
- Evans, N. (2012). Some problems in the typology of quotation: A canonical approach. In D. Brown, M. Chumakina, & G. G. Corbett (Eds.), *Canonical Morphology and Syntax* (pp. 66–98). Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780199604326.003.0004>

- Evans, N. (2020). Introduction: Why the comparability problem is central in typology. *Linguistic Typology*, 24(3), 417–425. <https://doi.org/10.1515/lingty-2020-2055>
- Evans, N., & Levinson, S. C. (2009). The myth of language universals: Language diversity and its importance for cognitive science. *Behavioral and Brain Sciences*, 32(5), 429–448. <https://doi.org/10.1017/S0140525X0999094X>
- Fenlon, J., Cormier, K., & Brentari, D. (2017). The phonology of sign languages. In S. J. Hannahs & A. Bosch (Eds.), *The Routledge Handbook of Phonological Theory* (1st ed., pp. 453–475). Routledge. <https://api.semanticscholar.org/CorpusID:262653909>
- Fenlon, J., & Hochgesang, J. A. (2022a). Introduction to Signed Language Corpora. In J. Fenlon & J. A. Hochgesang (Eds.), *Sign Language Corpora*. Gallaudet University Press.
- Fenlon, J., & Hochgesang, J. A. (Eds.). (2022b). *Signed Language Corpora*. Gallaudet University Press.
- Fenlon, J., Schembri, A., & Cormier, K. (2018). Modification of indicating verbs in British Sign Language: A corpus-based study. *Language*, 94(1), 84–118. <https://doi.org/10.1353/lan.2018.0002>
- Fenlon, J., Schembri, A., Johnston, T., & Cormier, K. (2015). Documentary and Corpus Approaches to Sign Language Research. In E. Orfanidou, B. Woll, & G. Morgan (Eds.), *Research Methods in Sign Language Studies: A Practical Guide* (1st ed., pp. 156–172). Wiley Blackwell. <https://doi.org/10.1002/9781118346013.ch10>
- Fenlon, J., & Wilkinson, E. (2015). Sign languages in the world. In A. C. Schembri & C. Lucas (Eds.), *Sociolinguistics and Deaf Communities* (pp. 5–28). Cambridge University Press. <https://doi.org/10.1017/CBO9781107280298.002>
- Ferrara, L. (2019). Coordinating signs and eye gaze in the depiction of directions and spatial scenes by fluent and L2 signers of Norwegian Sign Language. *Spatial Cognition & Computation*, 19(3), 220–251. <https://doi.org/10.1080/13875868.2019.1572151>
- Ferrara, L. (2020). Some interactional functions of finger pointing in signed language conversations. *Glossa: A Journal of General Linguistics*, 5(1). <https://doi.org/10.5334/gjgl.993>
- Ferrara, L., Anible, B., Hodge, G., Jantunen, T., Leeson, L., Mesch, J., & Nilsson, A.-L. (2022). A cross-linguistic comparison of reference across five signed languages. *Linguistic Typology*, 0(0). <https://doi.org/10.1515/lingty-2021-0057>
- Ferrara, L., & Halvorsen, R. P. (2017). Depicting and describing meanings with iconic signs in Norwegian Sign Language. *Gesture*, 16(3), 371–395. <https://doi.org/10.1075/gest.00001.fer>
- Ferrara, L., & Hodge, G. (2018). Language as Description, Indication, and Depiction. *Frontiers in Psychology*, 9, 716. <https://doi.org/10.3389/fpsyg.2018.00716>
- Ferrara, L., & Johnston, T. (2014). Elaborating Who's What: A Study of Constructed Action and Clause Structure in Auslan (Australian Sign Language). *Australian Journal of Linguistics*, 34(2), 193–215. <https://doi.org/10.1080/07268602.2014.887405>

- Ferrara, L. N. (2012). *The grammar of depiction: Exploring gesture and language in Australian Sign Language (Auslan)*. Macquarie University.
- Ferrara, L., & Ringsø, T. (2019). Spatial Vantage Points in Norwegian Sign Language. *Open Linguistics*, 5(1), 583–600. <https://doi.org/10.1515/opli-2019-0032>
- Fine, J. C. (2019). ‘They just had such a sweet way of speaking’: Constructed voices and prosodic styles in Kodiak Alutiiq. *Language & Communication*, 67, 1–15. <https://doi.org/10.1016/j.langcom.2018.12.002>
- Finkbeiner, R. (2016). Bla, bla, bla in German. A pejorative construction? In R. Finkbeiner, J. Meibauer, & H. Wiese (Eds.), *Linguistik Aktuell/Linguistics Today* (Vol. 228, pp. 269–300). John Benjamins Publishing Company. <https://doi.org/10.1075/la.228.12fm>
- Fischer, R., & Kollien, S. (2016). Pejorative aspects attributed to hearing people in signed constructed dialogue. In R. Finkbeiner, J. Meibauer, & H. Wiese (Eds.), *Linguistik Aktuell/Linguistics Today* (Vol. 228, pp. 325–354). John Benjamins Publishing Company. <https://doi.org/10.1075/la.228.14fis>
- Fox, B. A., & Robles, J. (2010). It’s like mmm: Enactments with it’s like. *Discourse Studies*, 12(6), 715–738. <https://doi.org/10.1177/1461445610381862>
- Frederiksen, A. T. (2017). Separating viewpoint from mode of representation in iconic co-speech gestures: Insights from Danish narratives. *Language and Cognition*, 9(4), 677–708. <https://doi.org/10.1017/langcog.2016.35>
- Frederiksen, A. T., & Mayberry, R. I. (2016). Who’s on First? Investigating the referential hierarchy in simple native ASL narratives. *Lingua*, 180, 49–68. <https://doi.org/10.1016/j.lingua.2016.03.007>
- Friedman, L. A. (1975). Space, Time, and Person Reference in American Sign Language. *Language*, 51(4), 940. <https://doi.org/10.2307/412702>
- Friedner, M. (2016). Understanding and Not-Understanding: What Do Epistemologies and Ontologies Do in Deaf Worlds? *Sign Language Studies*, 16(2), 184–203. <https://doi.org/10.1353/sls.2016.0001>
- Frishberg, N. (1975). Arbitrariness and Iconicity: Historical Change in American Sign Language. *Language*, 51(3), 696. <https://doi.org/10.2307/412894>
- Garcia, B., & Sallandre, M.-A. (2020). Contribution of the Semiological Approach to Deixis–Anaphora in Sign Language: The Key Role of Eye-Gaze. *Frontiers in Psychology*, 11, 583763. <https://doi.org/10.3389/fpsyg.2020.583763>
- Genetti, C. (2011). Direct speech reports and the cline of prosodic integration in Dolakha Newar. *Himalayan Linguistics*, 10(1). <https://doi.org/10.5070/H910123568>
- Ghesquière, M., & Meurant, L. (2018). *École et surdit : Une exp rience d’enseignement bilingue et inclusif*. Presses universitaires de Namur.
- Giv n, T. (2001). *Syntax: An Introduction* (Vol. 1). John Benjamins Publishing Company.
- Goffman, E. (1981). *Forms of Talk*. University of Pennsylvania Press.
- Golato, A. (2000). An innovative German quotative for reporting on embodied actions: Und ich so/und er so ‘and i’m like/and he’s like’. *Journal of Pragmatics*, 32(1), 29–54. [https://doi.org/10.1016/S0378-2166\(99\)00030-2](https://doi.org/10.1016/S0378-2166(99)00030-2)

- Goldin-Meadow, S., & Brentari, D. (2017). Gesture, sign, and language: The coming of age of sign language and gesture studies. *Behavioral and Brain Sciences*, 40, e46. <https://doi.org/10.1017/S0140525X15001247>
- Goldstein, D. M., Hall, K., & Ingram, M. B. (2020). Trump's Comedic Gestures as Political Weapon. In J. McIntosh & N. Mendoza-Denton (Eds.), *Language in the Trump Era* (1st ed., pp. 97–123). Cambridge University Press. <https://doi.org/10.1017/9781108887410.007>
- Goodwin, C. (2000). Action and embodiment within situated human interaction. *Journal of Pragmatics*, 32(10), 1489–1522. [https://doi.org/10.1016/S0378-2166\(99\)00096-X](https://doi.org/10.1016/S0378-2166(99)00096-X)
- Goodwin, C. (2007). Participation, stance and affect in the organization of activities. *Discourse & Society*, 18(1), 53–73. <https://doi.org/10.1177/0957926507069457>
- Gray, B., & Biber, D. (2014). Stance markers. In K. Aijmer & C. Rühlemann (Eds.), *Corpus Pragmatics* (1st ed., pp. 219–248). Cambridge University Press. <https://doi.org/10.1017/CBO9781139057493.012>
- Guardiola, M., & Bertrand, R. (2013). Interactional convergence in conversational storytelling: When reported speech is a cue of alignment and/or affiliation. *Frontiers in Psychology*, 4. <https://doi.org/10.3389/fpsyg.2013.00705>
- Gulamani, S., Marshall, C., & Morgan, G. (2020). The challenges of viewpoint-taking when learning a sign language: Data from the 'frog story' in British Sign Language. *Second Language Research*, 38(1), 1–33. <https://doi.org/10.1177/0267658320906855>
- Gullberg, M. (1998). *Gesture as a communication strategy in second language discourse: A study of learners of French and Swedish*. Lund University Press.
- Günthner, S. (1999). Polyphony and the 'layering of voices' in reported dialogues: An analysis of the use of prosodic devices in everyday reported speech. *Journal of Pragmatics*, 31(5), 685–708. [https://doi.org/10.1016/S0378-2166\(98\)00093-9](https://doi.org/10.1016/S0378-2166(98)00093-9)
- Günthner, S. (2007). Chapter 14. The construction of otherness in reported dialogues as a resource for identity work. In P. Auer (Ed.), *Style and Social Identities* (pp. 419–444). Mouton de Gruyter. <https://doi.org/10.1515/9783110198508.3.419>
- Haiman, J. (1994). Ritualization and the development of language. In W. Pagliuca (Ed.), *Current Issues in Linguistic Theory* (Vol. 109, pp. 3–28). John Benjamins Publishing Company. <https://doi.org/10.1075/cilt.109.07hai>
- Hall, K., Goldstein, D. M., & Ingram, M. B. (2016). The hands of Donald Trump: Entertainment, gesture, spectacle. *HAU: Journal of Ethnographic Theory*, 6(2), 71–100. <https://doi.org/10.14318/hau6.2.009>
- Harrison, S., & Ladewig, S. H. (2021). Recurrent gestures throughout bodies, languages, and cultural practices. *Gesture*, 20(2), 153–179. <https://doi.org/10.1075/gest.21014.har>
- Haspelmath, M. (2007). Pre-established categories don't exist: Consequences for language description and typology. *Linguistic Typology*, 11(1), 119–132. <https://doi.org/10.1515/LINGTY.2007.011>
- Herrmann, A., & Pendzich, N.-K. (2018). Between narrator and protagonist in fables of German Sign Language. In A. Hübl & M. Steinbach (Eds.),

- Linguistic Foundations of Narration in Spoken and Sign Languages* (Vol. 247, pp. 275–308). John Benjamins Publishing Company. <https://doi.org/10.1075/la.247.12her>
- Herrmann, A., & Steinbach, M. (2012). Quotation in sign languages: A visible context shift. In I. Buchstaller & I. van Alphen (Eds.), *Quotatives: Cross-linguistic and cross-disciplinary perspectives* (Vol. 15, pp. 203–228). John Benjamins Publishing Company. <https://doi.org/10.1075/celcr.15.12her>
- Hodge, G., Barth, D., & Reed, L. W. (2023). Auslan and Matukar Panau: A modality-agnostic look at quotatives. In D. Barth & N. Evans (Eds.), *Social Cognition Parallax Interview Corpus (SCOPIC)* (pp. 85–125).
- Hodge, G., & Cormier, K. (2019). Reported speech as enactment. *Linguistic Typology*, 23(1), 185–196. <https://doi.org/10.1515/lingty-2019-0008>
- Hodge, G., & Crasborn, O. (2022). Good practices in annotation. In J. Fenlon & J. A. Hochgesang (Eds.), *Signed language corpora* (Gallaudet University Press, pp. 46–89).
- Hodge, G., & Ferrara, L. (2014). Showing the story: Enactment as performance in Auslan narratives. In L. Gawne & J. Vaughan (Eds.), *Selected Papers from the 44th Conference of the Australian Linguistic Society, 2013* (pp. 372–397). University of Melbourne. <http://hdl.handle.net/11343/40973>
- Hodge, G., Ferrara, L., & Anible, B. D. (2019a). The semiotic diversity of doing reference in a deaf signed language. *Journal of Pragmatics*, 143, 33–53. <https://doi.org/10.1016/j.pragma.2019.01.025>
- Hodge, G., & Ferrara, L. (2022). Iconicity as Multimodal, Polysemiotic, and Plurifunctional. *Frontiers in Psychology*, 13, 808896. <https://doi.org/10.3389/fpsyg.2022.808896>
- Hodge, G., & Goico, S. A. (2022). Natural and elicited: Sign language corpus linguistics and linguistic ethnography as complementary methodologies. *Journal of Sociolinguistics*, 26(1), 126–136. <https://doi.org/10.1111/josl.12523>
- Hodge, G., & Goswell, D. (2021). Deaf signing diversity and signed language translations. *Applied Linguistics Review*, 0(0), 000010151520200034. <https://doi.org/10.1515/applirev-2020-0034>
- Hodge, G., & Johnston, T. (2014). Points, Depictions, Gestures and Enactment: Partly Lexical and Non-Lexical Signs as Core Elements of Single Clause-Like Units in Auslan (Australian Sign Language). *Australian Journal of Linguistics*, 34(2), 262–291. <https://doi.org/10.1080/07268602.2014.887408>
- Hodge, G., Sekine, K., Schembri, A., & Johnston, T. (2019b). Comparing signers and speakers: Building a directly comparable corpus of Auslan and Australian English. *Corpora*, 14(1), 63–76. <https://doi.org/10.3366/cor.2019.0161>
- Hogue, R. L. (2011). *OOs and AAs: Mouth Gestures as Ideophones in American Sign Language*. Gallaudet University.
- Holt, E. (1996). Reporting on Talk: The Use of Direct Reported Speech in Conversation. *Research on Language & Social Interaction*, 29(3), 219–245. https://doi.org/10.1207/s15327973rlsi2903_2

