Sign Language Buoys in Lexical Items

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0 Introduction

Signs in sign languages fall into two broad categories: "frozen" and "productive" (Bellugi and Klima 1976; Supalla and Newport 1978; Brennan 2001; Russo 2004; Sandler and Lillo-Martin 2006; etc). Frozen (or "lexical"[1]) signs are discrete lexical items which may be found in dictionary entries. In contrast, productive signs, also called "classifier constructions" or "classifier predicates" are made up on the spot (Liddell 2003:261; Frishberg 1975; Mandel 1977; and others). It must be noted, however, that many now-frozen signs were once productive signs that have been lexicalized (Sandler and Lillo-Martin 2006: 77, 94-107). Productive signs are used heavily in most sign languages, although not all (Nyst 2007). The differences between productive and lexical signs are discussed further in §2.

Among signs, both productive and lexical, are ones in which one hand stays in one place while the other hand moves. The sign performed by the stationary hand is called a buoy (Liddell 2003; Vogt-Svendsen and Bergman 2007). Buoys heretofore have been defined only by the quality of being a stationary sign which is held on one hand while the other hand continues signing. Descriptions of their functions (of which they seem to have many) have only been ancillary to their definitions. And buoys have only been discussed as they appear in sentence-wide, productive constructions, never within lexical signs. In this thesis, I will present dictionary entries selected from the sign language dictionaries ASL-LEX (*A Lexical Database of American Sign Language)* and Spreadthesign, showing instances of buoys which are contained within single lexical signs. I will map existing theory about buoys onto these lexical signs, showing a high level of correspondence between productive signs and lexical signs. I identify a

[1] I choose to use the phrase "lexical signs" instead of "frozen signs" because the emphasis of this paper is on lexical items, not on the process of lexicalization, and the term "lexical signs" better centers that focus.

gap in the typology of buoys given by previous scholars and propose a new type of buoy to fill that space.

In §1 I give an introduction to sign language phonology and analysis. In §2, I discuss differences between lexical and productive signs. In §3, I overview the 6 types of buoys as proposed by Liddell (2003) and Vogt-Svendsen & Bergman (2007) and propose a two-way system of categorizing them in §3.8. In §4, I present a selection of lexical signs from multiple sign languages in which one hand moves while the other is stationary, and draw parallels with Liddell's (2003) buoys in §3. In §5, I argue the need for a new type of buoy and propose the "form buoy" to fill the gap in the literature. In §6, I briefly discuss lexicalization and the relationship between productive and lexical signs. I conclude in §7 with a summary of my findings and suggestions for future scholarship.

1 An introduction to analyzing lexical signs

Most[2] lexical signs fall into one of three types:

(1)

		Strong hand	Weak hand
1	One-handed	Moving	Not in signing space
2	Two-handed: stationary weak hand	Moving	In signing space but stationary
3	Two-handed: active weak hand	Moving	Moving

In sign language linguistics, the labels "left hand" and "right hand" are typically discarded in favor of other labels; usually "strong" vs. "weak" hand or "dominant" vs.

[2] Not all signs fall into one of these three categories. Take BUTTERFLY in American Sign Language, for instance. Although it is true that both hands move, they move together as one articulator, not as two independent articulators as the chart in (1) requires. See Napoli & Wu (2003) for overview of hand-involvement in signs – and for analysis of signs like BUTTERFLY.

"non-dominant" hand. This is because the production of a sign does not depend on whether a signer is right- or left-handed, but instead on which of their hands they use to guide– or dominate– their signing. Most literature on the topic of manual simultaneity, of which buoys are a subtopic, uses the terms "strong" and "weak," so I will adopt them as well.

The strong hand usually corresponds to whichever the signer prefers for most motor tasks (Battison 1978:27), and weak hand to the other hand. Although there can be exceptions, they are not pertinent here[3]. In one-handed signs, or two-handed signs in which only one hand moves (that is, one hand is active while the other hand is passive), I assume that the active hand is the signer's strong hand.

The data I present in this thesis will only be signs of type 2: two-handed, where the weak is stationary. See below examples of signs types 1, 2, and 3. I will describe each with the 4 manual phonological parameters of sign language: handshape, orientation, location, and movement (Stokoe 1972; Battison 1978:21).

