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An Empirical Analysis of Van Manen's Rule of Three: Sublexical Constraints in ASL Morph Structures

Sean Ryan Hauschildt[1], Kenley Migues[1], Ja'Nysa Richard[1], Dymaia Hadnot[1], Deborah Marshall[1], Syanne Monroe[1], Victor Yacovodonato[1], Ryan Klaudt[1], Makayla Tucker[1], Sam Mullan[1], Edwin Hernandez[1], Allyson Arnold[1], Dorothy Miller[1], Ivana Laura Camarillo[1], Alycia L. Slattery[1], Audra McCorkle-Geng[2*], Cristophorus Subandi Budidharma[1]

[1]Department of Deaf Studies and Deaf Education, Lamar University, Beaumont, USA
[2]Department of Linguistics, University of Colorado Boulder, Boulder, USA
Email: *amccorklegen@lamar.edu

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Abstract

Van Manen (2018) proposed the rule of three theory, suggesting that American Sign Language (ASL) morph structures are constrained by a maximum of three sublexical features within phonological domains. However, this claim has not previously been empirically tested. The present study examined whether ASL fingerspelling morph types, unimorph, bimorph, trimorph, quadmorph, synomorph, and typical morph conform to the rule of three constraint across five sublexical domains: handshape, location, movement, palm orientation, and non-manual signals. A dataset of 1579 ASL morph tokens was collected and coded using examples identified in Van Manen's (2018) framework. Frequency distributions were first calculated to examine the number of structural units within each domain, followed by median analysis to summarize structural complexity across morph types. Exact binomial tests were conducted to compare observed violation rates with a prespecified 5% tolerance threshold. Results indicated that the majority of morph productions conformed to the three-unit constraint. Apparent violations were limited and were associated with specific lexical sequences that likely reflect phonological processes rather than independent structural units.

Keywords

Fingerspelling, ASL, Rule of Three, Phonology, Signed Language

1. Introduction

Research on American Sign Language (ASL) fingerspelling has demonstrated that fingerspelled forms are not produced as simple sequences of isolated alphabet handshapes (Battison, 1978; Brentari, 1998; Jerde et al., 2003; Padden & Gunsauls, 2003). Rather, fingerspelling involves complex interactions among handshape transitions, movement, palm orientation, and coarticulatory processes that emerge during fluent production (Battison, 1978; Jerde et al., 2003; Keane et al., 2012). Previous studies have documented phonological phenomena such as assimilation, reduction, elision, and movement epenthesis, indicating that neighboring handshapes frequently influence one another during production (Battison, 1978; Jerde et al., 2003).

Assimilation was defined as the influence of one handshape on a neighboring handshape, resulting in increased articulatory similarity between adjacent forms (Battison, 1978; Jerde et al., 2003; Van Manen, 2018). Movement epenthesis referred to the insertion of transitional movement between adjacent handshapes that was not part of the underlying lexical structure but emerged during production to facilitate articulatory transitions (Brentari, 1998; Jerde et al., 2003; Liddell & Johnson, 1989; Van Manen, 2018). Reduction was defined as the simplification, compression, or modification of a handshape, movement, or articulatory feature relative to its citation-form production, often resulting in fewer visible sublexical features (Battison, 1978; Van Manen, 2018). Elision refers to the omission or deletion of an expected handshape or articulatory component during production, resulting in a reduced surface realization of the target form (Battison, 1978; Van Manen, 2018). These findings suggested that fingerspelling functions as a dynamic linguistic system governed by articulatory and phonological constraints rather than a direct visual representation of written English (Brentari, 1998; Sandler, 1989).

In addition to phonological patterning, researchers have examined how lexical frequency, perceptual processing, and articulatory efficiency influence fingerspelled forms (Geer & Keane, 2018; Nicodemus et al., 2017; Padden & Gunsauls, 2003). This body of research has provided important insights into fingerspelling production and recognition; however, relatively little attention has been given to whether recurring structural patterns within fingerspelled forms can be systematically classified according to sublexical organization. One notable exception is Van Manen's (2018) framework, which proposed that fingerspelled forms can be categorized into distinct morph types and that these structures are constrained by a *rule of three* governing the maximum number of sublexical units within a phonological domain. Van Manen's (2018) framework provides a means of describing recurring structural patterns in fingerspelled forms that are not captured by traditional alphabet-based analyses. Within this framework, Van Manen (2018) conceptualized morphs as structured signs rather than conventional fingerspelled forms. These morphs are composed of one or more sublexical units that pattern across handshape, movement, location, orientation, and non-manual (NMS) signals.

Van Manen (2018) adopted the term *morph* (meaning shape) to describe ASL fingerspelling and its structural characteristics (see **Table 1**). It is important to distinguish Van Manen's (2018) use of the term morph from the traditional linguistic concept of a morpheme. In linguistic theory, a morpheme is generally defined as the smallest meaningful unit of language, whereas a morph refers to the observable surface realization of a linguistic form. Van Manen (2018) used the term morph to describe structural patterns within fingerspelled forms rather than grammatical meaning units. Consequently, morph categories examined in the present study represent patterns of sublexical organization in fingerspelling production rather than morphemes in the traditional linguistic sense. He further identified five morph categories: *unimorph*, *bimorph*, *trimorph*, *quadmorph*, and *synomorph*. The labels reflect the structural organization of the form, with *uni-*, *bi-*, *tri-*, and *quad*—referring to one, two, three, and four units, respectively, and *syno*—referring to synchronized organization as described by Van Manen (2018). Morphs are classified according to the number and organization of these units, resulting in five distinct structural categories. Collectively, these morph categories describe systematic variation in sublexical organization and provide a descriptive framework for examining structural patterning in ASL fingerspelling. Despite the growing literature on ASL fingerspelling, Van Manen's (2018) rule of three has not been subjected to empirical evaluation. Consequently, it remains unclear whether ASL morph structures consistently conform to the proposed three-unit constraint across handshape, location, movement, palm orientation, and NMS domains. The present study addresses this gap by providing the first quantitative test of the rule of three using a large corpus of ASL morph tokens.

Table 1. Van Manen's morphs type and its structural characteristics.