- Holt, E. (2000). Reporting and Reacting: Concurrent Responses to Reported Speech. *Research on Language & Social Interaction*, 33(4), 425–454. https://doi.org/10.1207/S15327973RLSI3304_04
- Hou, L., Lepic, R., & Wilkinson, E. (2020). Working with ASL Internet Data. *Sign Language Studies*, 21(1), 32–67. <https://doi.org/10.1353/sls.2020.0028>
- Ivanova, O. (2013). Constructing social norms: The pragmatics of multimodal quotation boundaries in spoken Swahili. *Journal of Pragmatics*, 57, 82–99. <https://doi.org/10.1016/j.pragma.2013.07.011>
- Jantunen, T. (2013). Ellipsis in Finnish Sign Language. *Nordic Journal of Linguistics*, 36(3), 303–332. <https://doi.org/10.1017/S0332586513000292>
- Jantunen, T. (2017). Constructed Action, the Clause and the Nature of Syntax in Finnish Sign Language. *Open Linguistics*, 3(1). <https://doi.org/10.1515/opli-2017-0004>
- Jantunen, T. (2022). What is “showing” in language? *Finnish Journal of Linguistics*, 35, 169–184.
- Jantunen, T., De Weerd, D., Burger, B., & Puupponen, A. (2020). The more you move, the more action you construct: A motion capture study on head and upper-torso movements in constructed action in Finnish Sign Language narratives. *Gesture*, 19(1), 72–96. <https://doi.org/10.1075/gest.19042.jan>
- Jantunen, T., Puupponen, A., & Burger, B. (2020). What Comes First: Combining Motion Capture and Eye Tracking Data to Study the Order of Articulators in Constructed Action in Sign Language Narrative. In N. Calzolari, F. Béchet, P. Blache, K. Choukri, C. Cieri, T. Declerck, S. Goggi, H. Isahara, B. Maegaard, J. Mariani, H. Mazo, A. Moreno, J. Odijk, & S. Piperidis (Eds.), *Proceedings of the Twelfth Language Resources and Evaluation Conference* (pp. 6003–6007). European Language Resources Association.
- Janzen, T. (2004). Space rotation, perspective shift, and verb morphology in ASL. *Cognitive Linguistics*, 15(2). <https://doi.org/10.1515/cogl.2004.006>
- Janzen, T. (2012a). Lexicalization and grammaticalization. In R. Pfau, M. Steinbach, & B. Woll (Eds.), *Sign Language: An International Handbook* (Vol. 37, pp. 816–840). De Gruyter Mouton. <https://www.degruyter.com/document/doi/10.1515/9783110261325.816/html>
- Janzen, T. (2012b). Two ways of conceptualizing space: Motivating the use of static and rotated vantage point space in ASL discourse. In B. Dancygier & E. Sweetser (Eds.), *Viewpoint in Language* (1st ed., pp. 156–174). Cambridge University Press. <https://doi.org/10.1017/CBO9781139084727.012>
- Janzen, T. (2022). Embodied cognition: ASL signers’ and English speakers’ use of viewpoint space. *Languages in Contrast*, 22(2), 227–258. <https://doi.org/10.1075/lic.00020.jan>
- Jaraisy, M., & Stamp, R. (2022). The Vulnerability of Emerging Sign Languages: (E)merging Sign Languages? *Languages*, 7(1), 49. <https://doi.org/10.3390/languages7010049>
- Jehoul, A., Brône, G., & Feyaerts, K. (2017). The shrug as marker of obviousness: Corpus evidence from Dutch face-to-face conversations. *Linguistics Vanguard*, 3(s1). <https://doi.org/10.1515/lingvan-2016-0082>
- Johnston, T. (1996). Function and Medium in the Forms of Linguistic Expression Found in a Sign Language. In W. H. Edmondson & R. B. Wilbur (Eds.),

- International Review of Sign Linguistics* (Vol. 1, pp. 57–94). Lawrence Erlbaum Associates.
- Johnston, T. (2018). A corpus-based study of the role of headshaking in negation in Auslan (Australian Sign Language): Implications for signed language typology. *Linguistic Typology*, 22(2), 185–231. <https://doi.org/10.1515/lingty-2018-0008>
- Johnston, T. (2019a). Clause constituents, arguments and the question of grammatical relations in Auslan (Australian Sign Language): A corpus-based study. *Studies in Language*, 43(4), 941–996. <https://doi.org/10.1075/sl.18035.joh>
- Johnston, T. (2019b). *Auslan Corpus Annotation Guidelines*. Auslan Signbank. <https://media.auslan.org.au/django-summernote/2020-09-04/69f180d0-04bf-4831-b59c-0b0b8f07cbb5.pdf>
- Johnston, T., van Roekel, J., & Schembri, A. (2016). On the Conventionalization of Mouth Actions in Australian Sign Language. *Language and Speech*, 59(1), 3–42. <https://doi.org/10.1177/0023830915569334>
- Johnston, T., Vermeerbergen, M., & Leeson, L. (2007). ‘Real data are messy’: Considering cross-linguistic analysis of constituent ordering in Auslan, VGT, and ISL. In P. M. Perniss, R. Pfau, & M. Steinbach (Eds.), *Visible Variation: Comparative Studies on Sign Language Structure* (Vol. 188, pp. 163–206). Mouton de Gruyter. <https://doi.org/10.1515/9783110198850.163>
- Johnstone, B. (2016). Enregisterment: How linguistic items become linked with ways of speaking. *Language and Linguistics Compass*, 10(11), 632–643. <https://doi.org/10.1111/lnc3.12210>
- Kahrs, J. (Director). (2012). *Paperman*. Walt Disney Animation Studios.
- Karlsson, F. (1984). Structure and iconicity in sign language. In F. Loncke, P. Boyes-Braem, & Y. Lebrun (Eds.), *Recent Research on European Sign Languages* (pp. 149–155). Swets & Zeitlinger B.V.
- Keevallik, L. (2010). Bodily Quoting in Dance Correction. *Research on Language & Social Interaction*, 43(4), 401–426. <https://doi.org/10.1080/08351813.2010.518065>
- Kendon, A. (1972). Some Relationships Between Body Motion and Speech. An analysis of an example. In A. Siegman & B. Pope (Eds.), *Studies in Dyadic Communication* (pp. 177–210). Pergamon. <https://doi.org/10.1016/B978-0-08-015867-9.50013-7>
- Kendon, A. (1980). Gesticulation and Speech: Two Aspects of the Process of Utterance. In M. R. Key (Ed.), *The Relationship of Verbal and Nonverbal Communication* (pp. 207–227). Mouton. <https://doi.org/10.1515/9783110813098.207>
- Kendon, A. (1994). Do Gestures Communicate? A Review. *Research on Language & Social Interaction*, 27(3), 175–200. https://doi.org/10.1207/s15327973rlsi2703_2
- Kendon, A. (2004). *Gesture: Visible action as utterance*. Cambridge University Press.
- Kendon, A. (2008). Some reflections on the relationship between ‘gesture’ and ‘sign’. *Gesture*, 8(3), 348–366. <https://doi.org/10.1075/gest.8.3.05ken>

- Kendon, A. (2014). Semiotic diversity in utterance production and the concept of 'language'. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 369(1651), 20130293. <https://doi.org/10.1098/rstb.2013.0293>
- Kendon, A. (2017). Languages as semiotically heterogeneous systems. *Behavioral and Brain Sciences*, 40, e59. <https://doi.org/10.1017/S0140525X15002940>
- Keränen, J. (2023). Cross-modal iconicity and indexicality in the production of lexical sensory and emotional signs in Finnish Sign Language. *Cognitive Linguistics*, 34(3–4), 333–369. <https://doi.org/10.1515/cog-2022-0070>
- Kimmelmann, V., & Khristoforova, E. (2018). Quotation in Russian Sign Language: Insights from corpus and elicitation. *Proceedings of the Formal and Experimental Advances in Sign Language Theory Conference*, 2, 93–102. <https://doi.org/10.31009/FEAST.i2.08>
- Kita, S., & Ide, S. (2007). Nodding, aizuchi, and final particles in Japanese conversation: How conversation reflects the ideology of communication and social relationships. *Journal of Pragmatics*, 39(7), 1242–1254. <https://doi.org/10.1016/j.pragma.2007.02.009>
- Klewitz, G., & Couper-Kuhlen, E. (1999). Quote – unquote? The role of prosody in the contextualization of reported speech sequences. *Pragmatics. Quarterly Publication of the International Pragmatics Association (IPrA)*, 9(4), 459–485. <https://doi.org/10.1075/prag.9.4.03kle>
- Klima, E. S., & Bellugi, U. (1979). *The signs of language*. Harvard University Press.
- Kocab, A., Piers, J., & Senghas, A. (2015). Referential shift in Nicaraguan Sign Language: A transition from lexical to spatial devices. *Frontiers in Psychology*, 5. <https://doi.org/10.3389/fpsyg.2014.01540>
- Kolde, R. (2019). *pheatmap: Pretty Heatmaps* [Computer software]. <https://CRAN.R-project.org/package=pheatmap>
- Kuo, S.-H. (2001). Reported Speech in Chinese Political Discourse. *Discourse Studies*, 3(2), 181–202. <https://doi.org/10.1177/1461445601003002002>
- Kusters, A. (2020). One Village, Two Sign Languages: Qualia, Intergenerational Relationships and the Language Ideological Assemblage in Adamorobe, Ghana. *Journal of Linguistic Anthropology*, 30(1), 48–67. <https://doi.org/10.1111/jola.12254>
- Kusters, A., & Hou, L. (2020). Linguistic Ethnography and Sign Language Studies. *Sign Language Studies*, 20(4), 561–571. <https://doi.org/10.1353/sls.2020.0018>
- Kusters, A., & Lucas, C. (2022). Emergence and evolutions: Introducing sign language sociolinguistics. *Journal of Sociolinguistics*, 26(1), 84–98. <https://doi.org/10.1111/josl.12522>
- Kusters, A., Meulder, M. D., & Moriarty, E. (2022). Researching Language Attitudes in Signing Communities. In R. Kircher & L. Zipp (Eds.), *Research Methods in Language Attitudes* (1st ed., pp. 282–296). Cambridge University Press. <https://doi.org/10.1017/9781108867788.023>
- Kusters, A., Spotti, M., Swanwick, R., & Tapio, E. (2017). Beyond languages, beyond modalities: Transforming the study of semiotic repertoires. *International Journal of Multilingualism*, 14(3), 219–232. <https://doi.org/10.1080/14790718.2017.1321651>
- Labov, W. (1972). *Sociolinguistic patterns*. University of Pennsylvania Press.

