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# When Does a Word Emerge? Lexical and Phonological Variation in a Young Sign Language

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## 1 Introduction

This short paper reports on lexical and phonological variation in Kenyan Sign Language in two types of signed words, compounds and iconically motivated words, at different stages of conventionalization.<sup>1</sup> In particular, the process of conventionalization for iconically motivated signs shows that iconicity itself—in addition to phonological elements—also undergoes conventionalization. I argue that this indicates that the form-meaning matching of iconic elements may be as central to sign languages as are the phonological elements.

## 2 Extreme variation in a young language, ABSL

Two basic assumptions about any language are that (1) its lexicon is comprised of words with relatively stable form-meaning mappings—i.e., are conventionalized—and (2) that those words are comprised of a finite set of phonological formatives specific to that language. We assume that people in the same speech community know and use the same set of words and while the same concept can have different words—such as the lexical variants *couch*, *sofa*, and *davenport*—native speakers will know and use at least one of these terms. Of course, phonological variants also exist, such as [pen] and [pɪn] for *pen*, but a native speaker's pronunciation of citation forms will fall within a fairly narrow range of phonetic variation. The other basic assumption is that words are made up of a language-specific inventory of phonemes, which are discoverable through linguistic analysis.

These two basic assumptions about words, *conventionalization* and *phonology*, were surprisingly found to not hold in an emerging sign language, Al-Sayyid Bedouin Sign Language or ABSL (Sandler et al. 2011; Israel 2009). ABSL emerged around 75 years ago in a village in Israel where a genetic trait for deafness is highly concentrated and is used today by around 150 signers.











After analyzing the signs in this village, Sandler *et al.* came to the conclusion that ABSL has not yet developed a phonological system of the type that has been described in other sign languages. Their conclusions are based on two lines of evidence. First, no minimal pairs have yet been found in ABSL, indicating there is not yet a set of phonemic units available for recombination. The other line of evidence in ABSL is great variation in form between signers.

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<sup>1</sup> This manuscript developed out of a presentation given at the annual American Anthropological Association meeting, December 2014 in Washington, D.C.

This includes variation for common, everyday terms such as *tea*, *lemon*, or *dog*. The sign for *dog*,<sup>2</sup> shown in Table 1, is one of the more extreme cases in ABSL. Out of ten signers, no two produced the same form. That is, no two individuals (rows) produced signs with the same values in each phonological parameter (columns): *handshape*, *orientation*, *number of hands*, *location*, and *movement*.

**Table 1.** Variation in signs for *dog* in ABSL (reprinted from Sandler et al. 2011: 520)

	hand shape	orientation	# hands	location	movement	# movements
Signer B		Outward/ downward	1	Torso (low)	Closing (thumb restraint)	2
Signer A		Contralateral sideways	1	Torso (high)	Curving	1
Signer M		Contralateral sideways	1	Torso (mid)	Closing	2
Signer S		Outward	2	Torso (mid)	Clawing	2
Signer I		Contralateral sideways	1	Head (side of mouth)	Curving	3
Signer Mh		Contralateral sideways	1	Head (center of mouth)	Clawing	1
Signer R		Facing each Other (contralateral sideways)	2	Torso (mid)	Curving	3
Signer F		Facing each Other (contralateral sideways)	2	Torso (mid)	Curving	2
Signer Sm		Outward	1	Torso (mid)	Nodding (wrist)	1
Signer Z		Outward	2	Head (near mouth)	Path Movement forward	2

Sandler *et al.* conclude that the structure of ABSL signs are not organized by sub-lexical units—i.e., phonology—but rather by a shared conceptual target, which they call an **iconic prototype**. In the case of *dog*, the iconic prototype is a barking or biting mouth: the hand(s) represent the dog's head, mouth, and/or teeth and the movement is the mouth opening and closing and/or head lunging forward to bite.

<sup>2</sup> In this paper, I follow the convention in sign linguistics of representing lexical signs in small caps. In the case of the ABSL signs for 'dog' as shown in Table 1, it is uncertain whether these should be collected under one lemma, DOG, or whether they are all individual variants, DOG-1, DOG-2, etc. To avoid such a forced choice, I refer to these signs throughout the paper simply as *dog* in ABSL.