Morph Type	Core Structural Property	Sublexical Organization	Canonical Example	Key Diagnostic Feature
Unimorph	Reduction into a single unit	Two underlying handshapes are reduced and assimilated into one new surface handshape	PURE	One surface handshape; underlying complexity is compressed
Synomorph	Fusion with simultaneity	Two distinct handshapes are visible at the same time within a single fingerspelled form	FIX	Simultaneous visibility of two handshapes
Bimorph	Dual units preserved	Two sublexical units maintained through coarticulatory movement	FUR	Two units linked via wrist or internal movement
Trimorph	Three sequential units	Three distinct handshapes organized sequentially within one form	#BUS	Three handshapes with transitional movement
Quadmorph	Four sequential units	Four sublexical units structured within a continuous articulated sequence	#HOOD	Four sequential handshapes connected by slide movement, reduction or elision
Typical Morph	Canonical articulation	Discrete alphabetic handshapes produced individually	A-B-C-D	Citation form for fingerspelling

Note. This table summarizes the structural properties of ASL morph types as described by Van Manen's (2018) morph framework. Each morph category is defined by its characteristic sublexical organization, including reduction, simultaneity, or sequential structuring of handshapes within a single articulated form. Canonical examples illustrate representative lexicalized fingerspelled signs associated with each morph type. The typical morph category serves as the baseline, representing standard citation form for fingerspelling in which individual alphabetic handshapes are produced discretely without morph restructuring.

The typical morph category was operationally defined as citation-form fingerspelling in which alphabetic handshapes are produced discretely and sequentially without lexicalization, assimilation, reduction, elision, or other restructuring processes. This category was not proposed by Van Manen (2018) but was introduced in the present study to provide a baseline against which the structural properties of other morph types could be compared. The inclusion of a baseline category allows for clearer identification of the phonological and sublexical characteristics that distinguish morph productions from standard fingerspelling forms.

The original ASL morph framework does not include a baseline category against which morph structures can be compared, particularly given that Van Manen (2018) introduced new morph categories to describe structural patterns that may otherwise be overlooked. Van Manen argued that understanding the underlying structures of signs through the rule of three theory can support non-native signers in developing more accurate comprehension and articulation of fingerspelled forms (Van Manen, 2018). New signers must acquire not only the standard 26 ASL alphabet signs, but also the underlying structural patterns that shape their production (Van Manen, 2018). For the purposes of the present study, a sixth category, referred to as the typical morph, was introduced as a baseline for comparison (see **Table 2**). The typical morph category (see **Figure 1**) serves as the baseline, representing standard citation form for fingerspelling in which individual alphabetic handshapes are produced discretely without morph restructuring. This sixth morph captures information related to anatomical dependency, linguistic features, and rules of three sublexical organizations.

Van Manen (2018) developed the rule of three theory to account for structural constraints in ASL fingerspelling by positing systematic limits on sublexical organization. Within this framework, traditional phonological parameters are reconceptualized as sublexical units, emphasizing their combinatory and rule-governed nature rather than their status as fixed categories. Van Manen (2018) proposed that a single sign may include no more than three units within any sublexical domain, including handshape, orientation, location, movement, and NMS (see **Table 2**). In canonical ASL forms, most signs contain one or two handshapes, palm orientations, or locations, with a single movement segment connecting articulatory positions. If a brief pause occurs before movement continues to a subsequent location, the sequence is counted as an additional movement unit. Although movement cannot be produced independently of handshape and location, sign language phonology commonly treats movement as a distinct analytical parameter alongside handshape, location, and orientation (Sandler, 1989; Brentari, 1998). Accordingly, the rule of three treats movement as a separate countable sublexical domain while acknowledging the articulatory interdependence among phonological parameters (Napoli & Ferrara, 2021). NMS function as optional sublexical features and are therefore not obligatory across all signs (Van Manen, 2018). Apparent deviations from the rule of three are not treated as violations but as systematic expectations that reveal how the language resolves structural pressures within these constraints.

Note. From *Asl alphabet gallaudet ann.svg*, by Marnanel, 2007, Wikimedia Commons (https://commons.wikimedia.org/wiki/File:Asl_alphabet_gallaudet_ann.svg). Public domain.

Figure 1. Canonical ASL alphabet handshapes used as the typical morph.

Table 2. Rule of three theory: Sublexical domain constraints.

Sublexical Checklist	0	1	2	3	4
Handshape	Impossible	Allowed	Allowed	Allowed	Exceeds limit
Palm Orientation	Impossible	Allowed	Allowed	Allowed	Exceeds limit
Location	Impossible	Allowed	Allowed	Allowed	Exceeds limit
Movement	Allowed	Allowed	Allowed	Allowed	Exceeds limit
Non-Manual Signals	Allowed	Allowed	Allowed	Allowed	Exceeds limit

Note. Numbers (0 - 4) represent the number of sublexical units within each domain. "Impossible" indicates that the domain cannot occur with zero sublexical units. "Allowed" indicates that the configuration is attested or permissible. "Exceeds limit" indicates values that surpass the maximum of three units under the rule of three constraint.

Although the rule of three theory has not yet been subjected to formal empirical testing, it is grounded in more than two decades of longitudinal linguistic observation and analysis (Van Manen, 2018). The theory has since served as a foundational framework for understanding ASL morph formation, particularly in relation to sublexical organization.

2. Research Question and Hypotheses

To evaluate the empirical applicability of the rule of three theory, the present study addresses the following research question:

Research Question

To what extent do ASL morph types (typical alphabetic morphs and non-typical morphs) conform to the rule of three across sublexical domains (handshape, palm orientation, location, movement, and NMS)?

H_0: The proportion of rule of three violations within each morph type and sublexical domain does not exceed the prespecified 5% tolerance threshold ($p \leq .05$).

H_1: The proportion of rule of three violations within at least one morph type and sublexical domain exceeds the prespecified 5% tolerance threshold ($p > .05$).

To test these hypotheses, the following methodology was employed.

3. Method

This study employed a quantitative descriptive design to examine whether 6 ASL morph structures conform to the rule of three constraint proposed by Van Manen (2018). A dataset of ASL morph tokens was collected and coded according to five sublexical domains: handshape, location, movement, palm orientation, and NMS. The analysis focused on determining the number of sublexical features present within each domain across morph tokens identified in Van Manen's (2018) framework. Frequency distributions, median analysis, and exact binomial tests were then conducted to evaluate structural patterns and assess whether observed violations exceeded the theoretical tolerance threshold predicted by the rule of three theory.

3.1. Sampling Frame

The sampling frame consisted of publicly available ASL videos identified from the reference materials accompanying *The Fingerspelling Code: Linguistics of the ASL Alphabet* (Van Manen, 2018), together with supplementary ASLized academic discourse from Mertens (2015). These sources were selected because they contained naturally occurring examples of lexicalized fingerspelled forms representing the morph categories described by Van Manen (2018). All videos were screened in their entirety for eligible morph productions prior to coding.

A token was defined as one complete production of a lexicalized fingerspelled form. Each occurrence was treated as an independent observation when it represented a separate production event. Tokens were included only when the entire production was visible and could be reliably coded across the sublexical domains of handshape, movement, palm orientation, location, and NMS. Tokens with incomplete productions or insufficient visual quality were excluded from analysis.