- Ladd, P. (2003). *Understanding deaf culture: In search of deafhood*. Multilingual Matters.
- Ladewig, S. (2020). *Integrating Gestures: The Dimension of Multimodality in Cognitive Grammar*. De Gruyter. <https://doi.org/10.1515/9783110668568>
- LaPolla, R. (2003). Why languages differ: Variation in the conventionalisation of constraints on inference. In D. Bradley, R. LaPolla, B. Michailovsky, & G. Thurgood (Eds.), *Language Variation: Papers on Variation and Change in the Sinosphere and in the Indosphere in honour of James A. Matisoff* (pp. 113–144). Australian National University.
- Lentz, E. M. (1986). Teaching Role Shifting. In C. Padden (Ed.), *Proceedings of the Fourth National Symposium on Sign Language Research and Teaching* (pp. 58–69). National Association of the Deaf.
- Lepeut, A., Lombart, C., Vandenitte, S., & Meurant, L. (2024). Spoken and signed languages hand in hand: parallel and directly comparable corpora of French Belgian Sign Language (LSFB) and French. *Corpora*, 19(2), 241-253.
- Lepeut, A., & Shaw, E. (2022). Time Is Ripe to Make Interactional Moves: Bringing Evidence From Four Languages Across Modalities. *Frontiers in Communication*, 7, 780124. <https://doi.org/10.3389/fcomm.2022.780124>
- Levy, E. T., & McNeill, D. (1992). Speech, gesture, and discourse. *Discourse Processes*, 15(3), 277–301. <https://doi.org/10.1080/01638539209544813>
- Lewin, D., & Schembri, A. C. (2011). Mouth gestures in British Sign Language: A case study of tongue protrusion in BSL narratives. *Sign Language & Linguistics*, 14(1), 94–114. <https://doi.org/10.1075/sll.14.1.06lew>
- Liddell, S. K. (1996). Spatial representations in discourse: Comparing spoken and signed language. *Lingua*, 98(1–3), 145–167. [https://doi.org/10.1016/0024-3841\(95\)00036-4](https://doi.org/10.1016/0024-3841(95)00036-4)
- Liddell, S. K. (1998). Grounded blends, gestures, and conceptual shifts. *Cognitive Linguistics*, 9(3), 283–314. <https://doi.org/10.1515/cogl.1998.9.3.283>
- Liddell, S. K. (2003). *Grammar, Gesture, and Meaning in American Sign Language* (1st ed.). Cambridge University Press. <https://doi.org/10.1017/CBO9780511615054>
- Liddell, S. K., & Metzger, M. (1998). Gesture in sign language discourse. *Journal of Pragmatics*, 30(6), 657–697. [https://doi.org/10.1016/S0378-2166\(98\)00061-7](https://doi.org/10.1016/S0378-2166(98)00061-7)
- Lillo-Martin, D. (1995). The point of view predicate in American Sign Language. In K. Emmorey & J. S. Reilly (Eds.), *Language, Gesture, and Space* (pp. 155–170). Lawrence Erlbaum Associates.
- Lillo-Martin, D. (2012). 17. Utterance reports and constructed action. In R. Pfau, M. Steinbach, & B. Woll (Eds.), *Sign Language: An International Handbook* (Vol. 37, pp. 365–387). De Gruyter Mouton. <https://doi.org/10.1515/9783110261325.365>
- Lillo-Martin, D., & Klima, E. S. (1990). Pointing out differences: ASL pronouns in syntactic theory. In S. Fischer & P. Siple (Eds.), *Theoretical issues in sign language research* (Vol. 1, pp. 191–210). University of Chicago Press.
- Lu, J. C., & Goldin-Meadow, S. (2018). Creating Images With the Stroke of a Hand: Depiction of Size and Shape in Sign Language. *Frontiers in Psychology*, 9, 1276. <https://doi.org/10.3389/fpsyg.2018.01276>

- Maier, E., & Steinbach, M. (2022). Perspective Shift Across Modalities. *Annual Review of Linguistics*, 8(1), 59–76. <https://doi.org/10.1146/annurev-linguistics-031120-021042>
- Majid, A., & Levinson, S. C. (2010). WEIRD languages have misled us, too. *Behavioral and Brain Sciences*, 33(2–3), 103–103. <https://doi.org/10.1017/S0140525X1000018X>
- Mandel, M. (1976). Dimensions of Iconicity in American Sign Language. In H. Thompson, K. Whistler, V. Edge, J. J. Jaeger, R. Javkin, M. Petruck, C. Smeall, & R. D. Van Valin (Eds.), *Proceedings of the 2nd Annual Meeting of the Berkeley Linguistics Society* (pp. 286–297). Berkeley Linguistics Society.
- Mandel, M. (1977). Iconic devices in American Sign Language. In L. A. Friedman (Ed.), *On the Other Hand: New Perspectives on American Sign Language* (pp. 57–107). Academic Press.
- Marentette, P., Furman, R., Suvanto, M. E., & Nicoladis, E. (2020). Pantomime (Not Silent Gesture) in Multimodal Communication: Evidence From Children’s Narratives. *Frontiers in Psychology*, 11, 575952. <https://doi.org/10.3389/fpsyg.2020.575952>
- Marentette, P., Tuck, N., Nicoladis, E., & Pika, S. (2004, October 30). *The Effects of Language, Culture, and Embodiment on Signed Stories*. Theoretical Issues in Sign Language Research (TISLR) 8, University of Barcelona.
- Martin Haspelmath. (2010). Comparative concepts and descriptive categories in crosslinguistic studies. *Language*, 86(3), 663–687. <https://doi.org/10.1353/lan.2010.0021>
- Mayer, M. (1969). *Frog, where are you?: Sequel to ‘A boy, a dog and a frog’*. Puffin Books.
- McBurney, S. (2012). 38. History of sign languages and sign language linguistics. In R. Pfau, M. Steinbach, & B. Woll (Eds.), *Sign Language: An International Handbook* (Vol. 37, pp. 909–948). De Gruyter Mouton. <https://doi.org/10.1515/9783110261325.909>
- McCaskill, C., Lucas, C., Bayley, R., & Hill, J. (2020). *The Hidden Treasure of Black ASL: Its History and Structure*. Gallaudet University Press. <https://doi.org/10.2307/j.ctv2rcnmqw>
- McClave, E. Z. (2000). Linguistic functions of head movements in the context of speech. *Journal of Pragmatics*, 32(7), 855–878. [https://doi.org/10.1016/S0378-2166\(99\)00079-X](https://doi.org/10.1016/S0378-2166(99)00079-X)
- McCleary, L., & Viotti, E. (2010). Sign-gesture symbiosis in Brazilian Sign Language narrative. In F. Parrill, V. Tobin, & M. Turner (Eds.), *Meaning, Form and Body* (pp. 181–201). University of Chicago Press.
- McConnell-Ginet, S. (2011). *Gender, sexuality, and meaning: Linguistic practice and politics*. Oxford University Press.
- McGregor, W. (1994). The grammar of reported speech and thought in Gooniyandi. *Australian Journal of Linguistics*, 14(1), 63–92. <https://doi.org/10.1080/07268609408599502>
- McKee, R., & Wallingford, S. (2011). ‘So, well, whatever’: Discourse functions of *palm-up* in New Zealand Sign Language. *Sign Language & Linguistics*, 14(2), 213–247. <https://doi.org/10.1075/sll.14.2.01mck>

- McNeill, D. (1985). So you think gestures are nonverbal? *Psychological Review*, 92(3), 350–371. <https://doi.org/10.1037/0033-295X.92.3.350>
- McNeill, D. (1992). *Hand and mind: What gestures reveal about thought*. University of Chicago Press.
- McNeill, D. (1997). Growth points cross-linguistically. In J. Nuyts & E. Pederson (Eds.), *Language and Conceptualization* (1st ed., pp. 190–212). Cambridge University Press. <https://doi.org/10.1017/CBO9781139086677.008>
- Meier, R. P. (2002). Why different, why the same? Explaining effects and non-effects of modality upon linguistic structure in sign and speech. In R. P. Meier, K. Cormier, & D. Quinto-Pozos (Eds.), *Modality and Structure in Signed and Spoken Languages* (1st ed., pp. 1–26). Cambridge University Press. <https://doi.org/10.1017/CBO9780511486777.001>
- Metzger, M. (1995). Constructed Dialogue and Constructed Action in ASL. In C. Lucas (Ed.), *Sociolinguistics in Deaf Communities* (pp. 255–271). Gallaudet University Press.
- Metzger, M., & Mather, S. (2004, October 30). *Constructed Dialogue and Constructed Action in Conversational Narratives in ASL*. Theoretical Issues in Sign Language Research (TISLR) 8, Barcelona.
- De Meulder, M. (2019). “So, why do you sign?” Deaf and hearing new signers, their motivation, and revitalisation policies for sign languages. *Applied Linguistics Review*, 10(4), 705–724. <https://doi.org/10.1515/applirev-2017-0100>
- Meurant, L. (2004). L’anaphore syntaxique redéfinie au regard d’une langue des signes: Étude contrastive de structures anaphoriques en français et en Langue des signes belge. *Sillexicales*, 4, 231–244.
- Meurant, L. (2008). *Le regard en langue des signes: Anaphore en langue des signes française de Belgique (LSFB), morphologie, syntaxe, énonciation*. Presses Universitaires de Rennes.
- Meurant, L. (2015). *Corpus LSFB. First digital open access corpus of movies and annotations of French Belgian Sign Language (LSFB)*. LSFB-Lab, University of Namur; Corpus LSFB. <http://www.corpus-lsfb.be>
- Meurant, L. (2023). Put another way: Reformulation as a window into discourse and interaction in LSFB (French Belgian Sign Language). In A. Lepeut & I. Beukeleers (Eds.), *The Semiotic Diversity of Language: The Case of Signed Languages* (pp. 145–178). John Benjamins Publishing Company.
- Meurant, L., & Sinte, A. (2016). La reformulation en langue des signes de Belgique francophone (LSFB): Analyse dans un corpus de trois types de discours: Narration, explication et conversation. *L’information Grammaticale*, 149, 32–44.
- Meurant, L., Sinte, A., & Gabarró-López, S. (2022). A multimodal approach to reformulation: Contrastive study of French and French Belgian Sign Language through the productions of speakers, signers and interpreters. *Languages in Contrast*, 22(2), 322–360. <https://doi.org/10.1075/lic.00025.meu>
- Mitchell, R. E., & Karchmer, M. A. (2004). Chasing the Mythical Ten Percent: Parental Hearing Status of Deaf and Hard of Hearing Students in the United States. *Sign Language Studies*, 4(2), 138–163. <https://doi.org/10.1353/sls.2004.0005>

- Mitchell-Kernan, C. (1972). Signifying and marking: Two Afro-American speech acts. In J. Gumperz & D. H. Hymes (Eds.), *Directions in sociolinguistics: The ethnography of communication* (pp. 161–179). Holt, Rinehart and Winston.
- Mohammad, A., & Vásquez, C. (2015). ‘Rachel’s not here’: Constructed dialogue in gossip. *Journal of Sociolinguistics*, 19(3), 351–371. <https://doi.org/10.1111/josl.12125>
- Mohr, S. (2014). *Mouth Actions in Sign Languages: An Empirical Study of Irish Sign Language*. DE GRUYTER. <https://doi.org/10.1515/9781614514978>
- Moisik, S. R., & Dediu, D. (2017). Anatomical biasing and clicks: Evidence from biomechanical modeling. *Journal of Language Evolution*, 2(1), 37–51. <https://doi.org/10.1093/jole/lzx004>
- Mora, E., & Alvarez, A. (2003). Reported discourse and its acoustic/prosodic characteristics in Venezuelan Spanish. In M.-J. Solé, D. Recasens, & J. Romero (Eds.), *Proceedings of the 15th International Congress of Phonetic Sciences, Barcelona 3-9 August 2003* (pp. 571–574). Causal Productions.
- Müller, C. (2014). Gestural modes of representation as techniques of depiction. In C. Müller, A. Cienki, E. Fricke, S. Ladewig, D. McNeill, & J. Bressemer (Eds.), *Handbücher zur Sprach- und Kommunikationswissenschaft / Handbooks of Linguistics and Communication Science (HSK)* (Vol. 2, pp. 1687–1702). De Gruyter Mouton. <https://doi.org/10.1515/9783110302028.1687>
- Müller, C. (2017). How recurrent gestures mean: Conventionalized contexts-of-use and embodied motivation. *Gesture*, 16(2), 277–304. <https://doi.org/10.1075/gest.16.2.05mul>
- Müller, C. (2018). Gesture and Sign: Cataclysmic Break or Dynamic Relations? *Frontiers in Psychology*, 9, 1651. <https://doi.org/10.3389/fpsyg.2018.01651>
- Niemelä, M. (2010). The reporting space in conversational storytelling: Orchestrating all semiotic channels for taking a stance. *Journal of Pragmatics*, 42(12), 3258–3270. <https://doi.org/10.1016/j.pragma.2010.06.015>
- Nikitina, T. (2018). When Linguists and Speakers Do Not Agree: The Endangered Grammar of Verbal Art in West Africa. *Journal of Linguistic Anthropology*, 28(2), 197–220. <https://doi.org/10.1111/jola.12189>
- Nikitina, T., Aplonova, E., & Contreras Roa, L. (2023). Chapter 4. The use of interjections as a discourse phenomenon: A contrastive study of Chuvash (Turkic) and Wan (Mande). In A. Barotto & S. Mattiola (Eds.), *Studies in Language Companion Series* (Vol. 227, pp. 65–89). John Benjamins Publishing Company. <https://doi.org/10.1075/slcs.227.04nik>
- Noonan, M. (2006). Direct Speech as a Rhetorical Style in Chantyal. *Himalayan Linguistics*, 6(0). <https://doi.org/10.5070/H96023030>
- Occhino, C., & Wilcox, S. (2017). Gesture or sign? A categorization problem. *Behavioral and Brain Sciences*, 40, e66. <https://doi.org/10.1017/S0140525X15003015>
- Okrent, A. (2002). A modality-free notion of gesture and how it can help us with the morpheme vs. Gesture question in sign language linguistics (Or at least give us some criteria to work with). In R. P. Meier, K. Cormier, & D. Quinto-Pozos (Eds.), *Modality and Structure in Signed and Spoken*