(2)

Handshape	The shape(s) the hand(s) takes during the sign. For a glossary of handshapes, please see Appendix A.
Orientation	The direction the palm and fingertips are facing.
Location	The location of the sign in relation to the body, accounting also for where, if at all, the hands make contact with the body. Note here two important terms: *contralateral*, which means *opposite side*, and *ipsilateral*, which means *same side*.
Movement	The movement executed by the hand(s).

For a few signs, we must also consider some nonmanual articulation such as mouth movement or a head nod, as shown in (4).

[3] See Nilsson (2007) and Hendriks (2007) for writing on dominance reversal.

(3) shows an example of a one-handed (Type 1) sign.

(3)

EYES

"Eyes." (ASL[4]). From ASL-LEX.

	Strong hand	Weak hand
Handshape	1-handshape	N/A
Orientation	Palm facing in	N/A
Location	Before ipsilateral eye	N/A
Movement	Horizontal, towards contralateral eye	N/A

The strong hand (the signer's right), points at the signer's ipsilateral eye, then moves across the signer's face to point at the contralateral eye. "Ipsilateral" is whichever side of the body the moving hand is in. "Contralateral" is whichever side of the body is opposite from the moving hand. When both hands are moving, these terms apply relative to whichever hand is being discussed. The strong hand forms the 1-handshape. The weak hand is not present in the signing space.

[4] For a glossary of sign languages mentioned in this paper, please see Appendix B.

(4) shows an example of a two-handed sign where the weak hand is present stationary (Type 2).

(4)

BLOW_CANDLE

"Blow out a candle." (ASL). From ASL-LEX.

	Strong hand	Weak hand
Handshape	Flat-O-handshape, then 5-handshape	1-handshape
Orientation	Palm facing out	Palm facing out
Location	Before mouth	Below chin
Movement	Forward, away from speaker. Accompanied by change in handshape.	None
Non-manual articulation	Mouth held in O-shape	

The signer holds their weak hand (their left) in front of them in a 1-handshape. The strong hand begins in front of the signer's mouth in a Flat-O-handshape, then moves forwards towards the weak hand, changing to a 5-handshape. There is also a non-manual articulation: during the sign, the signer holds their mouth in an O-shape.

(5) shows an example of a two-handed sign where both hands move (Type 3).

(5)

PROPOSE

"Propose" (ASL). From ASL-LEX.

	Strong hand	Weak hand
Handshape	B-handshape	B-handshape
Orientation	Palm facing up	Palm facing up
Location	Chest height, before arm	Before chest
Movement	Upwards and towards ipsilateral side	Horizontally towards contralateral side

The signer begins with both strong and weak hands in front of them. The strong hand begins slightly higher on the y-axis. Then both hands move together upwards and towards the side of the strong hand (their right). I identify the right hand as the strong hand because it is the one leading the motion (Battison 1978). Additionally, this is in line with the signer's behavior in (3) and (4), where their right hand dominated their signing.

Note a difference between the features of (4) and (5): both describe two-handed signs, but while the two columns "Strong hand" and "Weak hand" differ significantly in (4), they are very similar in (5). In (4), the two hands differ in both handshape and movement, whereas in (5), the two hands have the same handshape and move in the same direction. In signs like that described in (5), it is common practice to list only one set of features, since the two hands move and

articulate together. This thesis is only interested in signs like (4) in which the two hands articulate differently and independently.

It must be noted that each parameter is generally taken to be arbitrary, although they may have their roots etymologically in depiction (Frishberg 1975). One action or object may have many elements which could be chosen to form an "iconic base," so there may be a lot of variation between languages in how they sign a word, even if the signs are all depicting. Just because a sign looks to be depicting does not mean it could be guessed in either direction– that is, it may be depictive while still not being transparent (Caselli et. al. 2017). And a sign which was once depicting may over time become more arbitrary (Frishberg 1975). Compare the signs for BOOK in American Sign Language (ASL) vs. British Sign Language (BSL):

(6)

BOOK

"Book" (ASL). From Spreadthesign.

(7)

BOOK

"Book" (BSL). From Spreadthesign.