3.2. Data Collection

A total of 15 coders participated in the project, including 13 undergraduate students (12 hearing and one Deaf) and two graduate students (one hearing-mute and one late hard-of-hearing). Participants' ASL proficiency ranged from advanced second-language signers to near-native signers. Before coding began, all coders received training on Van Manen's (2018) morph framework, including the rule of three, morph classifications, and operational definitions for each coded variable.

The 15 students were divided into five coding teams and assigned one morph category: unimorph, bimorph, trimorph, quadmorph, or synomorph. The typical morph category was reviewed collectively by the entire coding team because it served as the citation form baseline for comparison. Each group agreed to select specific YouTube links from Van Manen's (2018) reference list and Merten's (2015) ASLized YouTube links using a purposive sampling approach. To facilitate tracking and coding, each video was labeled using the last four characters of its URL. This practice allowed us to resolve issues with coding and data interpretation.

The initial goal was to identify approximately 200 candidate signs for each morph category. This target was established to provide broad representation across the corpus while maximizing the likelihood of obtaining enough eligible morph tokens for subsequent statistical analyses. Because the study relied on naturally occurring ASL productions rather than experimentally elicited stimuli, the number of eligible signs varied across morph categories depending on their availability within the sampled video sources. Consequently, the final number of coded tokens differed across morph types after applying the study's inclusion criteria.

Van Manen's (2018) framework classifies ASL signs according to patterns of sublexical organization. Typical morph represents citation form for fingerspelling without any phonological processes, whereas unimorph, bimorph, trimorph, quadmorph, and synomorph reflect variation in the reduction, preservation, sequential organization, or simultaneous expression of sublexical units. These categories served as the coding framework for the present study. **Table 3** summarizes the 15 video sources included in the corpus, along with their creators, publication years, clip codes, token counts, and source links. Additional details regarding the identified morphs and token frequencies extracted from each video source are provided in the **Appendix**.

3.3. Coder Training

Before data collection began, all coders received the same researcher-developed codebook based on Van Manen's (2018) rule of three framework. The codebook provided standardized operational definitions for each morph category, sublexical domain (handshape, movement, location, palm orientation, and NMS), and phonological process (assimilation, movement epenthesis, reduction, and elision). Using a common codebook ensures that all coding teams applied consistent definitions and decision criteria throughout the project.

Table 3. YouTube Video sources included in the Corpus.

#	Creator/ Author	Year	Title	Clip Code	Tokens	Link Address
1	Brandon Arthur	2013	Interview with Shane Feldman, New Executive Director of RID	aOpQ	616	https://youtu.be/hdND72vaOpQ
2	Trudy Suggs	2012	Deaf Disempowerment and Today's Interpreter	Omo8	78	https://youtu.be/pDSNKRaOmo8
3	Fred Weiner	2011	GU's Master Campus Plan 2022	M05M	176	https://youtu.be/dbTQHG1M05M
4	Branton Steward	2013	DAC Meeting with RID	OK8E	28	https://youtu.be/5q5H8blOK8E
5	Noah Buccholz	2012	Responding to Those Who Mock Sign Language	Olpk	71	https://youtu.be/brwxpRWOlpk
6	Quentin Green	2013	Badly Education	z8FE	110	https://youtu.be/EA0l8uVz8FE?si=wD4kT1OLn-f98VOX
7	Quentin Green	2012	Deaf Hippiedom	IkpM	129	https://www.youtube.com/watch?v=JT35xdAIkpM
8	Andrew Bottoms	2011	Understanding Proximalization and Nonmanuals in M2L2 Sign	m2l2	34	https://youtu.be/Y2SdS-UCcK4?si=-Ha1dtzk2BPVieJc
9	Laurie Nash	2013	RID: Retraction Leaves Interpreters with Deaf Parents in Doubt	3700	173	https://www.youtube.com/watch?v=rdpftIq37oo
10	Lynnette Taylor	2013	Modern Questor: Connecting the Past to the Future of the Field	n5B0	12	https://youtu.be/eHw77hbn5B0
11	Eric Witteborg	2012	Deaf Education 3.0	MySI	13	https://youtu.be/4MtA3c7MySI
12	Patrick Boudreault	2013	The Universal Language Is in Our Minds	CRBM	23	https://youtu.be/psTgV_1QBSE?si=Rudk_YfbloqpY_XN
13	Sean Hauschildt	2021	FS Video 3	F1cw	15	https://youtu.be/nPDhO2CF1cw
14	ASLized!	2017	Chapter 1: An Introduction to Research	ukps	73	https://youtu.be/cGHfzkGukps
15	ASLized!	2017	Chapter 8: Qualitative Research	tg2Y	28	https://youtu.be/q4FgWhatg2Y

Note. The dataset consisted of 1579 coded tokens drawn from 15 video sources. Clip codes were used to identify the source video associated with each coded token. Video titles, creators, publication years, and source links are reported to support transparency and replicability of the sampling procedure.

Each coding team reviewed examples from the assigned video sources before beginning formal coding. During the coding process, team members discussed ambiguous productions within their groups and documented questions for discussion during research meetings. When uncertainty remained regarding morph classification or sublexical segmentation, the coding teams consulted with the Deaf professor before finalizing coding decisions. This iterative review process helped maintain consistency in the application of the coding protocol across all teams.

Students first reviewed their assigned morph signs and recorded observational notes regarding the sign's structural characteristics. Each token was reviewed multiple times at normal speed and reduced playback speed before coding decisions were recorded. Each team documented the corresponding video reference and timestamp for every morph sign identified. Team leaders then presented the target signs using two 75-inch classroom monitors. Video clips were reviewed at both normal and reduced playback speeds to facilitate identification of subtle articulatory features.

3.4. Coding Protocol

A previously developed coding protocol used by the research team in a related study was adapted for the present investigation. The original codebook provided operational definitions and coding procedures for morph classification, sublexical domains, phonological processes, and anatomical and biomechanical features. These coding procedures were retained for the present study, with additional coding criteria incorporated to operationalize and empirically examine Van Manen's (2018) rule of three. Coding was conducted across five sublexical domains: handshape, movement, palm orientation, location, and NMS.

Handshape units were counted when they represented distinct, stable articulatory targets within a fingerspelled form. Transitional finger positions occurring only during movement between target handshapes were not coded as independent handshape units. Movement was coded when it represented an independent articulatory target rather than transitional movement occurring solely to facilitate biomechanical movement between adjacent handshapes. Palm orientation was coded according to the stable orientation of the palm associated with each sublexical unit. Changes in orientation were recorded only when they represented distinct articulatory targets rather than continuous rotational movement. Location units were coded when they represented distinct target locations in signing space or on the body. In the absence of evidence supporting multiple independent location targets, continuous movement between locations was treated as a single movement rather than multiple location units. NMS included observable facial expressions, mouth movements, head movements, and other non-manual behaviors occurring simultaneously with fingerspelled production.