- Languages* (1st ed., pp. 175–198). Cambridge University Press. <https://doi.org/10.1017/CBO9780511486777.009>
- Oliveira, M. Jr., & Cunha, D. A. C. (2004). Prosody As Marker of Direct Reported Speech Boundary. In B. Bel & I. Marlien (Eds.), *Proceedings of Speech Prosody 2004* (pp. 263–266). SProSIG. https://www.isca-speech.org/archive/pdfs/speechprosody_2004/migueloliveirajr04_speechprosody.pdf
- Omardeen, R., Mesh, K., & Steinbach, M. (2021). Initial person reference in Providence Island Sign Language. *Glossa: A Journal of General Linguistics*, 6(1). <https://doi.org/10.16995/glossa.5778>
- Ortega, G., & Özyürek, A. (2020). Systematic mappings between semantic categories and types of iconic representations in the manual modality: A normed database of silent gesture. *Behavior Research Methods*, 52(1), 51–67. <https://doi.org/10.3758/s13428-019-01204-6>
- Padden, C. (1986). Verbs and role shifting in American Sign Language. In C. Padden (Ed.), *Proceedings of the Fourth National Symposium on Sign Language Research and Teaching* (pp. 44–57). National Association of the Deaf.
- Palfreyman, N. (2020). Social meanings of linguistic variation in BISINDO (Indonesian Sign Language). *Asia-Pacific Language Variation*, 6(1), 89–118. <https://doi.org/10.1075/aplv.00008.pal>
- Palfreyman, N., & Schembri, A. (2022). Lumping and splitting: Sign language delineation and ideologies of linguistic differentiation. *Journal of Sociolinguistics*, 26(1), 105–112. <https://doi.org/10.1111/josl.12524>
- Palmer, C. J., Kim, P., & Clifford, C. W. G. (2023). Gaze behavior as a visual cue to animacy. *Journal of Experimental Psychology: General*, 152(2), 425–447. <https://doi.org/10.1037/xge0001281>
- Parisot, A.-M., & Saunders, D. (2019). La représentation corporelle dans le discours signé. *Lidil*, 60. <https://doi.org/10.4000/lidil.6893>
- Parisot, A.-M., & Saunders, D. (2022). Character perspective shift sequences and embodiment markers in signed and spoken discourse. *Languages in Contrast*, 22(2), 259–289. <https://doi.org/10.1075/lic.00022.par>
- Park, J.-Y. (2020). Morphosyntactic integration of ideophones in Japanese and Korean: A corpus-based analysis of spoken and written discourse. In P. Perniss, O. Fischer, & C. Ljungberg (Eds.), *Iconicity in Language and Literature* (Vol. 17, pp. 58–73). John Benjamins Publishing Company. <https://doi.org/10.1075/ill.17.04par>
- Park, Y. (2009). Interaction between grammar and multimodal resources: Quoting different characters in Korean multiparty conversation. *Discourse Studies*, 11(1), 79–104. <https://doi.org/10.1177/1461445608098499>
- Parrill, F. (2010). Viewpoint in speech–gesture integration: Linguistic structure, discourse structure, and event structure. *Language and Cognitive Processes*, 25(5), 650–668. <https://doi.org/10.1080/01690960903424248>
- Parrill, F. (2012). Interactions between discourse status and viewpoint inco-speech gesture. In B. Dancygier & E. Sweetser (Eds.), *Viewpoint in Language* (1st ed., pp. 97–112). Cambridge University Press. <https://doi.org/10.1017/CBO9781139084727.008>

- Pascual, E. (2014). *Fictive Interaction: The conversation frame in thought, language, and discourse*. John Benjamins Publishing Company. <https://doi.org/10.1075/hcp.47>
- Perniss, P. M. (2007). Achieving spatial coherence in German Sign Language narratives: The use of classifiers and perspective. *Lingua*, 117(7), 1315–1338. <https://doi.org/10.1016/j.lingua.2005.06.013>
- Perniss, P. M., & Özyürek, A. (2008). Representations of action, motion and location in sign space: A comparison of German (DGS) and Turkish (TID) sign language narratives. In J. Quer (Ed.), *Signs of the time: Selected papers from TISLR 8* (pp. 353–376). Signum Press.
- Perniss, P., & Özyürek, A. (2015). Visible Cohesion: A Comparison of Reference Tracking in Sign, Speech, and Co-Speech Gesture. *Topics in Cognitive Science*, 7(1), 36–60. <https://doi.org/10.1111/tops.12122>
- Perniss, P., Pfau, R., & Steinbach, M. (2007). Can't you see the difference? Sources of variation in sign language structure. In P. M. Perniss, R. Pfau, & M. Steinbach (Eds.), *Visible Variation* (pp. 1–34). Mouton de Gruyter. <https://doi.org/10.1515/9783110198850.1>
- Pfau, R., & Quer, J. (2010). Nonmanuals: Their grammatical and prosodic roles. In D. Brentari (Ed.), *Sign Languages* (1st ed., pp. 381–402). Cambridge University Press. <https://doi.org/10.1017/CBO9780511712203.018>
- Poulin, C., & Miller, C. (1995). On narrative discourse and point of view in Quebec Sign Language. In K. Emmorey & J. S. Reilly (Eds.), *Language, Gesture, and Space* (pp. 117–131). Lawrence Erlbaum Associates.
- Puupponen, A. (2018). The Relationship between Movements and Positions of the Head and the Torso in Finnish Sign Language. *Sign Language Studies*, 18(2), 175–214. <https://doi.org/10.1353/sls.2018.0000>
- Puupponen, A. (2019). Towards understanding nonmanuality: A semiotic treatment of signers' head movements. *Glossa: A Journal of General Linguistics*, 4(1), 1–39. <https://doi.org/10.5334/gjgl.709>
- Puupponen, A., Hodge, G., Anible, B., Salonen, J., Wainio, T., Keränen, J., Hernández, D. & Jantunen, T. (2024). Opening up Corpus FinSL: enriching corpus analysis with linguistic ethnography in a study of constructed action. *Linguistics*. <https://doi.org/10.1515/ling-2023-0196>
- Puupponen, A., & Kanto, L. (submitted). *Constructed action in the narrative tasks of children and adults using Finnish Sign Language*.
- Puupponen, A., Kanto, L., Wainio, T., & Jantunen, T. (2022). Variation in the use of constructed action according to discourse type and age in Finnish Sign Language. *Language & Communication*, 83, 16–35. <https://doi.org/10.1016/j.langcom.2021.11.006>
- Pyers, J., & Senghas, A. (2007). Reported action in Nicaraguan and American Sign Languages: Emerging versus established systems. In P. M. Perniss, R. Pfau, & M. Steinbach (Eds.), *Visible Variation: Comparative Studies on Sign language Structure* (pp. 279–302). Mouton de Gruyter. <https://doi.org/10.1515/9783110198850.279>
- Quer, J. (2005). Context shift and indexical variables in sign languages. In E. Georgala & J. Howell (Eds.), *Proceedings of the 15th Semantics and Linguistic Theory Conference* (pp. 152–168). Cornell University.

- Quer, J. (2011). Reporting and Quoting in Signed Discourse. In E. Brendel, J. Meibauer, & M. Steinbach (Eds.), *Understanding Quotation* (Vol. 7, pp. 277–302). De Gruyter Mouton. <https://doi.org/10.1515/9783110240085.277>
- Quer, J. (2013). Attitude ascriptions in sign languages and role shift. In L. C. Geer (Ed.), *Proceedings from the 13th meeting of the Texas Linguistics Society* (pp. 12–28). CSLI Publications.
- Quer, J. (2019). Delimiting reported discourse: Cross-modal criteria. *Linguistic Typology*, 23(1), 221–228. <https://doi.org/10.1515/lingty-2019-0011>
- Quer, J., & Steinbach, M. (2019). Handling Sign Language Data: The Impact of Modality. *Frontiers in Psychology*, 10, 483. <https://doi.org/10.3389/fpsyg.2019.00483>
- Quine, W. V. O. (1940). *Mathematical Logic*. Harvard University Press.
- Quinto-Pozos, D. (2007a). Can constructed action be considered obligatory? *The Linguistics of Sign Language Classifiers: Phonology, Morpho-Syntax, Semantics and Discourse*, 117(7), 1285–1314. <https://doi.org/10.1016/j.lingua.2005.12.003>
- Quinto-Pozos, D. (2007b). Why does constructed action seem obligatory? An analysis of “classifiers” and the lack of articulator-referent correspondence. *Sign Language Studies*, 7(4), 458–506.
- Quinto-Pozos, D. (2014). 171. Enactment as a (signed) language communicative strategy. In C. Müller, A. Cienki, E. Fricke, S. Ladewig, D. McNeill, & J. Bressem (Eds.), *Body—Language—Communication* (Vol. 2, pp. 2163–2169). Mouton de Gruyter. <https://doi.org/10.1515/9783110302028.2163>
- Quinto-Pozos, D., Cormier, K., & Holzrichter, A. (2006, January 9). *The obligatory nature of Constructed Action across 3 sign languages*. Workshop on Cross-linguistic Sign Language Research, Max Planck Institute for Psycholinguistics, Nijmegen, The Netherlands.
- Quinto-Pozos, D., Cormier, K., & Ramsey, C. L. (2009). *Constructed action of highly animate referents: Evidence from American, British and Mexican Sign Languages*. 35th Annual Meeting of the Berkeley Linguistics Society (Special Session on Non-Speech Modalities), Berkeley, CA.
- Quinto-Pozos, D., & Mehta, S. (2010). Register variation in mimetic gestural complements to signed language. *Journal of Pragmatics*, 42(3), 557–584. <https://doi.org/10.1016/j.pragma.2009.08.004>
- Quinto-Pozos, D., & Parrill, F. (2015). Signers and Co-speech Gesturers Adopt Similar Strategies for Portraying Viewpoint in Narratives. *Topics in Cognitive Science*, 7(1), 12–35. <https://doi.org/10.1111/tops.12120>
- Quinto-Pozos, D., Parrill, F., & Coons, C. (2022). The interface between grammar and bodily enactment in ASL and English. *Languages in Contrast*, 22(2), 195–226. <https://doi.org/10.1075/lic.00023.qui>
- R Core Team. (2023). *A Language and Environment for Statistical Computing* [Computer software]. R Foundation for Statistical Computing. <https://www.R-project.org>
- Rayman, J. (1999). Storytelling in the Visual Mode: A Comparison of ASL and English. In E. Winston (Ed.), *Storytelling and Conversation Discourse in Deaf Communities* (pp. 59–82). Gallaudet University Press.