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The variation in Table 1 shows that the articulatory form of the sign is not conventionalized in ABSL, but it is worth pointing out that the iconic motivation has a fairly narrow scope (presumably based on cultural notions of prototypical dog-ness). Consider that there are countless ways to represent the concept of a dog, even within the Bedouin community.<sup>3</sup> A glance at the iconic motivations in other sign languages is instructive: protruding snout (Brazilian SL), gripping something between the jaws (Ugandan SL), begging paws (German SL), floppy ears (Japanese SL), or the actions of a dog owner calling her/his dog (American SL).<sup>4</sup>

However, while ABSL signers have narrowed the conceptual target for *dog*, there is still variation in the iconic image. The salient concept for all signers appears to be barking, but for some the specific locus is the dog's jaws opening and closing (using handshape changes), for others it appears to be the dog's head thrusting forward (using path movement), and some signers combine the two. This suggests that the iconic motivation itself can be more or less conventionalized.

This study of ABSL raises a number of interesting questions. How does a phonological system get underway? When and how do signs such as *dog* become conventionalized? What are the differences between idiolectal grammars and a shared conventionalized grammar? Because language change is so difficult to capture in the moment, one way to investigate questions like these is to look cross-linguistically at lexicons and/or lexical forms at different stages of development.

### **3 Kenyan Sign Language**

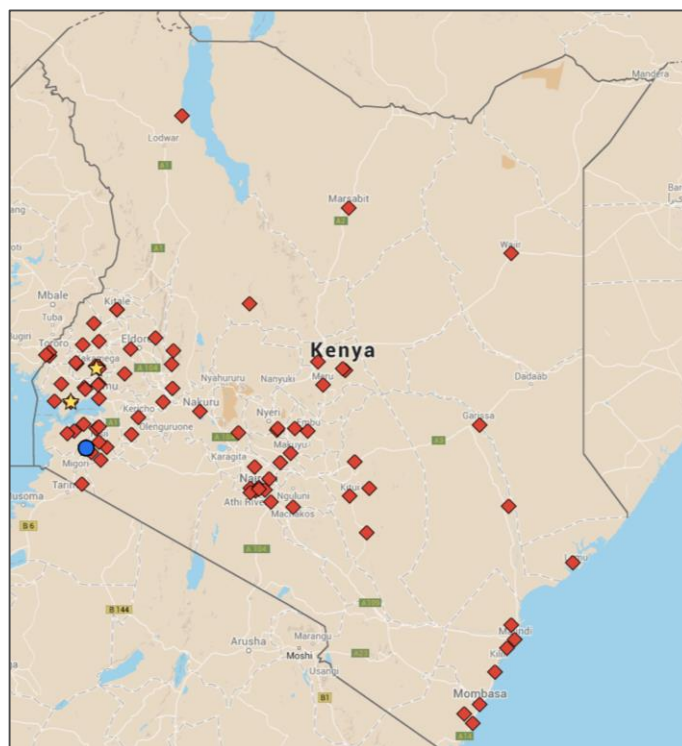
The current research investigates these issues of lexical conventionalization in another young sign language, Kenyan Sign Language (KSL). KSL emerged from two deaf schools that were established around 1960 in western Kenya (Okoth & Akach 2008), shown in Figure 1 by the yellow stars. This map also shows—in the red diamonds—the location of 84 deaf schools and units for the deaf (separate classes in hearing schools) all over Kenya, based on data from the U.S. Peace Corps (2007). The blue circle indicates the field site where language elicitation was conducted, a small town in a rural area with two residential schools for the deaf—a primary and a secondary school—and an active adult deaf community.<sup>5</sup>

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<sup>3</sup> One ABSL signer did use a sign representing a dog's ears and paws. It isn't included in Figure 1 because Sandler *et al.* consider it a separate lexical variant (2011: 518).

<sup>4</sup> See <http://www.spreadthesign.com> for video examples.

<sup>5</sup> KSL is thought by its users to be a single mutually intelligible language, but anecdotally has regional variants. The research here represents the KSL used in the south Nyanza Province area, especially Migori and Homa Bay counties.