In addition to the five sublexical domains, coders recorded the presence or absence of four phonological processes: assimilation, movement epenthesis, reduction, and elision. These processes were identified using operational definitions derived from Van Manen (2018) and were coded independently of morph classification. Anatomical and biomechanical features—including wrist motion, thumb position, finger-joint configuration, and finger placement—were also coded for each token using the standardized coding protocol.

3.5. Special Coding Considerations for J and Z

Special consideration was given to the fingerspelled forms J and Z because their continuous path movements can complicate sublexical segmentation. Initial coding followed the operational criteria specified in the codebook. Transitional movements required to produce these forms were not treated as independent sublexical units unless they met the established criteria for a distinct articulatory target. Alternative interpretations of J and Z were examined separately as exploratory analyses and were not used to modify the original coding decisions.

3.6. Frequencies

Table 4 presents the English equivalent words identified within each ASL morph category and the number of coded tokens included in each category. Specifically, the analyses evaluated whether morphs contained more than three sublexical units across handshape, movement, palm orientation, location, and NMS domains. The final dataset consisted of 1579 ASL morph tokens distributed across six morph categories. Table 4 summarizes the number of English equivalent words identified within each morph category and the final sample sizes used in the analyses. Consequently, the final sample consisted of unimorph (n = 163), bimorph (n = 200), trimorph (n = 181), quadmorph (n = 197), synomorph (n = 174), and typical morph (n = 664) as shown in Table 4.

3.7. Median Analysis

Median analysis is a nonparametric approach based on the middle value of ordered observations (Field, 2018). Median values were calculated for each morph type across five sublexical domains: handshapes, movements, palm orientations, locations, and NMS. Structural unit counts were coded on an ordinal scale reflecting the number of observed components within each domain (1 = 0 units, 2 = 1 unit, 3 = 2 units, 4 = 3 units, and 5 = 4 or more units). The data consisted of ordered categorical counts rather than continuous measurements; the median was used to summarize the typical structural complexity associated with each morph type.

3.8. Binomial Test Analysis

Exact binomial tests were conducted to evaluate the extent to which observed Van Manen's (2018) rule of three violation rates differed from the study's established 5% tolerance threshold. The binomial test evaluates whether the observed proportion of one of two possible outcomes differs significantly from a hypothesized probability (Abdi, 2007). For the present analysis, each production was classified dichotomously as either conforming to the rule of three constraint (three or fewer sublexical units) or violating the constraint (four or more sublexical units). Violations were treated as the event of interest, with the test proportion set at .05. Thus, the analyses evaluated observed violation rates relative to a hypothesized 5% tolerance threshold. Because statistical significance alone does not indicate the direction of the difference, observed violation percentages were examined alongside the exact binomial test results to determine whether violation rates were above or below the 5% threshold.

Table 4. English equivalent words across ASL morph categories.

Unimorph (n = 163)	Bimorph (n = 200)	Trimorph (n = 181)	Quadmorph (n = 197)	Synomorph (n = 174)	Typical Morph (n = 664)
EN (14)	GA (14)	AST (16)	ATIC (15)	ALL (15)	A (29)
EV (15)	GE (15)	CHH (15)	BOLD (14)	CR (14)	B (32)
HE (37)	HI (15)	CUE (17)	CARE (16)	IB (14)	C (31)
NE (13)	HU (12)	DON (20)	FELD (18)	IL (42)	D (30)
NO (14)	JR (20)	ION (12)	GIES (14)	IT (53)	E (29)
RE (26)	NG (14)	IST (14)	ICAL (16)	LIT (15)	F (28)
TE (15)	OR (15)	LEG (14)	LLEY (15)	RI (15)	G (22)
VE (29)	PU (16)	MID (15)	LOGY (17)	TI (6)	H (29)
	QU (31)	OLZ (15)	PHEN (14)		I (24)
	SP (16)	OUT (14)	QUAL (14)		J (23)
	TH (17)	SAN (14)	THUR (20)		K (25)
	UP (15)	WOW (15)	TIVE (13)		L (24)
			VISM (11)		M (24)
					N (24)
					O (21)
					P (26)
					Q (24)
					R (38)
					S (23)
					T (23)
					U (22)
					V (23)
					W (24)
					X (22)
					Y (22)
					Z (22)

Note. Values in parentheses represent the frequency of each English equivalent within its corresponding ASL morph category. Morph classifications were based on Van Manen's (2018) ASL morph framework.

4. Results

The analysis addressed the research question of this study, which examined the extent to which ASL morph types conform to the rule of three constraints across sublexical domains. Results are presented in three stages. First, frequency distributions describe the overall structural patterns across phonological domains. Second, median values summarize the typical structural complexity associated with each morph type. Finally, binomial tests evaluate whether observed violation rates exceed the theoretical tolerance threshold predicted by the rule of three framework.

Table 5. Frequency distribution of rule of three theory.

Domain	Structural Units	n	%
Handshape	1	947	60.0
	2	269	17.0
	3	331	21.0
	4 or more	32	2.0
Location	1	1512	95.8
	2	30	1.9
	4 or more	37	2.3
Movement	0	794	50.3
	1	467	29.6
	2	236	14.9
	3	82	5.2
Non-Manual Markers	1	1546	97.9
	2	11	0.7
	3	22	1.4
Palm Orientation	1	1239	78.5
	2	309	19.6
	3	31	2.0

Note. N = 1579 tokens. Structural units represent the number of sublexical elements observed within each domain. Handshape, location, movement, NMS, and palm orientation were coded based on the number of distinct structural units present in each sign. Percentages reflect the proportion of tokens within each domain. Categories labeled "4 or more" indicate cases where the number of structural units exceeded three, representing instances that exceed the rule of three constraint.

This section reported the distribution and statistical evaluation of rule of three structural units across phonological domains and ASL morph types (N = 1579).

Descriptive analyses examined the frequency of structural units within the handshapes, movements, palm orientations, locations, and NMS domains. Median values are then presented by morph type to assess central tendencies in structural complexity relative to the rule of three framework. Exact binomial tests were subsequently conducted to determine whether observed violation rates exceeded a 5% tolerance threshold, followed by identification of specific lexical items associated with these violations. Together, these analyses provide a comprehensive evaluation of the rule of three constraints across domains and morph structures. To examine the overall distribution of sublexical structures, frequency counts were calculated for each structural domain across the dataset. Table 5 presents the frequency distribution of structural units observed in handshapes, movements, palm orientations, locations, and NMS.

To further examine how these structural distributions manifest across ASL morph categories, median values were calculated for each morph type across the five sublexical domains. The median provides a measure of the typical structural complexity associated with each morph category and allows comparison of central tendencies relative to the rule of three constraint (see Table 6).

