

Anaphora in two sign languages: A look at nouns and pronouns in spontaneous Catalan Sign Language (LSC) and German Sign Language (DGS) conversational data

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Introduction. The set of referential expressions (RefEx) is wide and varies by language. Sign languages (SLs) use some of the same RefEx as spoken languages (e.g. names and nouns), but also add modality-specific RefEx that use visual iconicity (classifiers, constructed action/role shift) and RefEx that use modality-specific means to refer via locations in signing space (pronouns, verb agreement). This study focuses on reference chains of animate, third person referents, and it compares the use of nouns and pronouns in two sign languages, LSC and DGS, both across the two languages and across different age groups. Using the apparent time hypothesis (Labov 1963), we examine the use of RefEx regarding diachronic change, as well as the synchronic use based on text type, the signer's age, and linguistic context.

Background and dataset. The use of modality-specific RefEx has previously been explored for American Sign Language (ASL; Frederiksen & Mayberry 2016, Czubek 2017, Swabey 2011), LSC (Barberà & Quer 2018), and DGS (Hansen 2008, Perniss & Özyürek 2014) using the frameworks of Accessibility Theory (Ariel 2001) and the Givenness Hierarchy (Gundel et al. 1993), but the focus in these studies has always been on retellings (see also Ferrara et al. 2022 on five different SLs). As retellings tend to be monologue-like, i.e. contain barely any interaction with the addressee, and often feature stylistic choices specific to story-telling, it is likely that these studies do not show the full breadth of the use of RefEx in SLs. The study at hand will instead focus on spontaneous, conversational signing that was recorded without the use of elicitation materials. The LSC and DGS data sets used for this comparative study contain about 20 minutes of video data each, which is annotated for type of RefEx, discourse status, and number of competitors.

Results. The results (see Tab. 1) show that the two languages differ the most in their use of nouns: LSC signers use a lot more nouns than DGS signers, regardless of discourse status. In general, discourse status does not seem to have a strong effect on LSC signers' choice of RefEx: though pronouns are more common in non-introductory contexts, both in introductory and non-introductory contexts, nouns are the most commonly used RefEx. This is different in DGS: in introductory contexts, nouns are very much preferred, while in non-introductory contexts, pronouns are the most commonly used RefEx.

<div><div></div><div>0%–24%</div></div> <div><div></div><div>25%–49%</div></div> <div><div></div><div>50%–75%</div></div>		LSC			DGS		
		young (18–30)	middle (31–50)	old (51–80)	young (18–30)	middle (31–45)	old (46+)
nouns	introductory	4 36.6%	7 46.66%	18 64.28%	6 50%	8 61.54%	7 33.33%
	non-introductory	9 34.6%	21 25%	30 44.11%	1 2.38%	13 27.08%	10 9.90%
pronouns	introductory	2 18.18%	2 13.33%	1 3.57%	1 8.33%	1 7.69%	4 19.05%
	non-introductory	5 19.23%	13 15.47%	12 17.64%	14 33.33%	11 22.92%	30 29.70%

Table 1: Use of nouns and pronouns in LSC & DGS in introductory and non-introductory contexts in three different age groups. Percentages describe the ratio of that RefEx (noun/pronoun) to all RefEx used in that context (introductory/non-introductory) in that age group (young/middle/old).

Regarding the use in different age groups, it seems to be the case in LSC that signers are more likely to use nouns and less likely to use pronouns with increasing age. This may be an instance of diachronic language change triggered by a difference in the pragmatics of the conversation. Older signers need to update the common ground more often and use a RefEx which is much more explicit, like nouns. The Accessibility scale used by older signers is less structured and it mainly uses low accessibility RefEx even in non-introductory contexts. This may be also the result of pointing signs not being fully grammaticalized as RefEx in the older group. In DGS, a different picture emerges: while all age groups use more pronouns in non-introductory contexts, the middle-aged group also uses a fair number of nouns in these contexts. The middle group thus behaves somewhat similarly to the older group in LSC and may be doing so for the same reason: different needs with regard to common ground management and a resulting higher number of low accessibility RefEx. However, this seems less likely than in LSC, as there is no consistent progression throughout the age groups. There could also be social factors at play, as deaf education in Germany has changed a lot throughout the years. It is thus possible that the education of specifically the middle age group emphasized explicitness to avoid reference ambiguity. Another possibility is that the effect we see in the data is due to just one signer's idiolect rather than an age group effect, as most of the non-introductory nouns in the middle-aged group come from just one signer.

Outcome. These results emphasize the importance of looking at:

1. Sign languages: the reported observations from SpLs that older speakers use more pronouns than younger speakers (e.g., Hendriks et al. 2014) do not seem to hold for SLs.
2. Multiple sign languages: the results for LSC and DGS in these comparable data sets are markedly different from one another and argue for detailed language-specific studies.
3. Conversational data: previous observations of SLs not using many pronouns at all and instead using a lot of visual RefEx, such as classifiers and CA (e.g., Frederiksen & Mayberry 2016) do not hold when looking at spontaneous conversational data.
4. Change across age groups: the results show that signers of different ages do use RefEx in different ways.

We are hopeful that this study may inspire more diverse research in the field of sign language referential expressions. The comparison of different sign languages and different text types promises richer results and a more complete understanding of how reference works in SLs and across different age groups of signers.

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