**Figure 1.** Deaf schools and units in Kenya (red diamonds); first schools for the deaf (yellow stars); fieldwork site (blue circle)

KSL is younger than ABSL by about 20 years, but it is also very different demographically. The deaf population in Kenya is vastly larger, estimated to be between 195,000<sup>6</sup> to 340,000<sup>7</sup> people. Also, the core social ties and linguistic experience of deaf children growing up in Kenya is situated in residential schools for the deaf as opposed to a small single community of individuals related by familial ties (a mix of deaf and hearing), as is the case for ABSL. KSL has also borrowed a portion of its lexicon from foreign sign languages, such as ASL

Despite these differences from ABSL, KSL is also still a very young language. Could it also lack phonological contrast (i.e., minimal pairs) and conventionalization in the lexicon?

#### 4 KSL phonology

My current research shows that KSL does have the type of phonological structure seen in other sign languages, as exemplified by minimal pairs that contrast by a single feature. Based on a lexical database of 1,864 KSL signs drawn from field elicitation sessions, there are at least 233 minimal pairs. As shown in Figures 2-6, minimal pairs exist for all of the phonological

<sup>6</sup> Kenya National Survey for People with Disabilities (2008)

<sup>7</sup> *Ethnologue* (2009)

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parameters, including handshape (Fig. 2), palm orientation (Fig. 3), location (Fig. 4), the number of hands or ‘handedness’ (Fig. 5), and movement (Fig. 6).<sup>8</sup>



**Figure 2.** Handshape: BUNGOMA<sup>9</sup>, ROOSTER



**Figure 3.** Orientation: BUNGOMA, BEER



**Figure 4.** Location: BUNGOMA, BORROW



**Figure 5.** Handedness: ISIOLO<sup>7</sup>, WARTHOG



**Figure 6.** Movement: BLOUSE, BEHAVIOR (simultaneous vs. alternating)

To date, these minimal pairs yield the following phonemic inventory sizes: 33 handshapes, 29 locations, 5 absolute orientations, 3 path shapes, 4 path directions, 6 manners of movement, 6 syllable types, and 10 other miscellaneous features (e.g., tongue position) (Morgan *forthcoming*).

Therefore, this dialect of KSL clearly has sub-lexical contrasts, and thus some degree of phonology as it has been defined in other sign languages. What about conventionalization?

<sup>8</sup> The movement of signs in Figures 2, 3, 4, and 5 is a double bounce on the body with contact at the end of the path.

<sup>9</sup> Bungoma and Isiolo are names of towns in Kenya, each with a deaf school.

#### 4 Conventionalization of KSL signs

In 2012, an elicitation activity with thirteen deaf signers allowed me to get a snapshot of how conventionalized signs are in this region. The deaf signers who participated were 23-52 years old. All had attended a deaf school in the area and were in the same local social network.<sup>10</sup> I presented 53 items on a laptop, using photographs from Kenya found online, in addition to a few pictures taken at the field site (Fig. 7). The majority (~45) were items that I knew or suspected to be compounds (e.g., beans, lantern, newspaper).<sup>11</sup> A few other items were added because I was curious about whether some signs would be consistent in their articulation (e.g., rabbit, mosque), or whether there was a sign at all (e.g., island, Legio-Maria<sup>12</sup>).



**Figure 7.** Photos taken at the field site: a. onions in the market, b. cassava plants in a garden

What I found in the responses were very different degrees of conventionalization. At one end of the spectrum are signs that are highly conventionalized; all signers produced the same phonological forms and—for compounds—also the same constituent order. At the other end of the spectrum are a handful items with no consistent sign among the participants. And in the middle are items where there is still a lot of variation, but some elements of form and/or meaning have become more consistent. Of course, this current investigation cannot speak to conventionalization across this entire KSL dialect, but does reveal that there are pockets of highly standardized signs and other items that may be only quasi-lexicalized.

Two different word types emerged from this data. As expected, many of the signs were **compounds** (e.g., RED<sup>^</sup>TINY for *beans*), but a few signs were of the **iconic prototype** variety, like the example of signs for *dog* in ABSL—that is, monomorphemic signs that are motivated by a conceptual target. In the data, it is possible to see how different degrees of conventionalization manifest in these two word types. In the following sections, I will describe responses to five items that exemplify the different degrees of conventionalization in compounds and iconic prototype signs.

<sup>10</sup> The 13 signers include two married couples, close friends, and teacher/student pairs.

<sup>11</sup> One of the goals of this elicitation project was to study both the morphological properties and phonological reduction in KSL compounds.