- Riccioni, I., Philip, G., Fermani, A., & Bongelli, R. (2023). Linguistic features and pragmatic functions of direct reported speech in Italian troubles telling sequences. *Language & Communication*, 90, 63–81. <https://doi.org/10.1016/j.langcom.2023.03.001>
- Risler, A. (2016). Parler de soi, parler des autres en langue des signes française. Autopointage et prise de rôle. *L'information Grammaticale*, 149, 45–54.
- Rumsey, A., Mansfield, J., & Evans, N. (2023). The sound of one quotation mark: Quoted speech in Indigenous Australian narrative. In A. Y. Aikhenvald, R. L. Bradshaw, L. Ciucci, & P. Wangdi (Eds.), *Celebrating Indigenous Voice* (pp. 33–72). De Gruyter. <https://doi.org/10.1515/9783110789836-003>
- Sallandre, M.-A. (2003). *Les unités du discours en Langue des Signes Française. Tentative de catégorisation dans le cadre d'une grammaire de l'iconicité*. Université Paris VIII Vincennes-Saint Denis.
- Sallandre, M.-A. (2007). Simultaneity in French Sign Language Discourse. In M. Vermeerbergen, L. Leeson, & O. A. Crasborn (Eds.), *Current Issues in Linguistic Theory* (Vol. 281, pp. 103–125). John Benjamins Publishing Company. <https://doi.org/10.1075/cilt.281.05sal>
- Sallandre, M.-A., Balvet, A., Besnard, G., & Garcia, B. (2019). Étude exploratoire de la fréquence des catégories linguistiques dans quatre genres discursifs en LSF. *Lidil*, 60. <https://doi.org/10.4000/lidil.7136>
- Sallandre, M.-A., & Garcia, B. (2013). Epistemological issues in the semiological model for the annotation of sign languages. In L. Meurant, A. Sinte, M. Van Herreweghe, & M. Vermeerbergen (Eds.), *Sign Language Research, Uses and Practices* (pp. 159–178). De Gruyter. <https://doi.org/10.1515/9781614511472.159>
- Saunders, D. (2016). Rapporter directement en langue des signes québécoise (LSQ) chez les locuteurs sourds natifs et non natifs. In S. Luna (Ed.), *SCRIPTUM: Langage, culture et identité* (Vol. 2, pp. 41–58). Université de Montréal.
- Saunders, D. & Parisot. (2023). Insights on the use of narrative perspectives in signed and spoken discourse in Quebec Sign Language, American Sign Language, and Quebec French. In T. Janzen & B. Shaffer (Eds.), *Signed Language and Gesture Research in Cognitive Linguistics* (pp. 243–272). De Gruyter. <https://doi.org/10.1515/9783110703788-010>
- Schembri, A., Cormier, K., & Fenlon, J. (2018). Indicating verbs as typologically unique constructions: Reconsidering verb ‘agreement’ in sign languages. *Glossa: A Journal of General Linguistics*, 3(1). <https://doi.org/10.5334/gjgl.468>
- Schembri, A., Fenlon, J., Cormier, K., & Johnston, T. (2018). Sociolinguistic Typology and Sign Languages. *Frontiers in Psychology*, 9, 200. <https://doi.org/10.3389/fpsyg.2018.00200>
- Schembri, A., Fenlon, J., Rentelis, R., Reynolds, S., & Cormier, K. (2013). Building the British Sign Language Corpus. *Language Documentation & Conservation*, 7, 136–154.
- Schembri, A., & Johnston, T. (2012). 33. Sociolinguistic aspects of variation and change. In R. Pfau, M. Steinbach, & B. Woll (Eds.), *Sign Language: An International Handbook* (pp. 788–816). De Gruyter Mouton. <https://doi.org/10.1515/9783110261325.788>

- Schembri, A., Jones, C., & Burnham, D. (2005). Comparing Action Gestures and Classifier Verbs of Motion: Evidence From Australian Sign Language, Taiwan Sign Language, and Nonsigners' Gestures Without Speech. *Journal of Deaf Studies and Deaf Education*, 10(3), 272–290. <https://doi.org/10.1093/deafed/eni029>
- Schoonjans, S. (2017). Multimodal Construction Grammar issues are Construction Grammar issues. *Linguistics Vanguard*, 3(s1), 20160050. <https://doi.org/10.1515/lingvan-2016-0050>
- Schoonjans, S., Sambre, P., Brône, G., & Feyaerts, K. (2016). Vers une analyse multimodale du sens. Perspectives constructionnelles sur la gestualité co-grammaticale. *Langages*, 1(201), 33–50. <https://doi.org/10.3917/lang.201.0033>
- Shaffer, B. (2012). Reported speech as an evidentiality strategy in American Sign Language. In B. Dancygier & E. Sweetser (Eds.), *Viewpoint in Language* (pp. 139–155). Cambridge University Press. <https://doi.org/10.1017/CBO9781139084727.011>
- Shaw, E. (2019). *Gesture in multiparty interaction*. Gallaudet University Press.
- Sicoli, M. A. (2015). Voice Registers. In D. Tannen, H. E. Hamilton, & D. Schiffrin (Eds.), *The Handbook of Discourse Analysis* (1st ed., pp. 105–126). Wiley. <https://doi.org/10.1002/9781118584194.ch5>
- Sidnell, J. (2006). Coordinating Gesture, Talk, and Gaze in Reenactments. *Research on Language & Social Interaction*, 39(4), 377–409. https://doi.org/10.1207/s15327973rlsi3904_2
- Šipka, D. (2021). *The Geography of Words: Vocabulary and Meaning in the World's Languages* (1st ed.). Cambridge University Press. <https://doi.org/10.1017/9781108894548>
- Slama-Cazacu, T. (1976). Nonverbal Components in Message Sequence: 'Mixed Syntax'. In W. C. McCormack & S. A. Wurm (Eds.), *Language and Man* (pp. 217–228). De Gruyter Mouton. <https://doi.org/10.1515/9783112321454-015>
- Slonimska, A., Özyürek, A., & Capirci, O. (2021). Using depiction for efficient communication in LIS (Italian Sign Language). *Language and Cognition*, 13(3), 367–396. <https://doi.org/10.1017/langcog.2021.7>
- Smith, S., & Cormier, K. (2014). In or Out?: Spatial Scale and Enactment in Narratives of Native and Nonnative Signing Deaf Children Acquiring British Sign Language. *Sign Language Studies*, 14(3), 275–301. <https://doi.org/10.1353/sls.2014.0008>
- So, W. C., Kita, S., & Goldin-Meadow, S. (2009). Using the Hands to Identify Who Does What to Whom: Gesture and Speech Go Hand-in-Hand. *Cognitive Science*, 33(1), 115–125. <https://doi.org/10.1111/j.1551-6709.2008.01006.x>
- Soulaimani, D. (2018). Talk, voice and gestures in reported speech: Toward an integrated approach. *Discourse Studies*, 20(3), 361–376. <https://doi.org/10.1177/1461445618754419>
- Spronck, S., & Nikitina, T. (2019). Reported speech forms a dedicated syntactic domain. *Linguistic Typology*, 23(1), 119–159. <https://doi.org/10.1515/lingty-2019-0005>

- Stamp, R., & Sandler, W. (2021). The emergence of referential shift devices in three young sign languages. *Lingua*, 257, 103070. <https://doi.org/10.1016/j.lingua.2021.103070>
- Stec, K., Huiskes, M., & Redeker, G. (2015). Multimodal analysis of quotation in oral narratives. *Open Linguistics*, 1(1). <https://doi.org/10.1515/opli-2015-0018>
- Stec, K., Huiskes, M., & Redeker, G. (2016). Multimodal quotation: Role shift practices in spoken narratives. *Journal of Pragmatics*, 104, 1–17. <https://doi.org/10.1016/j.pragma.2016.07.008>
- Stec, K., Huiskes, M., Wieling, M., & Redeker, G. (2017). Multimodal character viewpoint in quoted dialogue sequences. *Glossa: A Journal of General Linguistics*, 2(1), 39. <https://doi.org/10.5334/gjgl.255>
- Stefanowitsch, A. (2020). *Corpus linguistics: A guide to the methodology* (S. Müller & M. Haspelmath, Eds.). Language Science Press.
- Steinbach, M. (2021). Role shift. In J. Quer, R. Pfau, & A. Herrmann (Eds.), *The Routledge Handbook of Theoretical and Experimental Sign Language Research* (pp. 351–377). Routledge. <https://doi.org/10.4324/9781315754499-16>
- Stivers, T. (2008). Stance, Alignment, and Affiliation During Storytelling: When Nodding Is a Token of Affiliation. *Research on Language & Social Interaction*, 41(1), 31–57. <https://doi.org/10.1080/08351810701691123>
- Stokoe, W. C. (2005). Sign language structure: An outline of the visual communication systems of the American deaf. *Journal of Deaf Studies and Deaf Education*, 10(1), 3–37.
- Streeck, J. (1988). The significance of gesture: How it is established. *IPrA Papers in Pragmatics*, 2(1–2), 60–83.
- Streeck, J. (2008). Depicting by gesture. *Gesture*, 8(3), 285–301. <https://doi.org/10.1075/gest.8.3.02str>
- Sümer, B., & Özyürek, A. (2022). Cross-modal investigation of event component omissions in language development: A comparison of signing and speaking children. *Language, Cognition and Neuroscience*, 37(8), 1023–1039. <https://doi.org/10.1080/23273798.2022.2042336>
- Suppalla, T. (1986). The Classifier System in American Sign Language. In C. G. Craig (Ed.), *Typological Studies in Language* (Vol. 7, p. 181). John Benjamins Publishing Company. <https://doi.org/10.1075/tsl.7.13sup>
- Sutton-Spence, R., & Napoli, D. J. (2010). Anthropomorphism in Sign Languages: A Look at Poetry and Storytelling with a Focus on British Sign Language. *Sign Language Studies*, 10(4), 442–475. <https://doi.org/10.1353/sls.0.0055>
- Sutton-Spence, R., & Woll, B. (1999). *The Linguistics of British Sign Language: An Introduction* (1st ed.). Cambridge University Press. <https://doi.org/10.1017/CBO9781139167048>
- Szचेpek Reed, B. (2007). *Prosodic orientation in English conversation*. Palgrave Macmillan UK. <https://doi.org/10.1057/9780230625273>
- Tannen, D. (1986). Introducing constructed dialog in Greek and American conversational and literary narrative. In F. Coulmas (Ed.), *Direct and Indirect Speech* (pp. 311–332). De Gruyter Mouton. <https://doi.org/10.1515/9783110871968.311>

- Tannen, D. (2007). *Talking Voices: Repetition, Dialogue, and Imagery in Conversational Discourse*. (2nd ed.). Cambridge University Press.
- Taub, S. F. (2001). *Language from the Body: Iconicity and Metaphor in American Sign Language* (1st ed.). Cambridge University Press. <https://doi.org/10.1017/CBO9780511509629>
- Tervoort, B. (1953). *Structurele analyse van visueel taalgebruik binnen een groep dove kinderen*. Noord-Hollandsche uitgeversmaatschappij.
- Teßendorf, S. (2013). Emblems, quotable gestures, or conventionalized body movements. In C. Müller, A. Cienki, E. Fricke, S. Ladewig, D. McNeill, & S. Tessendorf (Eds.), *Body—Language—Communication* (Vol. 1, pp. 82–100). De Gruyter Mouton. <https://doi.org/10.1515/9783110261318.82>
- Thompson, S. A., & Suzuki, R. (2014). Reenactments in conversation: Gaze and reciprocity. *Discourse Studies*, 16(6), 816–846. <https://doi.org/10.1177/1461445614546259>
- Tomasello, M. (2008). *Origins of human communication*. MIT Press.
- Tomasuolo, E., Bonsignori, C., Rinaldi, P., & Volterra, V. (2020). The representation of action in Italian Sign Language (LIS). *Cognitive Linguistics*, 31(1), 1–36. <https://doi.org/10.1515/cog-2018-0131>
- Traugott, E. C., & Trousdale, G. (2013). *Constructionalization and constructional changes*. Oxford University Press.
- Trimaille, C. (2007). Stylistic vocal and other dialogic procedures in adolescent language socialization. *Cahiers de Praxématique*, 49, 183–206. <https://doi.org/10.4000/praxematique.2056>
- Trudgill, P. (2009). Sociolinguistic typology and complexification. In G. Sampson, D. Gil, & P. Trudgill (Eds.), *Language Complexity as an Evolving Variable* (pp. 98–109). Oxford University Press.
- Unuabonah, F. O. (2018). Direct quotations in Nigerian investigative public hearings. *Text & Talk*, 38(4), 503–524. <https://doi.org/10.1515/text-2018-0012>
- Valeiras-Jurado, J., & Ruiz-Madrid, N. (2019). Multimodal enactment of characters in conference presentations. *Discourse Studies*, 21(5), 561–583. <https://doi.org/10.1177/1461445619846703>
- van der Hulst, H. (2022). The (early) history of sign language phonology. In B. E. Dresher & H. van der Hulst (Eds.), *The Oxford History of Phonology* (1st ed., pp. 284–306). Oxford University Press Oxford. <https://doi.org/10.1093/oso/9780198796800.003.0014>
- Vandelanotte, L. (2004). Deixis and grounding in speech and thought representation. *Journal of Pragmatics*, 36(3), 489–520. <https://doi.org/10.1016/j.pragma.2003.10.003>
- Vandelanotte, L. (2009). *Speech and Thought Representation in English: A Cognitive-Functional Approach*. Mouton de Gruyter. <https://doi.org/10.1515/9783110215373>
- Vandelanotte, L. (2017). Viewpoint. In B. Dancygier (Ed.), *The Cambridge Handbook of Cognitive Linguistics* (pp. 157–171). Cambridge University Press. <https://doi.org/10.1017/9781316339732.011>
- Vandelanotte, L. (2023). Constructions of speech and thought representation. *WIREs Cognitive Science*, 14(2). <https://doi.org/10.1002/wcs.1637>