Table 6. Median structural units across asl morph types.

Morph Type	Handshape (Md)	Location (Md)	Movement (Md)	NMS (Md)	Palm Orientation (Md)	n
Bimorph	3.00	2.00	2.00	2.00	3.00	200
Trimorph	4.00	2.00	2.00	2.00	2.00	181
Quadmorph	4.00	2.00	3.00	2.00	2.00	197
Unimorph	2.00	2.00	2.00	2.00	2.00	163
Synomorph	2.00	2.00	1.00	2.00	2.00	174
Typical Morph	2.00	2.00	1.00	2.00	2.00	664
Total	2.00	2.00	1.00	2.00	2.00	1579

Note. Values represent the number of structural units observed within each sublexical domain. Coding was defined as 1 = 0 units, 2 = 1 unit, 3 = 2 units, 4 = 3 units, and 5 = 4 or more units. Medians corresponding to three or fewer units indicate conformity with rule of three constraint, and values representing four or more units indicate the structural limit is exceeded.

While median values provided an overview of the central structural tendency within each morph category, they did not directly evaluate the frequency of rule of three violations. Exact binomial tests were therefore conducted for each morph type and sublexical domain to compare observed violation rates with the established 5% tolerance threshold. Observed violation percentages were interpreted alongside the exact test results to determine whether violations occurred at rates above or below this threshold (see Table 7).

Table 7. Binomial tests of rule of three violations across van manen's morph types.

Morph Type	Domain	n (Violations)	N	Violation %	Exact *p*	Exceeds 5%?
Bimorph	Handshape	0	200	0.0%	<.001	No
	Location	0	200	0.0%	<.001	No
	Movement	0	200	0.0%	<.001	No
	Non-Manual	0	200	0.0%	<.001	No
	Palm Orientation	0	200	0.0%	<.001	No
Trimorph	Handshape	0	181	0.0%	<.001	No
	Location	15	181	8.3%	<.001	Yes
	Movement	0	181	0.0%	<.001	No
	Non-Manual	0	181	0.0%	<.001	No
	Orientation	0	181	0.0%	<.001	No
Quadmorph	Handshape	32	197	16.2%	<.001	Yes
	Location	0	197	0.0%	<.001	No
	Movement	0	197	0.0%	<.001	No
	Non-Manual	0	197	0.0%	<.001	No
	Orientation	0	197	0.0%	<.001	No
Unimorph	Handshape	0	163	0.0%	<.001	No
	Location	0	163	0.0%	<.001	No
	Movement	0	163	0.0%	<.001	No
	Non-Manual	0	163	0.0%	<.001	No
	Orientation	0	163	0.0%	<.001	No
Synomorph	Handshape	0	174	0.0%	<.001	No
	Location	0	174	0.0%	<.001	No
	Movement	0	174	0.0%	<.001	No
	Non-Manual	0	174	0.0%	<.001	No
	Orientation	0	174	0.0%	<.001	No
Typical Morph	Handshape	0	664	0.0%	<.001	No
	Location	22	664	3.3%	<.001	No
	Movement	0	664	0.0%	<.001	No
	Non-Manual	0	664	0.0%	<.001	No
	Orientation	0	664	0.0%	<.001	No

Note. Violations indicate productions exceeding the rule of three constraint (4+ sublexical features). Binomial tests evaluated whether the proportion of violations exceeded the 5% tolerance threshold (α = .05). Domains with zero violations are reported descriptively as fully compliant with the constraint.

The effect of sample size is particularly important when interpreting the location violations. Although Z produced 22 location violations, these violations represented only 3.3% of the 664 Typical Morph tokens and therefore remained below the study's 5% tolerance threshold. In contrast, the 15 OLZ location violations represented 8.3% of the 181 Trimorph tokens, exceeding the 5% threshold. Thus, whether a specific lexical form contributed to an overall violation rate depended not only on the number of observed violations but also on the total number of tokens within the corresponding morph category. Although most morph categories showed strong compliance with the rule of three constraint, several specific violations were identified across the sublexical domains. To better understand the linguistic sources of these violations, the tokens responsible for exceeding the threshold were examined individually and are summarized in Table 8.

Table 8. Specific rule of three violations by van Manen's morph types.

Morph Type	English Equivalent	Domain Violated	n (Tokens)	Description
Quadmorph	ATIC	Handshape	15	Exceeded handshape limit
	LOGY	Handshape	17	Exceeded handshape limit
Trimorph	OLZ	Location	15	Exceeded location limit
Typical Morph	Z	Location	22	Exhibited four-location configuration

Note. Violated variables represent tokens exceeding the rule of three constraint (i.e. four or more sublexical units) within the specified domain.

Table 9. The Z sign sublexical checklist (Typical Morph).

Sublexical Checklist	0	1	2	3	4
Handshape	-	X	-	-	-
Palm Orientation	-	X	-	-	-
Location	-	X	-	-	X
Movement	-	-	-	X	-
Non-Manual Signals	X	-	-	-	-

Note. This table presents the sublexical feature checklist for the Z sign classified as a Typical Morph. "X" indicates the presence of structural units within the specified sublexical domain. Columns (0 - 4) represent the number of sublexical units observed. The Z sign contains one structural unit in handshape and palm orientation, three structural units in movement reflecting the zigzag trajectory of the letter, and four structural units in location. The presence of the four-unit configuration in location exceeds the three-unit threshold under the rule of three constraint. NMS were not observed.

To further examine the contrasting location patterns observed for Z and OLZ, their internal sublexical structures were examined in detail. Although Z exhibited a four-location configuration, the overall violation rate for the Typical Morph category remained below the 5% tolerance threshold. In contrast, OLZ contributed to a Trimorph location violation rate that exceeded the 5% threshold. Table 9 presents a structural checklist showing the distribution of sublexical features for Z across domains. This analysis revealed that Z contained four location features, exceeding the rule of three threshold at the individual-token level. The OLZ sequence was subsequently examined to investigate the location violations observed within the Trimorph category. The OLZ structure was analyzed in two stages. The first analysis followed Van Manen's (2018) original rule of three structural expectations (see **Table 10**), while the second incorporated phonological processes that may compress or merge sublexical features during articulation (see **Table 13**).

Table 10. Sublexical checklist for the final sequence OLZ (Variant A).