<sup>12</sup> A Christian religious sect in western Kenya: [http://en.wikipedia.org/wiki/Legio\\_Maria](http://en.wikipedia.org/wiki/Legio_Maria)



#### 4.1 The most conventionalized responses

Starting with an example of the most conventionalized forms, signers responded to a picture of a charcoal stove, called a *jiko* in Swahili, with extremely similar articulation: two hands with fist handshapes (or ‘stacked fist’) facing each other in neutral space move alternatingly back and forth (Fig. 8).



Figure 8. JIKO by signer J1

The morphological components of the signers’ responses to the *jiko* picture are shown in Table 2. Cells with the same name and color are those with very similar articulations and the same lexical meaning. In this case, all but two signers produced the very same monomorphemic sign. Signer W1 produced a kind of center-embedded construction, JIKO-[traced circle]-JIKO, and signer I1 produced the sign with curved handshapes instead of fists. Note that the responses in all tables are ordered so that similar articulations are grouped together in order to highlight the similarities between signer responses. When a signer produces more than one sign, those versions are marked (a) and (b), in order of appearance in the table.

Table 2. Morphological components in responses to a photograph of a jiko

SIGNER:	COMPONENTS:		
A2	JIKO		
B1	JIKO		
B2	JIKO		
J1	JIKO		
K1	JIKO		
M1	JIKO		
O1	JIKO		
V1	JIKO		
X1	JIKO		
Y1	JIKO		
Z1	JIKO		
W1	JIKO	CIRCLE	JIKO
I1	JIKO [curved]		



JIKO is monomorphemic, but conventionalized compounds were also found. Table 3 shows an example of a compound, SALT, from the morphological components TASTE^SPRINKLE. The signers' responses for SALT use the same signs, with roughly the same articulation, in the same order. The exception is signer W1, who produces the local sign for SUGAR,<sup>13</sup> and then gives the ASL version of SALT. This is probably due to the fact that W1 had only recently moved back to the field site area after living in the capital, Nairobi, for much of his adult life.

**Table 3.** Morphological components in responses to a photograph of salt

SIGNER:	COMPONENTS:	
<b>B2</b>	TASTE	SPRINKLE
<b>X1</b>	TASTE	SPRINKLE
<b>Y1</b>	TASTE	SPRINKLE
<b>K1</b>	TASTE	SPRINKLE
<b>B1</b>	TASTE	SPRINKLE
<b>O1</b>	TASTE	SPRINKLE
<b>A2</b>	TASTE	SPRINKLE
<b>J1</b>	TASTE	SPRINKLE
<b>V1</b>	TASTE	SPRINKLE
<b>M1</b>	TASTE	SPRINKLE
<b>Z1</b>	TASTE	SPRINKLE
<b>I1</b>	TASTE	SPRINKLE
<b>W1 (a)</b>	TASTE	[pivot out]
<b>W1 (b)</b>	SALT[ASL]	

A high level of conventionalization is also evident in some lexical variants, akin to the English words *couch* and *sofa*. Table 4 shows responses to a picture of avocados. Clearly, there are two different signs for avocado; one is a compound (BLACK^[pear-shape]) and one is a monomorphemic sign. Interestingly, some signers only seemed to know or use one of these signs, and the few who knew both gave different reasons for what the two signs meant. The most likely explanation is that there are two lexical variants used in the community, possibly originating in different deaf schools. In any case, there was only minor phonetic variation within variants.

**Table 4.** Morphological components in responses to a photograph of avocados

SIGNER:	COMPONENTS:	
<b>I1</b>	[ description only ]	
<b>B1 (a)</b>	BLACK	[pear-shape]
<b>V1</b>	BLACK	[pear-shape]
<b>M1</b>	BLACK	[pear-shape]
<b>A2 (a)</b>	BLACK	[pear-shape]

<sup>13</sup> I believe that the sign for SUGAR in this region means SALT elsewhere in Kenya.