- Vandenitte, S. (2021). Construire l'action pour rendre les référents visibles en LSF: Une étude pilote des mouvements corporels décriptifs. *Travaux Du Cercle Belge de Linguistique*, 15.
- Vandenitte, S. (2022a). Making Referents Seen and Heard Across Signed and Spoken Languages: Documenting and Interpreting Cross-Modal Differences in the Use of Enactment. *Frontiers in Psychology*, 13, 784339. <https://doi.org/10.3389/fpsyg.2022.784339>
- Vandenitte, S. (2022b). Showing where you stand: The depictive potential of the lexical sign LS in LSF conversations about language attitudes [The Semiotic Diversity of Language: The Case of Signed Languages]. *Belgian Journal of Linguistics*, 36, 46–72.
- Vandenitte, S. (2023). When referents are seen and heard: A comparative study of constructed action in the discourse of LSF (French Belgian Sign Language) signers and Belgian French speakers. In L. Gardelle, L. Vincent-Durroux, & H. Vinckel-Roisin (Eds.), *Studies in Language Companion Series* (Vol. 228, pp. 127–149). John Benjamins Publishing Company. <https://doi.org/10.1075/slcs.228.07van>
- Vandenitte, S., Puupponen, A., Wainio, T., & Jantunen, T. (2022, October 14). *One and the same or two of a kind? Comparing constructed action in FinSL and LSF narratives*. SignCafé 2: Second International Workshop on Cognitive and Functional Explorations in Sign Language Linguistics, Università di Catania, Ragusa, Italy.
- Vermeerbergen, M. (2006). Past and current trends in sign language research. *Language & Communication*, 26(2), 168–192. <https://doi.org/10.1016/j.langcom.2005.10.004>
- Vermeerbergen, M., Leeson, L., & Crasborn, O. A. (Eds.). (2007). *Simultaneity in Signed Languages: Form and function*. John Benjamins Publishing Company. <https://doi.org/10.1075/cilt.281>
- Verstraete, J.-C. (2011). The Functions of Represented Speech and Thought in Umpithamu Narratives. *Australian Journal of Linguistics*, 31(4), 491–517. <https://doi.org/10.1080/07268602.2011.625602>
- Vigliocco, G., Perniss, P., & Vinson, D. (2014). Language as a multimodal phenomenon: Implications for language learning, processing and evolution. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 369(1651), 20130292. <https://doi.org/10.1098/rstb.2013.0292>
- Wagner, P., Malisz, Z., & Kopp, S. (2014). Gesture and speech in interaction: An overview. *Speech Communication*, 57, 209–232. <https://doi.org/10.1016/j.specom.2013.09.008>
- Wähl, S. (2022, October 14). *Recurrent Constructed Action (CA) as candidates for DGS dictionary entries: How corpus data enlightens the lexicalization debate*. SignCafé 2: Second International Workshop on Cognitive and Functional Explorations in Sign Language Linguistics, Università di Catania, Ragusa, Italy.
- West, L. M. J. R. (1960). *The Sign Language, An Analysis*. Indiana University.
- Wickham, H. (2016). *ggplot2: Elegant Graphics for Data Analysis*. Springer-Verlag. <https://ggplot2.tidyverse.org>
- Wierzbicka, A. (1974). The semantics of direct and indirect discourse. *Paper in Linguistics*, 7(3–4), 267–307. <https://doi.org/10.1080/08351817409370375>

- Wilbur, R. B., & Patschke, C. (1998). Body leans and marking contrast in ASL. *Journal of Pragmatics*, 30, 275–303.
- Wilcox, S., & Occhino, C. (2016). Historical Change in Signed Languages. In *Oxford Handbooks: Topics in Linguistics* (p. Online edition). Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780199935345.013.24>
- Wilcox, S., & Xavier, A. N. (2013). A framework for unifying spoken language, signed language, and gesture. *Revista Todas as Letras*, 15(1), 88–110.
- Winston, E. A. (1991). Spatial Referencing and Cohesion in an American Sign Language Text. *Sign Language Studies [Special Extra Length Issue: Papers on Sign Languages & Deaf Cultures]*, 73, 397–410.
- Yatziv-Malibert, I.-I., & Vanhove, M. (2015). Quotative constructions and prosody in some Afroasiatic languages: Towards a typology. In A. Mettouchi, M. Vanhove, & D. Caubet (Eds.), *Studies in Corpus Linguistics* (Vol. 68, pp. 117–169). John Benjamins Publishing Company. <https://doi.org/10.1075/scl.68.04mal>
- Zeshan, U., & Palfreyman, N. (2020). Comparability of signed and spoken languages: Absolute and relative modality effects in cross-modal typology. *Linguistic Typology*, 24(3), 527–562. <https://doi.org/10.1515/lingty-2020-2059>
- Ziem, A. (2017). Do we really need a Multimodal Construction Grammar? *Linguistics Vanguard*, 3(s1), 20160095. <https://doi.org/10.1515/lingvan-2016-0095>
- Zima, E., & Bergs, A. (2017). Multimodality and construction grammar. *Linguistics Vanguard*, 3(s1), 20161006. <https://doi.org/10.1515/lingvan-2016-1006>
- Zlatev, J. (2005). What's in a schema? Bodily mimesis and the grounding of language. In B. Hampe & J. E. Grady (Eds.), *From Perception to Meaning* (pp. 313–342). Mouton de Gruyter. <https://doi.org/10.1515/9783110197532.4.313>
- Zlatev, J. (2014). Image schemas, mimetic schemas and children's gestures. *Cognitive Semiotics*, 7(1), 3–29. <https://doi.org/10.1515/cogsem-2014-0002>
- Zlatev, J., Żywicznyński, P., & Waciewicz, S. (2020). Pantomime as the original human-specific communicative system. *Journal of Language Evolution*, 5(2), 156–174. <https://doi.org/10.1093/jole/lzaa006>
- Zuckerman, C. H. P. (2021). Figure Composition. *Signs and Society*, 9(3), 263–299. <https://doi.org/10.1086/715515>
- Zwitserslood, I. (2012). 8. Classifiers. In R. Pfau, M. Steinbach, & B. Woll (Eds.), *Sign Language: An International Handbook* (pp. 158–186). De Gruyter Mouton. <https://doi.org/10.1515/9783110261325.158>

Appendix

R commands for the random sampling of annotations subjected to inter-annotator consensus measures

```
> CA_summary1 <- read.delim(file = 'CA-summary1.txt', sep='\t', header = TRUE)
> CA_summary2 <- read.delim(file = 'CA-summary2.txt', sep='\t', header = TRUE)
> ### 1.2.4.2. Rename relevant columns for binding
> ### CA1
> CA_summary1 <- CA_summary1 %>%
+   rename(
+     CA.summary = CA.summary1,
+     number = CA.summary1.cp)
> ### CA2
> CA_summary2 <- CA_summary2 %>%
+   rename(
+     CA.summary = CA.summary2,
+     number = CA.summary2.cp)
> # Bind the two files
> CA <- rbind(CA_summary1, CA_summary2)
> # Count the number of certain and uncertain annotations
> sum(str_detect(CA$CA.summary, ^CA))
[1] 1101
> sum(str_detect(CA$CA.summary, ^\\(?:?))
[1] 241
> # Create two lists for certain and uncertain annotations
> CA_certain <- CA %>%
+   filter(str_detect(CA.summary, ^CA))
> CA_uncertain <- CA %>%
+   filter(str_detect(CA.summary, ^\\(?:?))
> CA_certain_FR <- CA_certain %>%
+   filter(str_detect(Fichier, ^CFR))
> CA_certain_LSFBS <- CA_certain %>%
+   filter(str_detect(Fichier, ^CLS))
> CA_uncertain_FR <- CA_uncertain %>%
+   filter(str_detect(Fichier, ^CFR))
> CA_uncertain_LSFBS <- CA_uncertain %>%
+   filter(str_detect(Fichier, ^CLS))
> sample(CA_certain_FR$number, 21)
380 95 141 210 77 311 356 123 227 328 202 103 117 178 190 399 302 213 193 169
110
> sample(CA_uncertain_FR$number, 21)
13 272 373 267 203 355 401 15 201 216 252 402 243 248 168 266 31 157 53 33 63
> sample(CA_certain_LSFBS$number, 46)
705 446 164 673 138 21 864 173 289 49 799 620 447 717 867 260 399 292 106 168
429 197 314 119 286 492 571 195 801 797 76 456 410 527 603 697 462 608 24 427
897 237 693 383 807 365
> sample(CA_uncertain_LSFBS$number, 46)
```

88 823 218 267 160 895 534 412 161 82 625 5 838 820 513 822 223 66 379 560
262 353 654 154 508 324 388 143 2 476 288 279 28 454 9 207 662 333 922 69 52
505 3 40 251 896

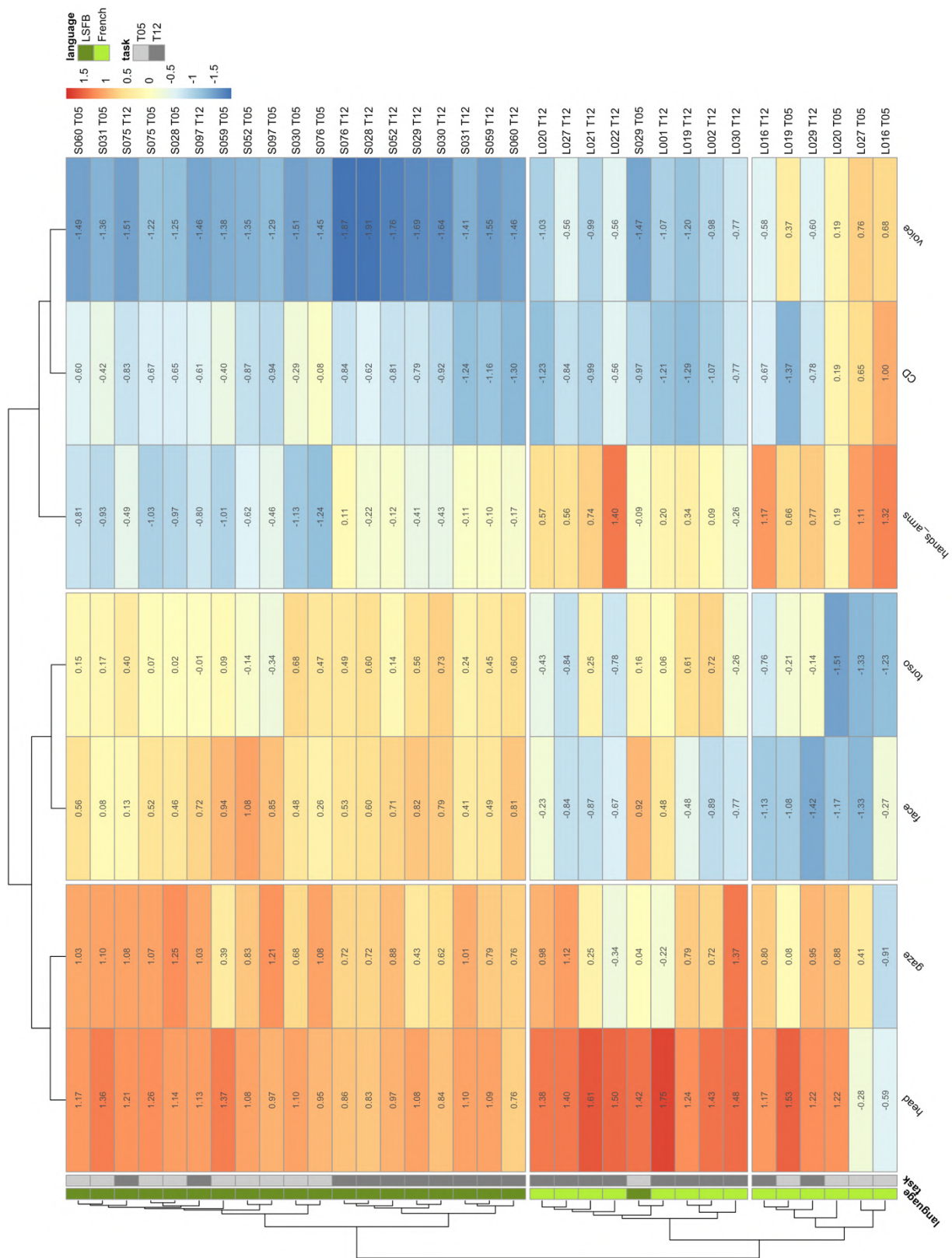


Figure 123. Articulator heatmap dendrogram (version 2)

