

Numeral formation in Filipino Sign Language: strategies and variation

BACKGROUND. Numerals are known to resist change and variation [4,9]. In spoken languages, variation within language is rare (e.g., French *huitante* versus *quatre vingt*). In particular, low numbers are conceptually basic, and their exact values are crucial for correct understanding (e.g., buying six vs. eight chairs). Some sign languages (SLs), however, present us with considerable variation in the domain of numbers (e.g., [5,6,7,8]; see also [10]). This is partly motivated by the visual-spatial modality; numbers can, e.g., be influenced by written forms [7,1,3] or may vary based on parameters (e.g., one-handed vs. two-handed). This paper addresses strategies for forming cardinal numbers in Filipino Sign Language (FSL) and discusses the considerable variation we observe within this lexical domain in one region of the Philippines.

METHOD. Using object counting, money counting, and modified price bidding methods [6,10], data were collected from 20 Deaf locals from Palawan, an island in Western Luzon, Philippines. This yielded a set of 1300 number signs, which were coded based on their numeral (e.g., basic-numeral, arithmetic operation, base [2]) and morpho-phonological features (e.g., handedness, handshape, movement [6]), assigning a value of 1 or 0, respectively, for the presence or absence of a feature.

RESULTS. We observed three categories of numeral formation: lexical [11], sequential [12], and simultaneous [13] (see Table 1). FSL demonstrates unique lexical and iconic forms for specific numbers as well as variation in numeral strategies that have been attested in other SLs [7,8,6,1,3,5]. FSL numerals show a range of variation from arbitrary (Fig.1.a, Fig.2.a-b) to iconic signs (Fig.1.b, Fig.2.c-d). For some numerals (e.g., ten, see Fig. 2), we find up to four variants.

Table 1. Distribution of categories per numeral cluster

Numeral Clusters	Numeral Units	Numeral Formation Categories		
		Lexical	Sequential	Simultaneous
<i>i</i>	1 – 5	✓		
<i>ii</i>	6 – 10	✓		✓
<i>iii</i>	11 – 15	✓	✓	✓
<i>iv</i>	16 – 19	✓		✓
<i>v</i>	<i>multiples</i>	✓	✓	✓
<i>vi</i>	<i>compounds</i>	✓	✓	

DISCUSSION. There are two sociolinguistic motivations for the rich intra-language variation of FSL numerals. First, due to Americanized Deaf education in the country, borrowing from American SL (ASL) is evident (e.g., 7 in Fig1.a). Interestingly, these borrowed forms have a unique arbitrary and/or iconic local-community counterpart. FSL displays a considerable number of unique variants for numbers 10 and 100, cluster 16 to 19, and multipliers like thousands and hundreds. Second, the existence of iconic (e.g., fingerspelled, Decimal Notation System-based) variants within and across numeral clusters reflects the Deaf community's constant use of signing with the larger non-signing hearing community. It thus manifests a form of accommodation wherein the minority Deaf adapt to the needs of the hearing majority by changing forms whenever necessary from less iconic (e.g., arbitrary handshapes) to more iconic variants. Because SLs are more iconic, they allow more creativity in forming new iconic signs for numbers in situations where necessary, especially when adapting to a non-signing interlocutor. Where spoken languages tend to resist optionality/variation in the domain of numbers, this variation is retained in SLs. We hypothesize that the preference for a certain numeral sign is context-dependent. Factors like ease of articulation and perhaps identity marking could play a role in the communication with other deaf signers and iconicity might be preferred in contact with signers from the hearing community.

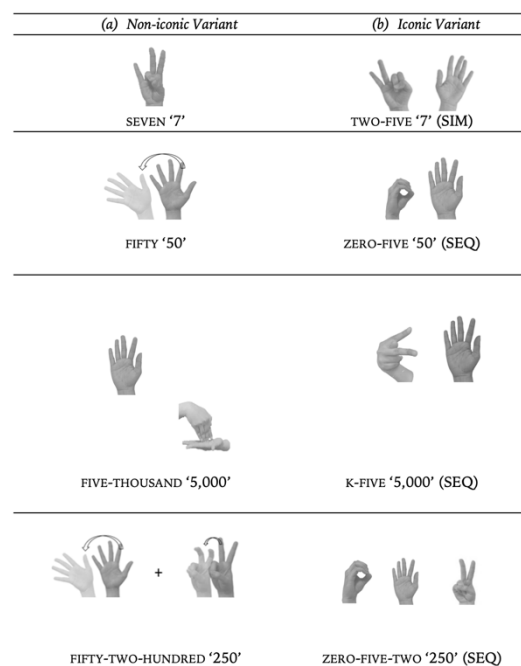


Figure 1. Non-iconic vs. iconic variants of FSL numerals in different clusters (SIM = simultaneous, i.e., two-handed articulation; SEQ = sequential articulation of one handshape after the other)

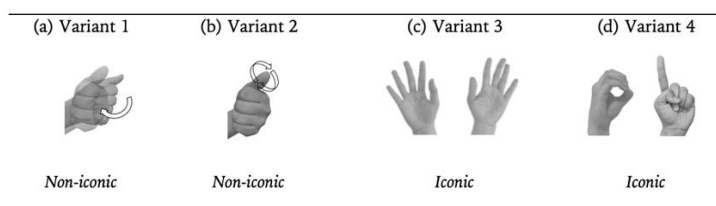


Figure 2. Non-iconic and iconic variants of number TEN in FSL

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NOTES. [11] **Lexical** is defined as a monomorphemic sign denoting a particular number. [12] **Sequential strategy** is the sequencing of single morphological segments to form a word (e.g., sequencing of handshapes ONE-SIX-FIVE to form the numeral one hundred and sixty-five). [13] **Simultaneous strategy** is characterized by the simultaneous signing of a numeral handshape and an arbitrary movement pattern.