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<b>X1</b>	BLACK	[pear-shape]
<b>B2</b>	BLACK	[pear-shape]
<b>Y1</b>	BLACK	[pear-shape]
<b>K1 (a)</b>	BLACK	[pear-shape]
<b>K1 (b)</b>	BLACK	PEEL-circle
<b>O1</b>		PEEL-circle
<b>W1</b>		PEEL-circle
<b>B1 (b)</b>		PEEL-circle
<b>J1</b>		PEEL-circle
<b>A2 (b)</b>		PEEL-circle
<b>Z1</b>		PEEL-circle (claw+i)

**4.2 The least conventionalized responses**

The examples of JIKO, SALT, and AVOCADO provide evidence—supported by my own observations in the field—that KSL does have a stable, conventionalized lexicon shared among signers.<sup>14</sup> However, a small number of items that were elicited show a high degree of variability between signers. The most pronounced of these were responses to *island*. In fact, based on the responses, it is safe to say there is no lexicalized form for *island* in this dialect of KSL. In their responses, signers were uncertain, or said explicitly that there wasn't a sign, or used description rather than a label, and even used a borrowing (albeit imperfectly) from ASL.<sup>15</sup> The photos shown to signers were of real islands in Lake Victoria only about 45 miles from the field site, but the lack of a sign suggests that this concept has little relevance in daily life of this language community.

The morphological components in responses to *island* are shown in Table 5. Although some of the same signs appear in these responses, they are more like descriptions than labels. The productions glossed as “surrounding” are in quotation marks because signers did not use one consistent form for this meaning, which also increases the variability across responses. In fact, the inconsistency in “surrounding” bears a resemblance to ABSL signs for *dog*, in that there is a conceptual target, but the articulations were quite variable in terms of handshape, number of hands, and types of movement.

**Table 5.** Morphological components in responses to photographs of islands

<b>SIGNER:</b>	<b>MORPHOLOGICAL COMPONENTS:</b>			
<b>I1 (a)</b>	VILLAGE	[lump]	WATER	‘SURROUNDING’
<b>I1 (b)</b>	STONE	HILL		

<sup>14</sup> However, it must be said that there is more variation in KSL than is touched on in this paper, and also the degree of normal variation (idiolectal variation) in any sign language has not been sufficiently explored.

<sup>15</sup> This is a good illustration of how a foreign borrowing might find an easy niche to fill if a language hasn't yet converged on its own lexical item.

W1	CENTER	WATER	'SURROUNDING'	CENTER
X1		WATER	'SURROUNDING'	
Z1		WATER	'SURROUNDING'	
O1 (b)		WATER	'SURROUNDING'	[lump]
V1		WATER	'SURROUNDING'	[lump]
K1			'SURROUNDING'	[lump]
M1	WATER	LAND	MIDDLE	
B2	(uncertain)	LAND		
J1	("no sign")			
Y1	(forgets)			
B1	i-on-h2 (ASL)			
O1 (a)	Y-on-h2 (ASL)			
A1	i-on-elbow			

### 4.3 Items in the process of becoming conventionalized

Between the fully conventionalized signs (JIKO, SALT) and items that are so inconsistent that they clearly lack lexical status ('island'), there are responses to other items that may be in transition to conventionalized forms. Responses in this group show different patterns based on the type of word formation strategy, compounding or iconic prototype, so I will describe each separately.

#### 4.3.1 Compounds becoming conventionalized

An example of a concept that may be in transition to a conventionalized compound is *candle* (Table 6). In the responses to *candle* and several others in this category (e.g., *granary*, *watermelon*, 'bo' [cowpea plant], *well*) the articulation of each sign component is relatively consistent in form. Also, responses in this group feature only 3-4 unique signs, unlike *island* with more lexical variability. The variation, then, is not in the phonological form of signs, but on the configuration of signs—which signs and in which order.

**Table 6.** Morphological components in responses to a photograph of a candle

SIGNER:		MORPHOLOGICAL COMPONENTS:						
K1 (a)			FLAME					
Y1			FLAME					
Z1			FLAME					
J1 (a)			FLAME	[long-thin]				
K1 (b)			FLAME	[long-thin]				
A2			FLAME	WHITE	[long-thin]			
B1			FLAME	STRIKE	FLAME	STRIKE	FLAME	
V1 (a)			FLAME	STRIKE	FLAME			
J1 (b)			FLAME	STRIKE	WHITE	[long-thin]		

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V1 (b)	STRIKE	FLAME	WHITE	FLAME	STRIKE	FLAME	[long-thin]	STRIKE	FLAME	[long-thin]
O1 (a)			WHITE	FLAME	STRIKE	FLAME	WHITE			
B2			WHITE	FLAME						
O1 (b)			WHITE	[long-thin]	STRIKE	FLAME				
W1					STRIKE	FLAME				
I1 (a)					STRIKE	FLAME				
I1 (b)			WHITE	[long-thin]	FLAME	STRIKE	SET-INTO	FLAME		
X1			WHITE	[long-thin]	FLAME	[long-thin]	FLAME			
M1					CHURCH	[long-thin]	FLAME			