The two signs for book are very similar. They both depict a book which is first standing on its spine and is then opened. In (6), the signer opens their hands, keeping the sides of their hands together, as the pages of a book would. But in (7), the signer does not finish with their hands together, as the two halves of a book would be when opened, but with their hands apart. This is unsurprising mechanically; to hold the two hands together as in (6) takes more energy than to allow them to separate, as in (7), and thus there is likely to be a preference for the less demanding articulation (Sanders & Napoli 2016). But it is an excellent example of the way depicting can appear in signs: although (7) is depictive, it is not concerned with honoring that depiction. Depiction is merely a starting point for many signs, which are then lexicalized and modified according to the needs of the language and its users (Napoli 2019).

1.1 Summary

In this section I presented the four phonological parameters used in sign language analysis: handshape, orientation, location, and movement. I showed an example of each of the three types

of signs: one-handed, two-handed with a stationary weak hand, and two-handed with a moving weak hand. I then briefly discussed arbitrariness and iconicity in signs.

2 On productive signs and the term "classifier"

This section discusses lexical items, productive signs, and classifiers, with attention to the definition of "classifier" as it appears in sign language linguistics.

Productive signs are also sometimes called "classifier constructions." The term "classifier" in sign language linguistics is meant to correspond with its meaning in spoken language linguistics. As per Allan (1977:285), a classifier in a spoken language is a noun which may occur as a meaningful morpheme referring to some other entity, and which denotes some salient characteristic of that entity. A classifier in sign language is a handshape used to represent or classify some other entity by denoting some salient characteristic such as shape or noun class (e.g., animal, human, etc.).

There are many different kinds of productive signs (see Schembri 2003, for instance), the exact classifications of which are highly contested in the field. I will not attempt to interface with that in this paper. See an example below of a productive sign.

(8)

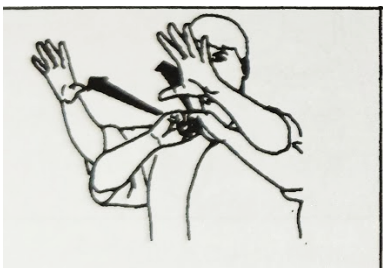
"(There is) a cat lying on a fence." (ASL). Figure 9.9 from Liddell (2003:278).

In the first frame, the signer signs the lexical sign FENCE. In the second frame, their strong hand (their right) moves while their weak hand maintains the sign FENCE. The strong hand then signs the lexical sign CAT in the third frame, while the weak hand stays still. In the fourth frame, the strong hand performs the Bent-V-handshape, which is the classifier for animals. Since the sign for CAT was just performed, the meaning of CAT blends with the classifier, so that the strong hand now refers to CAT. The weak hand has remained stationary since it performed FENCE, and thus maintains the meaning of FENCE. So when, in the fourth frame, the signer brings their strong hand to rest atop their weak hand, it depicts a cat sitting atop a fence. There are two important things to note here which are crucial for classifier constructions:

1. No lexical verb is signed in this phrase. The lexical signs only establish the relevant entities, and the verbal nature of the phrase is produced by the improvised movement of the two hands in relation to one another.
2. The production of the classifier (in this case, the Bent-V-handshape) is crucial to making this construction possible. The lexical sign for CAT in ASL must always be signed by the signer's face. If it were signed in another location, it would not maintain its meaning. So only by mapping the meaning of CAT onto the classifier can the cat entity become mobile, capable of miming or depicting a scene.

There is substantial debate in the field over whether the so-called "classifiers" in sign languages truly correspond to classifiers in spoken languages. Engberg-Pedersen (1993) presents evidence from Danish Sign Language to show that handshape and movement are often interdependent, thus disqualifying the idea that the handshape is morphemic on its own. Schembri (2003) shows examples in which a handshape switches from describing one referent to another within a single sign:

(9)



THROW_NETBALL

"Throw (a) netball." (Auslan). Figure 1.8 from Schembri (2003:23).

The initial position of the hands in this sign is in front of the signer's chest, both hands making S-handshapes. The hands then move forward in unison, changing to the 5-handshape. In the initial position, the hands depict the netball. In the final position, they depict the shape a person's hands would take after throwing the ball. In both (8) and (9), the hands are used to depict both referent and movement. But under the definition of classifiers in spoken languages, the fact that the hands in NETBALL change referent means they are not considered classifiers.

Additionally, there are some phrases in sign language which are neither made up of lexical signs nor are they depicting of anything (for example, (17) and (20) in §3.4). In such signs, the signer maps a referent onto a space in front of them, which they may then refer to spatially, as with a classifier. Perhaps one could say that the assigned space then becomes the classifier, and that space itself is morphemic in sign language. That is beyond the scope of this paper.

