Language Discrimination and Transfer in Sign Languages

   This study analyzes the language of a group of Deaf native signers (born to Deaf parents) who are fluent in two different sign languages. Each signer produced a spontaneous narrative in their L1 and L2 language. The motivation for this study is to develop stimulus materials for an upcoming investigation to determine whether deaf infants can distinguish unknown sign languages. For this study, it is critical to identify what features are used to distinguish sign languages and to what degree the language samples show transfer from the signer's L1. While a fair amount is known about what characteristics of spoken language infants attend to, we know very little about what aspects of sign language are salient to young deaf infants. There is also little research on what features are subject to transfer in L2 signing. The presented research aims to take a first step towards identifying the characteristics of different sign languages and of language transfer.

   The questions of categorical linguistic differences across sign languages and transfer in sign languages have largely been left unexplored (but see Budding et al., 1995; Chen Pichler, 2011). In this project, I analyze the phonological and prosodic features of Deaf signers' L1 and L2 production, including consideration of how features from each individual's L1 impacted their L2 production. Sign languages examined include Persian Sign Language (ZEI), Swedish Sign Language (SSL), Japanese Sign Language (JSL) and Langue des Signes Québécoise (LSQ). For all participants, their L2 was American Sign Language (ASL).

   In addition to my own analysis, I asked proficient signers to watch short video clips of the bilingual signers and respond to a series of questions about accent and linguistic characteristics. I then used these results to examine the relative strength and features of perceived accent as well as general perception of unknown sign languages. In all 5 signers, mouthing ranked as a very important factor in perception of accent. This finding was true whether the mouthing was perceived as too much (in the case of ZEI), too little (in the case of JSL), or simply different (in the case of SSL). Overall rhythm was also identified as an important difference in the signers' language production. These finding indicate that prosodic features and type of mouthing contribute significantly to the perception of linguistic differences.

   When I conducted an in-depth comparison of the language samples, I found evidence of transfer from the mouthing patterns of each signer's native language. The table below shows mouthing percentages for participants in their L1 and L2. Note that the signer with a higher percentage of L1 mouthing also had a higher percentage of mouthing in their L2 and vice versa.

	% signs produced with English mouthing (ASL sample)	% signs produced with L1 mouthing (L1 sample)	% signs produced with non-standard mouthing (ASL sample)
#1 (ZEI)	79.8%	85.3%	22.8%
#2 (JSL)	48.9%	37.5%	23.0%
#5 (SSL)	72.9%	64.8%	1.7%

I also found transfer of prosodic patterns from the native sign language. For example, one generic prosodic cue for marking intonational phrase (IP) boundaries is a change in head or body position (Sandler, 2010). When I compared the native JSL user and the native ZEI user, I found that each used different elements to mark the end of IPs in their native language. The JSL user ended most IPs with a head nod and showed very little side-to-side movement. The ZEI user marked almost every IP with a body shift, most frequently side-to-side. For both signers, these characteristics were evident in their ASL production as well. Since both signers were perceived by ASL-signing judges as highly accented, this finding supports the hypothesis that the choice of prosodic markers varies across sign languages.

These findings have important implications for any study of sign language discrimination. The sign languages that contrasted the most with ASL in their mouthing and prosodic features led to the most noticeably accented sign, indicating that mouthing and prosodic cues do vary across sign languages and might be cues used to discriminate languages. This study paves the way for determining which language pairs could be used for a language discrimination task. To test if deaf infants use prosodic cues to discriminate languages, then the test languages chosen should include at least one language pair that uses similar prosodic boundary markers and one that uses maximally distinct boundary markers. Similarly, sign languages that use mouthing in different ways should be evaluated to determine how much infants attend to mouth movements when viewing unknown sign languages.

References

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