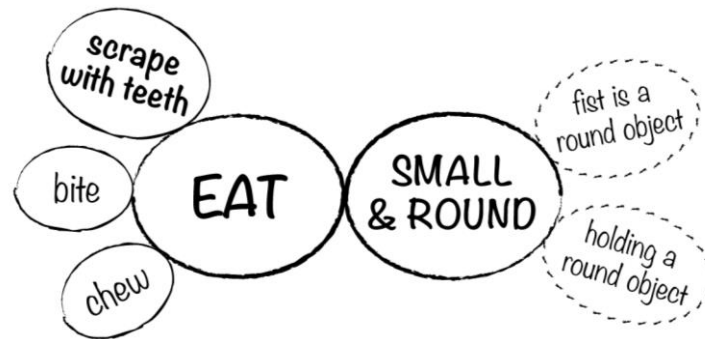
As shown in Table 6, the sign FLAME occurs in all 18 responses to *candle* (several signers had more than one response), suggesting that FLAME is the base component of each construction, while the other components appear evenly distributed: STRIKE appears in 9 responses; [long-thin] in 9 responses; and WHITE in 8 responses. In terms of ordering, FLAME and STRIKE are often adjacent; however, there is no predictable order—the configuration FLAME^STRIKE occurs 7 times, while STRIKE ^FLAME occurs 9 times.

What is going on here? It turns out the likely reason for the variation in *candle* is confusability in the sign glossed as FLAME because when signed alone, FLAME can mean three different things: *candle*, *tin lamp*, and *kerosene*. Several signers mentioned this confusability and how it could be disambiguated; e.g., according to signer B2, “if you say, ‘go to the store and buy FLAME,’ a person can easily come back with the wrong thing.” At present, the meaning of *candle* can easily be disambiguated by adding any one (or any combination) of the three other signs, but over time, it is possible that one compound form will win out.

### 4.3.2 Iconic prototype signs becoming conventionalized

The other type of signs discovered in this data that are not fully conventionalized are those using an iconic prototype strategy, similar to the example of *dog* in ABSL. Examples include ‘*surrounding*’ (in responses to *island*), and signs for PASSIONFRUIT and GUAVA. Each of these are monomorphemic signs that adhere to phonological constraints (i.e., would all be equally well-formed signs) and appear to be motivated by the same shared conceptual target. However, in all of these cases the articulatory form, as measured by specifications in each of the phonological parameters, is not conventionalized.

Consider the example of GUAVA in the KSL data (see screenshots in Figure 10). Viewing the videos, it is apparent that signers have converged on a shared iconic representation that is related to how the fruit is eaten; specifically, it is eaten by scraping or biting it with your teeth. Also, it is a round object that easily held in the hand or about as large as the size of a closed fist. A schematic of this iconic motivation is shown in Figure 9. The shared iconicity for GUAVA is more conventionalized than the example of *dog* in ABSL, however, there is still some variation. In particular, some signers represent the fruit as an object with their fist, while the locus for other signers is on the way the fruit is held in the hand while it is being bitten.



**Figure 9.** Schematic of conceptual target(s) in *guava*

When we look at the phonological features of each sign (Table 7), the responses are also much less variable than *dog* in ABSL, or what Sandler *et al.* might call “finer” featural variations (20011: 521). Several generalizations can be made about the articulations at the “broader” level: they are all one-handed, near the mouth, with all fingers selected, and the movement often involves some kind of palm orientation change (e.g., wrist nodding, ulnar rotation). However, despite these similarities, no two signers have the exact same articulation. It would be impossible to pick just one of these forms to represent *guava* in this dialect of KSL, and it is even difficult to say which one might be the most likely articulation to become the standard form.