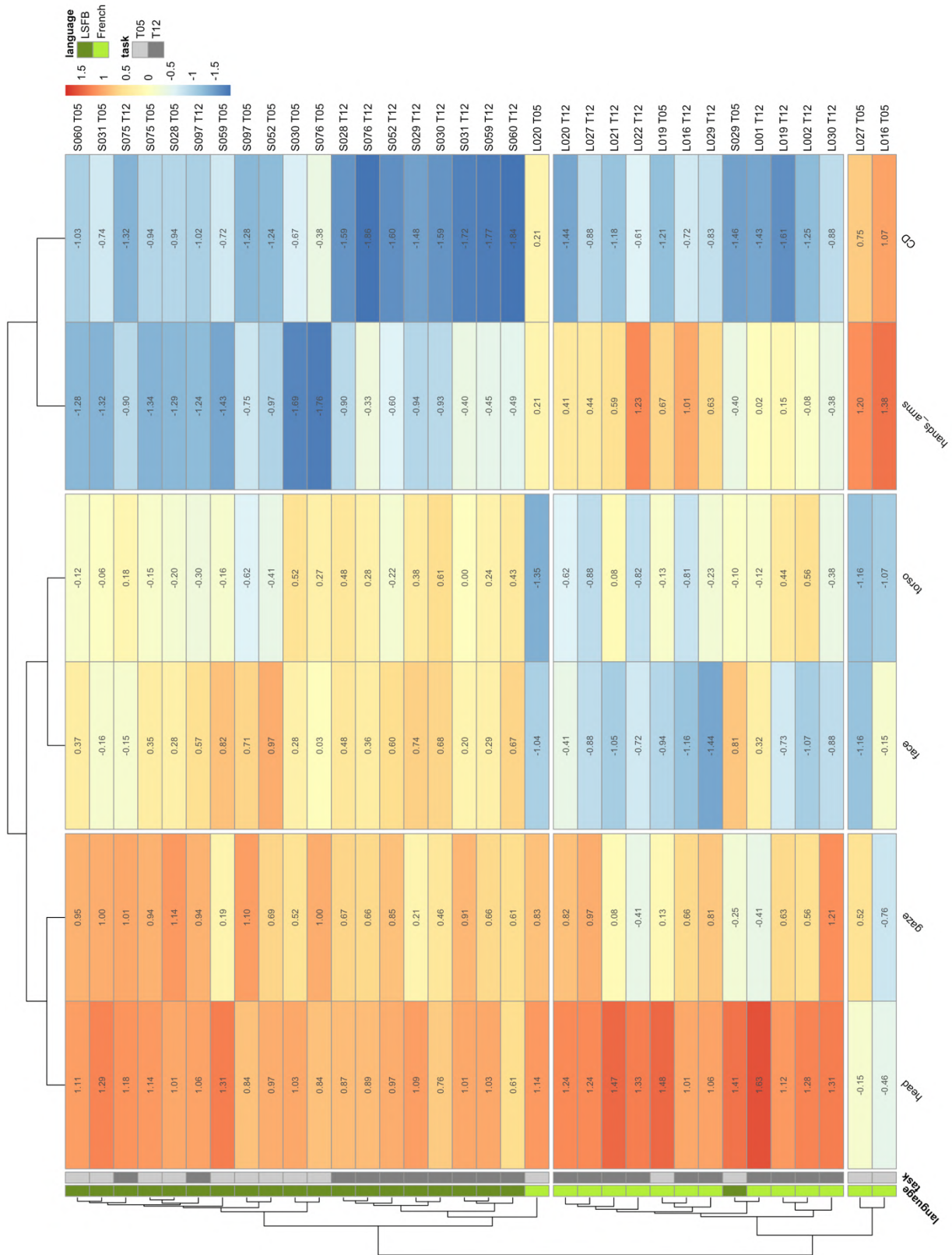


Figure 124. Articulator heatmap dendrogram (version 4)

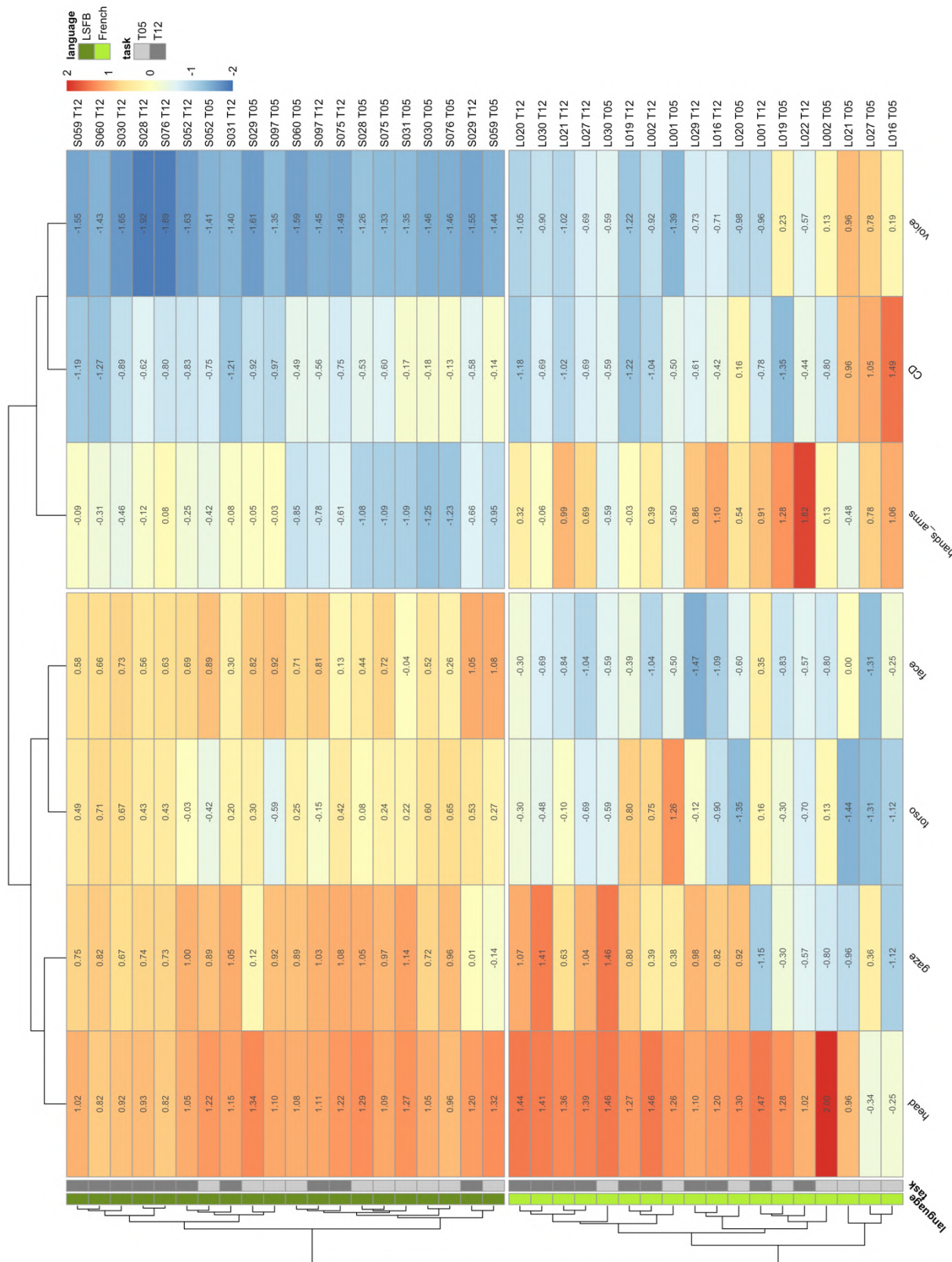


Figure 125. Articulator heatmap dendrogram (version 5, 2 clusters)

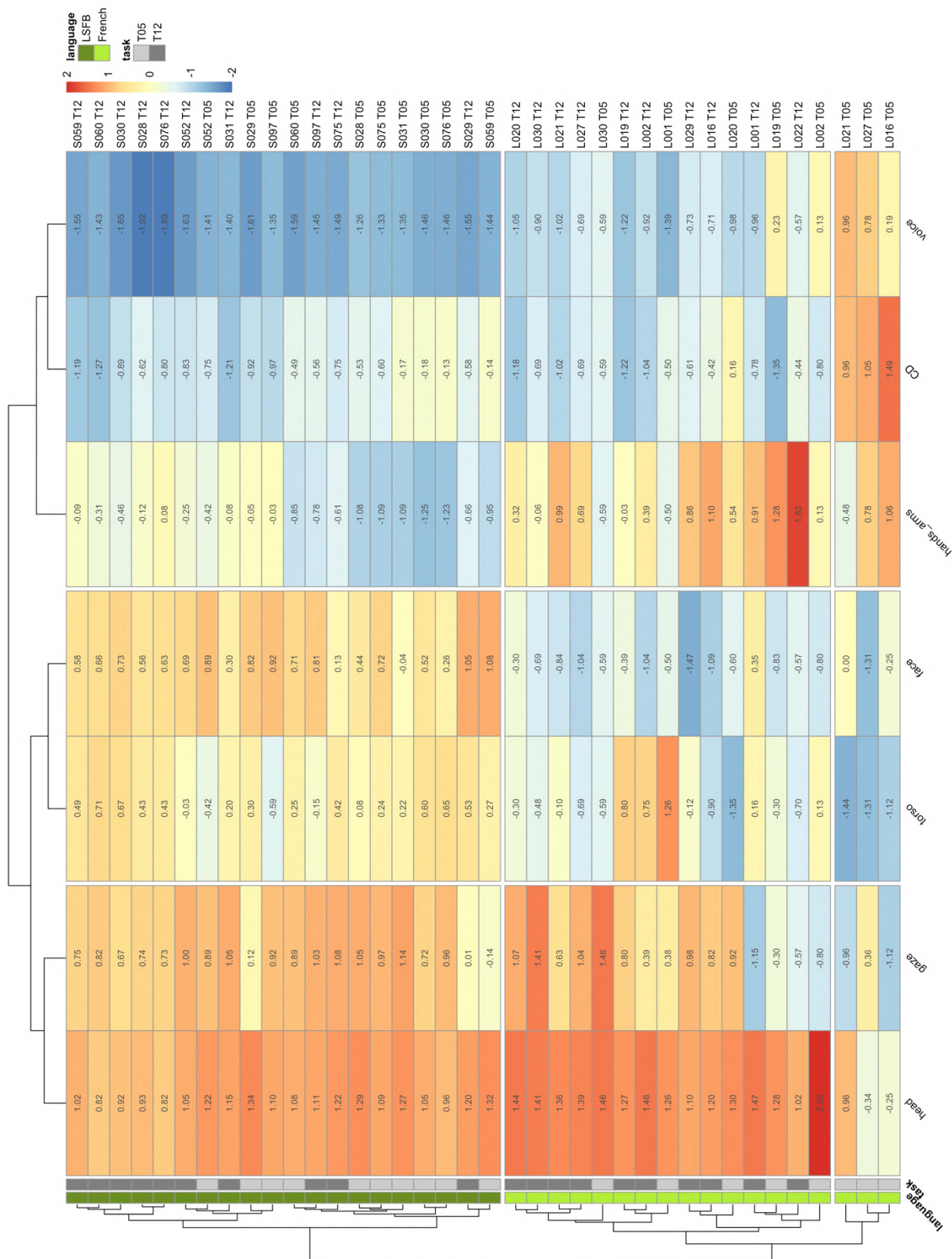


Figure 126. Articulator heatmap dendrogram (version 5, 3 clusters)

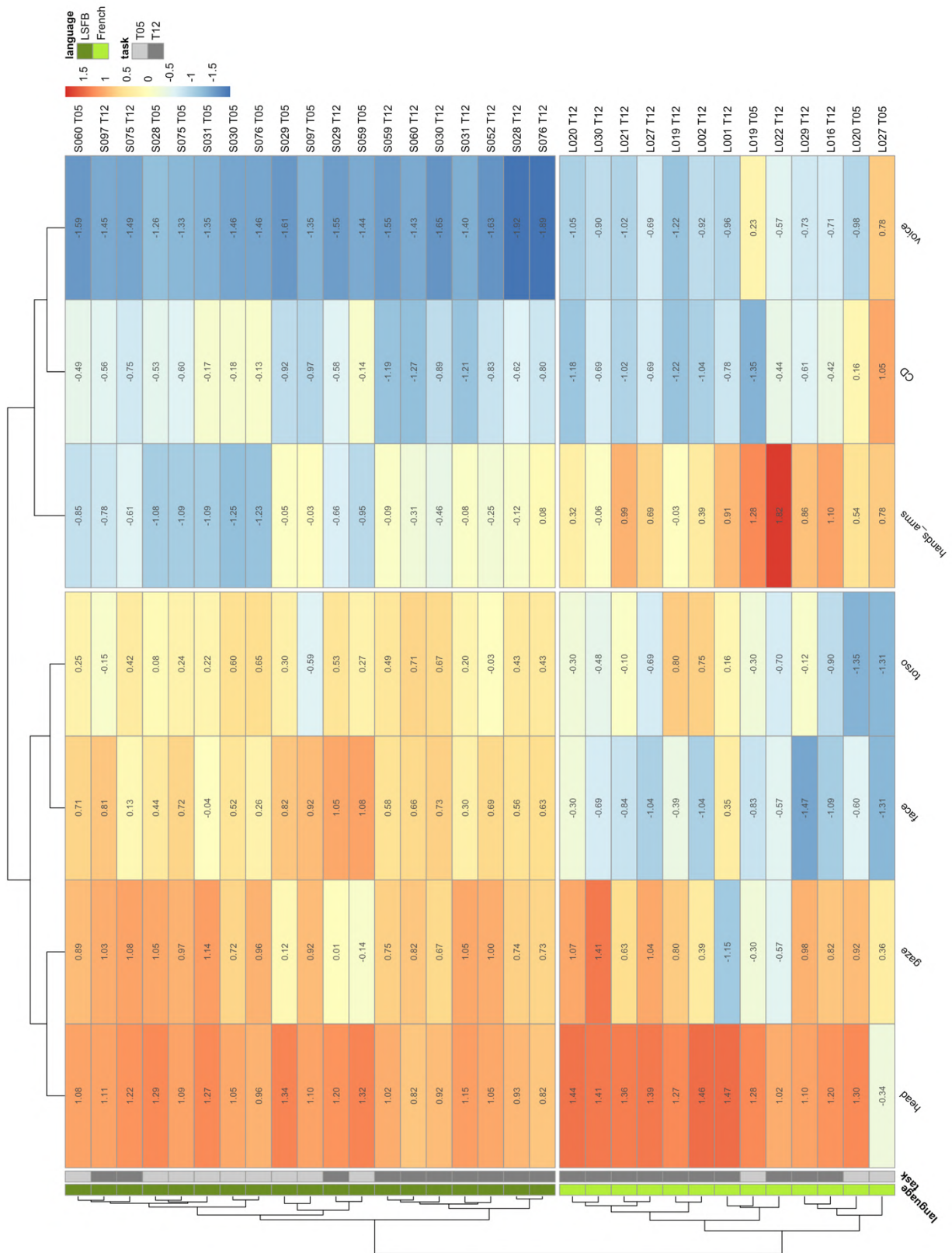


Figure 127. Articulator heatmap dendrogram (version 6, 2 clusters)