OLZ (A)				
Sublexical Units	O	L	Z	Sublexical Units Total
Handshape	1	1	1	3
Palm Orientation	1	1	1	3
Location	1	1	4	6
Movement	1	1	3	5
Non-Manual Signals	0	0	0	0

Note. Variant A represents the original sublexical segmentation of the lexicalized fingerspelled sign OLZ, in which each letter (O-L-Z) retains distinct features across handshape, palm orientation, location, and movement. Values indicate the number of structural units identified for each domain. The palm orientation of the O-L segment involves a twist to its right side, reflecting a change in orientation despite being counted as a single structural unit. The Z segment involves a zigzag movement trajectory, resulting in increased movement and location units. Totals reflect the cumulative number of sublexical features across the sequence. The presence of four location units exceeds the three-unit threshold under the rule of three constraint.

The remaining violations were found in the quadmorph category, specifically in the fingerspelled forms, PRAGMATIC and AXIOLOGY. In particular, the final sequences A-T-I-C and L-O-G-Y were examined in the following section. These sequences appeared to exceed the rule of three threshold when analyzed strictly by surface handshape counts. However, closer examination suggested that phonological processes such assimilation and transitional modification may reduce the functional number of independent sublexical units.

4.1. Quadmorph Handshape Violation

In the dataset, the quadmorph category contained 197 tokens, including 32 apparent violations of the rule of three constraint in the handshape domain. These violations were primarily associated with the sequences A-T-I-C (n = 15) and L-O-G-Y (n = 17) which involve four sequential handshape configurations. However, closer examination suggested that phonological processes may compress these articulations into fewer functional sublexical units.

4.2. ATIC

The fingerspelled form, PRAGMATIC, was produced in three segments: PRAG-M-ATIC, with the initial sequence PRAG forming a quadmorph, followed by a brief pause and an isolated M handshape, and then another brief pause before the production of the second quadmorph, -ATIC. Within the final sequence A-T-I-C, the segments share overlapping articulatory features (see **Table 11**). The A-handshape is produced as a closed fist with all fingers and the thumb flexed. During the transition to the T-handshape, the thumb shifts beneath the index finger while the remaining fingers retain their closed configuration, resulting in minimal structural change. The production of I-handshape involves extension of the little finger while the rest of the fingers maintains the prior configuration, creating an assimilated, synomorph-like transition between T- and I-handshapes. Finally, the C-handshape emerges through extension and curvature of the index and middle fingers and thumb, while aspects of the preceding I-handshape are retained.

Table 11. Sublexical checklist for the final sequence ATIC.

	ATIC				
Sublexical Domains	A	T	I	C	Sublexical Units Total
Sublexical Units					
Handshape	1	1	1	1	4
Palm Orientation	1	1	1	1	4
Location	1	1	1	1	4
Movement	1	1	1	1	4
Non-Manual Signals	-	-	-	-	0
Phonological Processes					
Assimilation	1	1	1	-	3
Reduction	-	-	-	-	0
Metathesis	-	-	-	-	0
Epenthesis	-	-	-	-	0
Elision	-	-	-	-	0

Note. This table presents the sublexical feature checklist for the fingerspelled final sequence of A-T-I-C, showing the structural units associated with each letter across the domains of handshape, palm orientation, location, and movement. Each domain contains four structural units, exceeding the three-unit limit proposed by the rule of three constraint and therefore representing an apparent structural violation. Progressive assimilation is observed across adjacent segments in the sequence, indicating phonological influence between neighboring letters. No instances of epenthesis, metathesis, reduction, or elision were identified in this example.

Although this sequence could be interpreted as four distinct handshapes, the articulations shared a common base configuration and exhibited progressive assimilation across transitions. As a result, the apparent four-unit structure reflects transitional modification rather than four independent sublexical units corresponding to each segment (A-T-I-C). Unlike a typical morph sequence, which would be articulated as four discrete alphabetic handshapes (A-T-I-C) separated by identifiable segment boundaries, the final sequence instead exhibits continuous articulatory restructuring and progressive assimilation across adjacent handshapes. Under a strict counting approach, A-T-I-C contains four handshapes and therefore constitutes an apparent violation of the rule of three constraint. However, from an articulatory perspective, the sequence may be more appropriately interpreted as a coordinated lexicalized pattern in which adjacent handshapes share a common articulatory base and are linked through progressive assimilation rather than functioning as four fully independent sublexical targets. The sublexical organization of the ATIC sequence is summarized in **Table 11**.

4.3. LOGY

A similar pattern was observed in the fingerspelled form, *AXIOLOGY*, particularly, the final sequence LOGY. Because the video presentation was intended for Deaf audiences who might have been unfamiliar with academic terminology, the Deaf native signer articulated the sequence clearly to maintain lexical transparency. In this production, the O handshape differed slightly from its typical morph form. Specifically, the middle, ring, and little fingers were not fully engaged, producing a reduced configuration that facilitated smoother transitions between L and G.

Both L and G required the index finger and thumb to be extended while the remaining fingers remained flexed, although the spatial relationship between the index finger and thumb differed slightly. In the G handshape, the thumb moved closer to the index finger due to flexion at the index finger's MCP joint, and the articulation often incorporated wrist rotation to adjust palm orientation. The modification of the O handshape, therefore, appeared to support smoother articulatory transitions between L, G, and Y, illustrating the role of reduction and transitional movement in shaping quadmorph production. The structural organization of the LOGY sequence is summarized in **Table 12**.

At first glance, the ATIC and LOGY sequences did not appear highly complex in ways that would require extensive phonological process assistance. These patterns reflect coarticulation, in which adjacent handshapes influence one another through continuous, overlapping articulatory transitions. As a result, what appears as four sequential handshape units (A-T-I-C or L-O-G-Y) may function phonologically as a smaller set of perceptual units due to shared articulatory bases and assimilatory movement.

The ATIC sequence appeared to be produced in a manner closer to a typical morph structure because the handshapes shared similar articulatory bases. In contrast, the LOGY sequence differed because the typical morph configuration for O required different articulatory properties than those required for L and G. This structural mismatch likely contributed to the greater visibility of quadmorph features in the LOGY sequence compared to ATIC.

This analysis raises an important question: do the sequences of ATIC, LOGY, OLZ, and Z truly violate the rule of three theory? From a strict interpretation of Van Manen's (2018) framework, these cases could be considered violations because they appear to exceed the three-unit structural threshold. However, Van Manen's (2018) claim had not previously been empirically tested. The findings, therefore, suggest the need for additional studies examining similar morph sequences to determine whether the observed patterns consistently support the rule of three theory or whether revisions to the framework may be warranted.

Table 12. Sublexical checklist for the final Sequence LOGY.