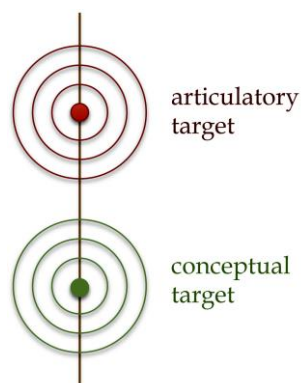


**Figure 10.** Screenshots of signs for GUAVA; signers counterclockwise from top left corner: I1, Y1, M1, Z1, J1, B2, A2, W1, O1, X1

**Table 7.** Phonological features in signer responses to a photograph of guavas<sup>16</sup>

Signer	Handshape	Palm orient.	Finger orient.	# Hands	Location	Movement (A)	Movement (B)	Mouth mvmnt?	Repetition
Signer Y1	closed-claw	inward	upward	1	mouth-center	path	vertical	biting	yes
Signer M1	A	inward	upward	1	mouth-inside	none	n/a	biting	no
Signer Z1	fist	inward	upward	1	mouth-center	path	midsagittal	biting	yes
Signer J1	A (loose)	inward > downward	upward > inward	1	mouth-side	orientation	nodding	open	no
Signer B2	fist	inward	upward	1	mouth-inside	orientation	twisting trill	open	yes (trill)
Signer A2	A	inward	upward	1	mouth-side	orientation	twisting trill	no	yes (trill)
Signer W1	claw-stacked	inward	upward	1	mouth-side	orientation	pronation	biting	yes
Signer O1	S	dynamic	contra	1	mouth-center	orientation	supination	open	yes
Signer X1	S	dynamic	contra	1	mouth-center	orientation	pronation	no	Yes
Signer I1	<i>description only, with depicting sign/classifier</i>								

What signs like GUAVA and PASSIONFRUIT and *dog* in ABSL seem to suggest is that there is a tight relationship between the iconic conceptual target and the formational properties in these types of signs, which is schematized in Figure 11.



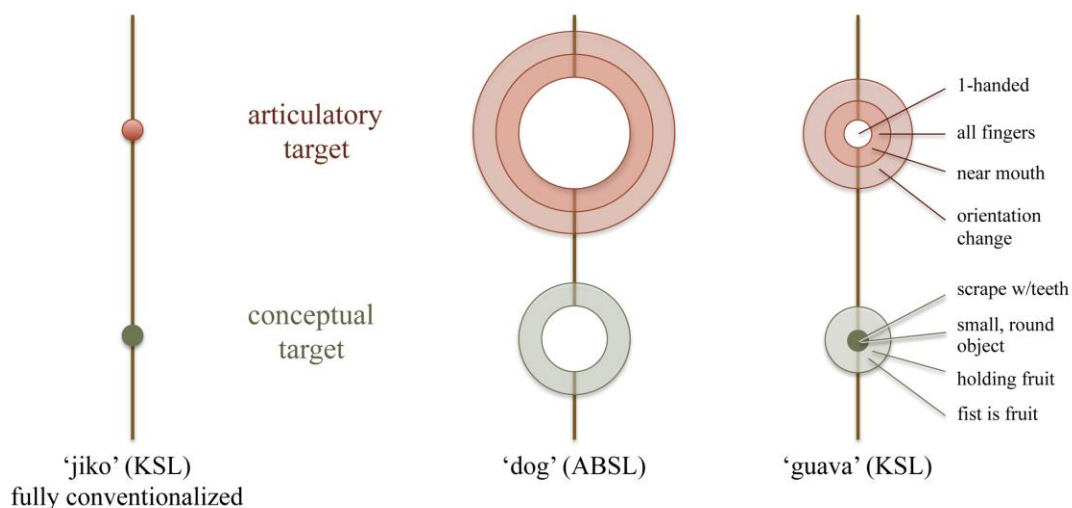
**Figure 11.** Alignment of conceptual and articulatory features in ‘iconic prototype’ signs

Even though the coupling between these two targets is tight—and to some extent simultaneous—there also seems to be an ordering effect. The conceptual target seems to come into focus slightly before the phonological form. This new KSL data shows an intermediary stage of conventionalization in iconic prototype signs. In Figure 12, a sign like JIKO in KSL (on the left), is fully conventionalized in both form and iconic meaning, while *dog* (middle) in ABSL has identified a general conceptual target, but is still quite variable in its articulatory form. The example of *guava* in KSL shows that the conceptual target is very close to being fully

<sup>16</sup> Responses from only ten signers were collected due to the late inclusion of *guava* in the stimuli.



conventionalized, while the phonological features are also coming into alignment, but with somewhat more variability than the semantic content.