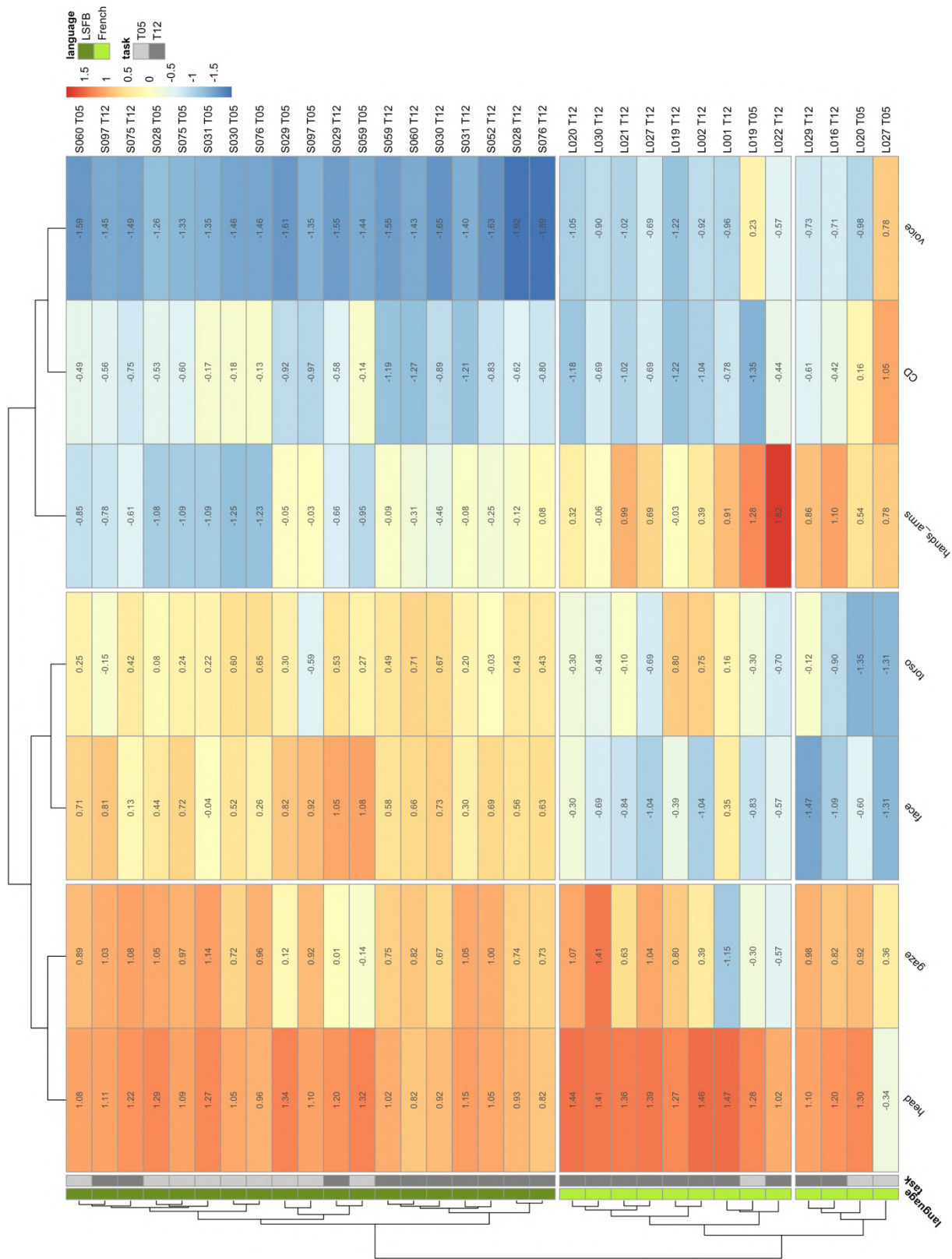


Figure 128. Articulator heatmap dendrogram (version 6, 3 clusters)

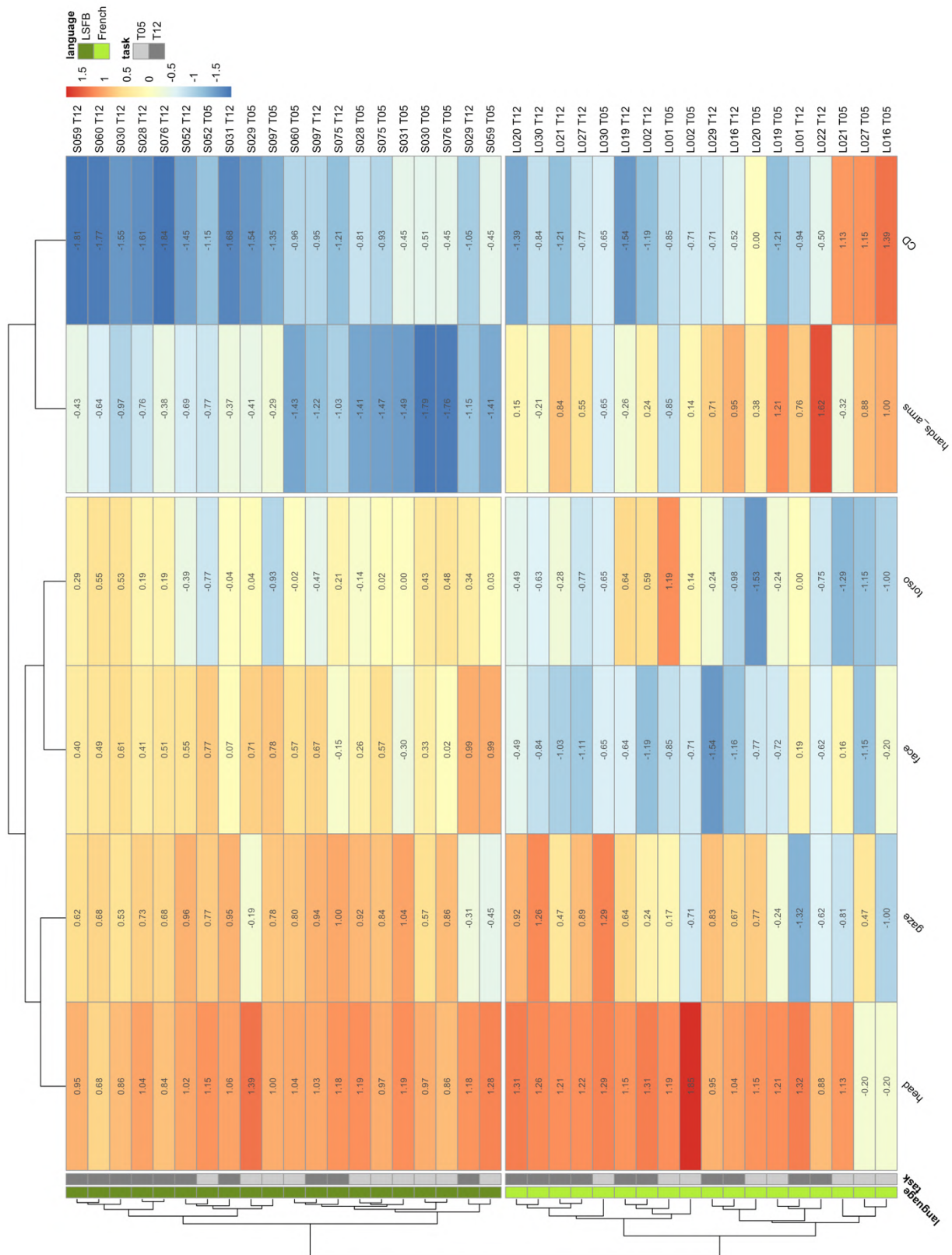


Figure 129. Articulator heatmap dendrogram (version 7)

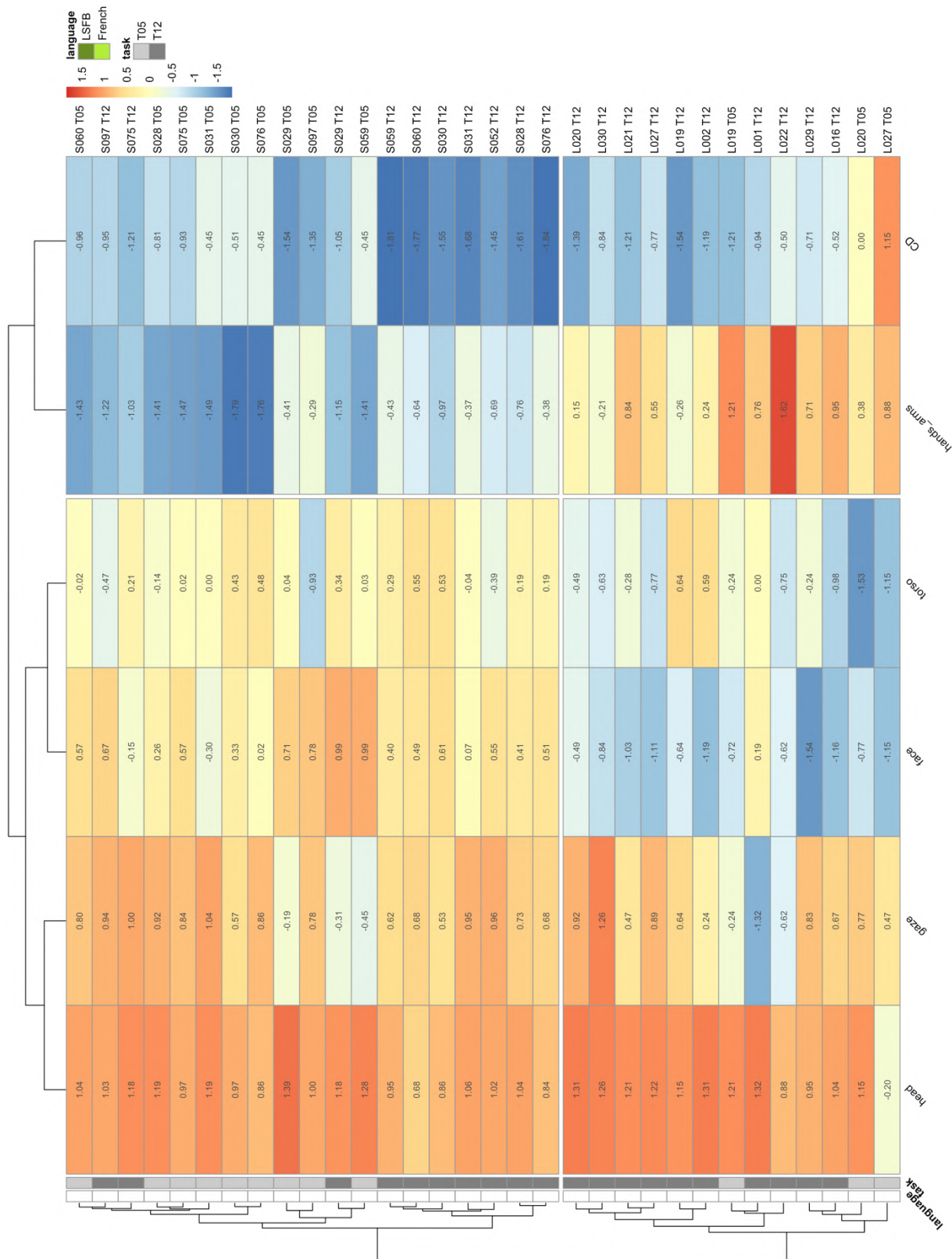


Figure 130. Articulator heatmap dendrogram (version 8)