	LOGY				
Sublexical Domains	L	O	G	Y	Sublexical Units Total
Sublexical Units					
Handshape	1	1	1	1	4
Palm Orientation	1	1	1	1	4
Location	1	1	1	1	4
Movement	1	1	1	1	4
Non-Manual Signals	-	-	-	-	0
Phonological Processes					
Assimilation	1	1	-	-	2
Epenthesis	-	-	-	-	0
Metathesis	-	-	-	-	0
Reduction	1	-	-	-	1
Elision	-	-	-	-	0

Note. This table presents the sublexical checklist for the fingerspelled form LOGY, showing the structural units associated with each letter (L-O-G-Y) across the domains of handshape, palm orientation, location, and movement. Each domain contains four structural units, exceeding the three-unit limit proposed by the rule of three constraint and therefore representing an apparent structural violation. Progressive assimilation occurs between adjacent segments, and wrist rotation is observed in the movement domain, particularly in the transition between O-handshape and G-handshape. Reduction is also present in the handshape of O, which differs from the canonical fingerspelled form. No instances of epenthesis, metathesis, or elision were observed in this example.

5. Discussion

5.1. The Z History

Van Manen (2018) discussed the historical development of the ASL alphabet using the Yebra Alphabet illusion, noting that the sign for Z was originally articulated with the pinky finger before evolving to its modern form produced with the index finger. Historical records indicate that manual alphabets emerged as early as the seventh century in monastic communities for communication among monks and with ill individuals (Van Manen, 2018). These systems later became associated with Deaf education during the sixteenth and seventeenth centuries and eventually spread across Europe before reaching North America (Padden & Gunsauls, 2003; Van Manen, 2018). Van Manen (2018) therefore argued that the Z form predates the standardized ASL alphabet. Canonical Z forms challenged the rule of three and suggest that the lexicalized ZZ form emerged as a strategy for reducing structural complexity (Van Manen, 2018). More recently, Sehyr et al. (2026) identified the bent-V realization of ZZ as a conventional representation of the double-Z sequence in contemporary ASL fingerspelling. Together, these observations suggest that Z-related forms may be especially susceptible to restructuring processes that preserve lexical information while reducing articulatory complexity. The concentration of apparent violations in Z-containing tokens observed in the present study is consistent with Van Manen's (2018) observation that Z occupies a unique position within the ASL fingerspelling system.

Although this historical account provides useful context, it does not necessarily explain the location of violations observed in the present dataset. Van Manen (2018) acknowledged that the Z example in his work had not yet been systematically examined. The current study analyzed 1579 ASL morph tokens, of which 69 were initially identified as exceeding the rule of three constraints under the study's strict coding criteria. These results broadly support Van Manen's (2018) claim that the rule of three functions as a structural tendency in ASL morph organization. However, violations were concentrated in a small number of lexical items, including tokens containing the Z sign.

Both trimorph and typical morph tokens exhibited location violations associated with Z. This pattern likely reflects the articulatory structure of the sign itself. The Z sign traces the zigzag shape of the printed letter, producing a path of movement that traverses multiple spatial positions (Padden & Gunsauls, 2003). When analyzed strictly under the rule of three framework, this trajectory can appear to generate four distinct locations while maintaining only three movements.

However, this interpretation may overestimate the number of location units involved. From a phonological standpoint, Z's "four locations" are not discrete lexical targets but inflection points along a single continuous path movement. In signed language phonology, movement is a primary sublexical, and intermediate spatial points along a trajectory do not count as independent sublexical units. The relevant perceptual unit is the overall path, not each articulatory coordinate the hand passes through. This framing helps explain why Z appears to violate the rule of three even though its structure reflects a single phonological movement rather than multiple location features.

Within the ASL alphabet, J and Z are the only letters that require continuous path movement (Shield & Long Ferris, 2025; Shin et al., 2021). The movement and spatial position are closely intertwined in these signs; the segmentation of locations may be analytically ambiguous. If the initial, intermediate, and final spatial points are interpreted as part of a single movement trajectory rather than independent locations, the apparent violation may be reduced or eliminated. Under this interpretation, the Z sign may not represent a true violation of the rule of three, but rather a case where movement and location interact in ways that complicate sublexical segmentation (see **Table 13**). The apparent violations in the Z sign suggest that the rule of three may prioritize perceptual units over articulatory points; while the hand passes through four spatial coordinates, the movement is perceived as a single, continuous phonological event.

Table 13. Sublexical checklist for the final sequence OLZ (Variant B).

	OLZ (B)			
Sublexical Domains	O	L	Z	Sublexical Units Total
Sublexical Units				
Handshape	1	1	1	3
Palm Orientation	1	1	1	3
Location	1	1	1	3
Movement	1	1	1	3
Non-Manual Signals	-	-	-	0
Phonological Processes			-	
Assimilation	1	1	-	2
Reduction	1	-	-	1
Metathesis	-	-	-	0
Epenthesis	-	-	-	0
Elision	-	-	-	0

Note. In Variant B represents a phonologically modified production of the lexicalized fingerspelled sign OLZ, in which sublexical units are merged or reduced through phonological processes. Values indicate the number of structural units identified within each sublexical domain for each letter (O-L-Z). Progressive and regressive assimilation occur across the sequence (Rattanasak, 2025), affecting the distribution of structural units. In the palm orientation domain, the L segment exhibits a directional twist influenced by both the preceding O segment (progressive assimilation) and the following Z segment (regressive assimilation), despite being counted as a single structural unit. The Z segment exhibits a zigzag movement trajectory, contributing to the movement count and multiple location changes. Additionally, reduction is observed in the initial O handshape, which differs from its typical morph form due to assimilation influences from the following segment. Merging refers to the phonological compression of multiple sublexical units into fewer structural realizations as a result of processes such as assimilation and coarticulation. These merging processes are evident in the domains of location and movement, resulting in fewer distinct sublexical units compared with Variant A. Totals reflect the cumulative number of sublexical units across the sequence. This variant demonstrates how phonological processes compress structural complexity and reduce or eliminate instances that would otherwise exceed the rule of three constraints. NMS, epenthesis, metathesis, and elision were not observed in Variant B and are therefore marked as absent.

5.2. Interpretation

The sequences of ATIC, LOGY, OLZ, and Z (Buchholz, 2011; Harris, 2015) illustrate how phonological processes can produce apparent departures from the rule of three constraints. Under a strict interpretation of Van Manen's (2018) framework, these tokens may be classified as violations. However, closer examination suggests that many of these cases arise from assimilation (Battison, 1978; Jerde et al., 2003; Keane et al., 2012; Rattanasak, 2025), reduction, and movement transitions (Brentari, 1998; Liddell & Johnson, 1989; Shield & Long Ferris, 2025) that compress multiple articulatory elements into a single continuous production (Padden & Gunsauls, 2003; Sehyr et al., 2026; Shin et al., 2021). In this sense, the apparent violations may reflect either analytic segmentation of decisions or genuine structural exceptions, both of which require further investigation. Van Manen's (2018) proposal had not previously been tested empirically; the present study provides an initial evaluation of the theory. Future research should examine additional lexical items and datasets to determine whether similar patterns emerge across broader samples of ASL morph structures. Such work will help clarify whether the rule of three operates as a strict constraint or as a strong structural tendency within ASL phonology.