I bring this up to illustrate the complexity of the notion of the "classifier construction." There is not a well-defined line between classifier constructions and mimicry or gesture, nor is there a universally agreed-upon definition of "classifier." It is not even certain that all classifier

constructions contain a classifier. In this paper, I will refer to such constructions as "productive signs," defined purely in opposition to lexical signs. So:

(10)

Lexical sign	**Productive sign**
May appear in a dictionary or lexicon	Is made up on the spot
Is regularly used for the object or situation to which it refers	Produced very differently from one signer to another
Does not exhibit formal variation: changes in formation do not result in changes in meaning	Can exhibit formal variation: changes in formation do result in changes in meaning
Its form is arbitrary	Its form is meaningful and compositional

Phrases in sign languages may be made up entirely of lexical signs, or may take the form of a productive sign, in which lexical signs assign meaning to various articulators and points in space, which can then be related or combined to form a productive sign.

While productive signs are always in some way depicting, the way in which they depict can be metaphorical (Liddell 2003:301). Productive signs are said to work within a grammatical system, although not one that exists in spoken languages (Sandler and Lillo-Martin 2006:76; Supalla 1982, 1986). Many lexical signs were formed as a result of a productive sign becoming lexicalized. In fact, many scholars have claimed that all signs in the ASL lexicon are derived from productive signs (Kegl & Schley 1986; McDonald 1982; Shepard-Kegl 1985; all referenced by Schembri 2003:11). Lexicalization will be discussed further in §6.

3 The existing literature on buoys

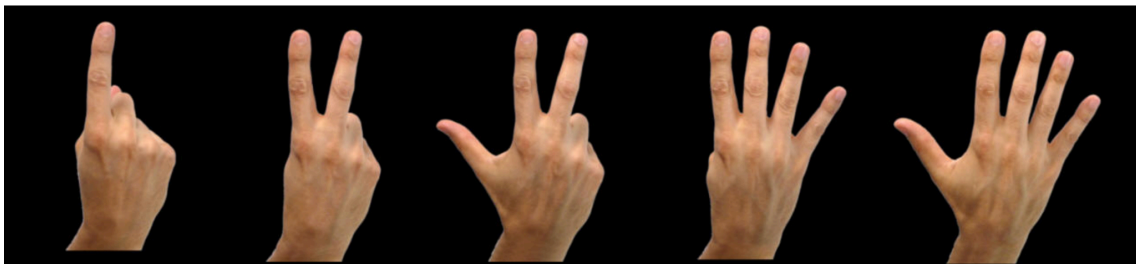
Liddell (2003) was the first to use the term *buoy*, referring to a stationary sign produced by the weak hand and held while the strong hand continues to produce signs (Liddell 2003:223). He states that buoys "guide the discourse by serving as conceptual landmarks" (Liddell 2003:223).

This section will give an overview of the 6 types of buoys which have been described in sign language linguistics[5]: list, theme, fragment, pointer, depicting, and point. **Buoys have only been described as they appear within productive signs.**

3.1 List buoy

List buoys allow the signer to enumerate a list of items and refer back to them. To produce a list buoy, the signer produces a handshape corresponding to one of the numeral signs ONE, TWO, THREE, FOUR, or FIVE with the weak hand. See below:

(11)



ONE TWO THREE FOUR FIVE

"One, two, three, four, five." (ASL). From Lifeprint.

[5] Two other types of buoys have been proposed: the Delimit buoy (Mesch & Wallis 2013), and the FB:HANDSHAPE buoy (Gabarro-Lopez & Meurant 2014), but have not to my knowledge been picked up by any other scholars and do not seem to me to be distinct from the 6 types already established.

Although these handshapes correspond with the signs for the numerals one through five, their presence in list buoys is not an instance of the numeral itself. When the numerals are signed, they are typically signed by the strong hand, with the fingers pointing directly up. When the numeral handshapes are used in list buoys, they are signed with the weak hand, with the fingers oriented contralaterally (Liddell 2003:223). In list buoys, they are just handshapes, not entire signs.

While performing the numeral handshape with their weak hand, the signer may then sign a series of entities with their strong hand, associating each element in the list with one of their extended fingers. See below an example of a list buoy from Liddell (2003:225).