**Figure 12.** Alignment of conceptual and articulatory features in *jiko*, *dog*, and *guava*

## 5 Iconic prototype signs and the role of iconicity in sign language lexicons

In Sandler *et al.*, the authors take the position that ABSL signs like those for *dog*, *tea*, or *lemon*—and *guava*, by extension—are both **iconic** and **holistic**: “signers are aiming for an iconic and holistic prototype” (2011: 517). While they later consider the holistic-ness of signals separately from iconicity in a discussion of language evolution (“[w]e cannot know for sure whether early spoken words were iconic or holistic or both” [538]), they maintain throughout the paper that iconicity and holistic-ness are inseparable properties of iconic prototype signs. However, this overlooks the fact that signs can be both iconic and *non-holistic* by being constructed from phonemic sub-parts. Indeed, it is quite easy to find iconic signs in any mature sign language that also have phonological structure.

The authors also maintain a strict distinction between iconicity and meaningless phonological structure, implying that they are mutually exclusive: “The handshake assimilation shown here is another example of what happens when a sign becomes fully conventionalized. The meaningful, holistic icon is no longer the target. Instead, the sign is represented as a formal entity, made up of meaningless parts” (Sandler *et al.* 2011: 534). As Konrad has recently pointed out, this view of iconicity has a long history in sign linguistics as something that is insignificant to a *linguistic* system, and is submerged or suppressed (*à la* Klima & Bellugi 1979) in order for forms to enter the formal linguistic system (Konrad 2013).

However, while it is true that phonological forms can become more abstract over time and detach from their iconic motivation—especially at the featural level—these processes of



abstraction are not as dominant in sign languages than Sandler *et al.* imply.<sup>17</sup> Or to put it another way, iconicity is a major factor in sign language lexicons, even in languages that are now hundreds of years old. Indeed, one of the current challenges of sign linguistics is to fully describe the role of iconicity and develop theories that can situate such iconicity appropriately in linguistic systems and the mental lexicon.

Here I think the gradual conventionalization of iconic prototype signs in ABSL, KSL, and any other language is quite relevant. Sandler *et al.* refer to the “conventionalization, and the concomitant weakening of a one-to-one correspondence between form and meaning” (2011: 536). However, looking more closely at the iconicity of signs such as *guava* or *dog* (Fig. 12) reveals that the mapping of form and meaning may not be excised from the sign upon conventionalization. In fact, a sign like *guava* appears to be reaching a more perfect alignment in iconic form-meaning mapping, where individual phonological features align with individual semantic properties. It may be that iconicity is not *weakening*, but instead becoming *appropriated by* the lexical system. Naturally, this may lead to greater systematicity and a reduction in more gradient, variable forms, but it does not necessarily follow that iconicity is lost.

## **6 Summary and conclusion**

Although KSL is slightly younger than ABSL, it has a much greater degree of sub-lexical structure than ABSL, which is probably attributable to the demographics and social ecology of each language. The KSL lexicon is also much more conventionalized than in ABSL. However, a comparison of elicited signs in KSL reveals that lexical and phonological variation is still very much a part of this young language. Not all concepts have a sign (e.g., *island*) or have a uniquely disambiguating lexical representation (e.g., *candle*).

One contributing factor for KSL variation not yet mentioned may be that KSL signers typically do not rely on fingerspelling when there is not a shared sign. Instead, KSL signers prefer to use descriptions or innovate a new sign or compound for a new item. Mouthings of a spoken language word could also be one way of disambiguating meanings, but this appears to be used only in novel situations in Kenya, and not regularly between deaf individuals. What is customary, then, is to use the closest, best matching sign you have if you are not quite sure of a standard form. While this results in a lot of variability in the language, I believe it also results in a very dynamic linguistic environment, where similar articulations may be allowed to come into contact and signs and their subparts evolve organically to become discriminable in both form and meaning.

In conclusion, in this paper I have provided a snapshot of lexical and phonological variation in KSL, a young, under-described sign language, by showing what emerging conventionalization looks like in two different sign types: compounds and iconic prototype signs. I have also argued for the development of a theory that would integrate the iconicity found in sign language

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<sup>17</sup> To be fair, Sandler *et al.*'s characterization of these processes of abstraction fit better in the case where new morphological structures are being innovated. However, we can't then ignore signs like *dog* which will probably continue to maintain their iconic form-meaning mapping even as they become conventionalized.

lexicons, based in part upon the evidence provided here for the surprisingly fine alignment of semantic and phonological features in signs that are not yet conventionalized.

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