5.3. Future Research for Rule of Three Violations

Taken together, the apparent violations observed in Z, OLZ, ATIC, and LOGY suggest that departures from the rule of three constraint are not random but are systematically linked to phonological processes operating during articulation (Van Manen, 2018). In each case, processes such as assimilation, reduction, and transitional movement influence how sublexical units are realized in surface production. These processes may compress or redistribute structural features across movement trajectories and handshape transitions, making the segmentation of independent units analytically complex. As a result, some tokens that appear to exceed the rule of three threshold may instead reflect continuous articulatory patterns rather than discrete structural violations. Taken together, these findings support the view that the rule of three functions as a strong organizing constraint within ASL morph structure rather than an absolute restriction, with apparent expectation often arising from phonological processes, articulatory pressures, and lexicalized production patterns.

To explore this rule of three violations and assumptions, the research team has created a research agenda to further these studies. The extended studies of this research include a chi-square analytic approach to further examine the strength of association between phonological processes, spread of fingers, thumb movement, wrist movement, palm orientation, and Hold-Movement segmentation features. Furthermore, another round of research involving this team focuses on a multi logistic regression (MLR) analytical approach to predict the relationship between fingers and wrist movement as biomechanics and Van Manen's (2018) morph types.

5.4. Limitations

While this study provides key information for future studies of ASL fingerspelling processes, there are limitations to the current study that must be addressed. The team that completed this study consisted of 13 undergraduate students and therefore is vulnerable to human errors in coding and interpretation. To control this limitation, decisions were made in groups and were checked by a Deaf professor as well as discussed with the team of doctoral students. Although multiple systems were set in place to ensure accuracy, human error must be accounted for as a limitation of this study.

A second limitation to this study addresses the availability of data from Van Manen's (2018) references in his book. While the research team utilized links from the references page for their study, some of these links were broken or not accessible when the current study was conducted. The team utilized links that were available and collected data from the same sources as Van Manen (2018) but were limited to the available videos. Due to the accessibility of some of these videos being blocked, there may be data points that were not collected that could impact the study's findings.

6. Conclusion

This study provides the first empirical test of Van Manen's (2018) rule of three theory in ASL morph structure and fingerspelling. Across 1579 tokens spanning six morph categories, most forms conformed to the proposed three-unit constraint across phonological domains. Only a small number of tokens exceeded this threshold, characterizing the rule of three as a robust phonological preference rather than an absolute morphological ceiling.

Violations were limited to a small set of lexical items, including ATIC, LOGY, OLZ, and Z, and appeared to be influenced by phonological processes such as assimilation, reduction, and movement transitions (Buchholz, 2011; Harris, 2015; Van Manen, 2018). These cases suggest that apparent violations may reflect articulatory or historical factors rather than a breakdown of the underlying constraint. Overall, the findings provide empirical support for the rule of three as a meaningful organizing principle in ASL morph structure. Future research should examine additional lexical datasets and signing contexts to further evaluate how sublexical constraints interact with phonological processes in signed languages.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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Appendix

Video Source	Identified Morphs (n)	Total Tokens
Brandon Arthur—*Interview with Shane Feldman*	A (n = 29), B (n = 32), C (n = 31), CARE (n = 16), CUE (n = 2), D (n = 30), DON (n = 20), F (n = 28), FELD (n = 18), G (n = 22), H (n = 16), I (n = 15), IST (n = 2), J (n = 23), K (n = 14), L (n = 24), LEG (n = 2), LLEY (n = 1), N (n = 13), O (n = 21), R (n = 1), T (n = 1), THUR (n = 20), U (n = 10), WOW (n = 15)	616
Trudy Suggs—*Deaf Disempowerment and Today's Interpreter*	CUE (n = 14), ION (n = 12), IST (n = 12), LEG (n = 12), N (n = 11), P (n = 26), Q (n = 1), R (n = 24), S (n = 23), T (n = 22), U (n = 12), V (n = 23), W (n = 14), X (n = 1), Y (n = 22)	229
Fred Weiner—*GU's Master Campus Plan 2022*	(TH)E (n = 21), EN (n = 14), EV (n = 15), H(E) (n = 16), R (n = 13), RE (n = 26), TE (n = 15), VE (n = 29)	149
Branton Steward—*DAC Meeting with RID*	BOLD (n = 14), LLEY (n = 14), MID (n = 1), OLZ (n = 15), SAN (n = 14), Z (n = 11)	69
Noah Buccholz—*Responding to Those Who Mock Sign Language*	AST (n = 14), CHH (n = 15), CUE (n = 1), MID (n = 14), OUT (n = 14)	58
Quentin Green—*Badly Education*	GA (n = 14), GE (n = 15), HU (n = 12), JR (n = 20)	61
Quentin Green—*Deaf Hippiedom*	H (n = 13), HI (n = 15), I (n = 9), NE (n = 13), NO (n = 14), OR (n = 15), PU (n = 16), Q (n = 11), QU (n = 15), UP (n = 15), W (n = 10), X (n = 10)	156
Andrew Bottoms—*Understanding Proximalization and Nonmanuals in M2L2 Sign*	M (n = 12), X (n = 11), Z (n = 11)	34
Laurie Nash—*RID: Retraction Leaves Interpreters with Deaf Parents in Doubt*	ALL (n = 15), CR (n = 14), IB (n = 14), IL (n = 42), IT (n = 53), LIT (n = 15), NG (n = 14), TI (n = 6)	173
Lynnette Taylor—*Modern Questor: Connecting the Past to the Future of the Field*	Q (n = 12)	12
Eric Witteborg—*Deaf Education* 3.0	GIES (n = 13)	13
Patrick Boudreault—*The Universal Language Is in Our Minds*	K (n = 11), M (n = 12)	23
Sean Hauschildt—*FS Video* 3	RI (n = 15)	15
ASLized!—*Chapter* 1: *An Introduction to Research*	ATIC (n = 15), ICAL (n = 16), LOGY (n = 17), QU (n = 16), SP (n = 16), TH (n = 17)	97
ASLized!—*Chapter* 8: *Qualitative Research*	GIES (n = 1), PHEN (n = 14), QUAL (n = 14), TIVE (n = 13), VISM (n = 11)	53
Total		**1579**

Note. The dataset consisted of 1579 coded tokens drawn from 15 video sources. Each token represented an identified fingerspelled morph and was linked to its source video using a clip code. The number of tokens contributed by individual video sources varied across the dataset. Video titles, creators, publication years, clip codes, token frequencies, and source links are reported to document the composition of the dataset and support transparency and replicability of the sampling and coding procedures.