(12)

NOW 'these three things' TIME-BREAK$^{\rightarrow D1 \downarrow D2}$

THREE-LIST ----------

TIME-BREAK$^{\rightarrow D2 \downarrow D3}$ PRO-1 GOAL three taps on D1

THREE-LIST ---------- THREE-LIST

"Now, there will be breaks between the three parts (of the teleconference). My goal, with respect to the first part, …" (ASL). Figure 8.2 from Liddell (2003:225).

In (12), the signer produces the handshape for the 3-handshape with their weak hand (the signer's left). They have three fingers extended on their weak hand: thumb, index, and middle. They point with their strong hand to the thumb of their weak hand in the second frame, then to

the middle finger of their weak hand in the third frame. This establishes the thumb as the first element of the list, and the middle finger as the last element of the list. The signer can now refer to their weak hand, still performing the 3-handshape, and mean that they are referring not to the number three, but to the three enumerated items, glossed by Liddell (2003) in (12) as THREE-LIST.

In frames four and five, the signer gestures first to the space between their thumb and index finger, then to the space between their index and middle finger, while signing TIME-BREAK with their strong hand. This indicates that there will be a pause of some sort between the first two elements and between the second two elements (in this case, parts of the teleconference). So not only does the list buoy represent the three enumerated items, but also the concept of the three of them being in a set, enough so that it allows the signer to refer to the spaces in between items.

Having established these three items as being associated with the three fingers on their weak hand, the signer can then refer back to one item at a time by pointing to the associated finger. See in the last frame how they point back to their thumb, referencing the first item of the list. So the list buoy is able to store a list of items for later reference.

3.2 Theme buoy

Theme buoys allow the signer to signify that an important discourse theme is being discussed (Liddell 2003:242). Like all buoys, the theme buoy is produced with a stationary weak hand. But unlike the list buoy, which may take one of five different handshapes corresponding to the numerals one through five, the theme buoy may only take one: the 1-handshape (see Appendix A).

After the signer has performed a sign which is thematic in the discourse, they may create a theme buoy by performing the 1-handshape with their weak hand in the space which they just expressed the theme. This effectively "keeps the space active" (Liddell 2003:243), so the viewer knows that that space ought to be associated with the sign most recently performed there, and not allocated to some other concept later in the discourse. See an example below:

(13)

IDENTIFY[EXHAUSTIVE]↹|multiple entities|.

UNDERSTAND [THEME]→|theory| POSS-CHARACTER[EXHAUSTIVE]↹|multiple entities|.

"(I will) identify several aspects of the theory." (ASL). Figure 8.21 from Liddell (2003:243).

In (13), the signer has already signed THEORY in the space to their left (the right of the image). In the first frame, they sign IDENTIFY towards the space defined by THEORY. When they sign UNDERSTAND in the third frame with their strong hand, they simultaneously produce a theme buoy with their weak hand, in the form of a 1-handshape in the same THEORY space. This indicates to the viewer that THEORY (which still defines that space) continues to be of thematic importance; UNDERSTAND is in reference to THEORY. Liddell emphasizes that the theme buoy

does not itself define the space of the left of the signer with THEORY. That definition is done by the THEORY sign itself. What the theme buoy does is point at a space which has already been defined by a sign, and indicate to the viewer that that sign both continues to define the space and continues to be important in the discourse.

3.3 Fragment buoy

A fragment buoy occurs during and after the transition from a two-handed sign to a one-handed sign, where the weak hand "*perseverates* into the succeeding one-handed sign" (Liddell 2003:248, citing Liddell and Johnson 1989). That is, the weak hand maintains its handshape, location, and orientation from the preceding sign as the strong hand moves to the next sign. When this fragment has semantic influence on the succeeding one-handed sign, it is called a *fragment buoy*. When it does not have semantic influence, it is merely a phonological perseveration (Nilsson 2007:169). Gabarro-Lopez and Meurant (2014) call the phonological perseveration a *fragment sign*, in contrast with *fragment buoy*.

Liddell (2003) gives a criterion by which to tell whether a fragment has semantic value or not: if the sign is pointed at, either by the strong hand or with eye gaze, it has semantic value. Nilsson (2007) and Gabarro-Lopez (2017) challenge this criterion, pointing to examples of fragments which have semantic influence and yet are not pointed at by either the strong hand or the eyes. Gabarro-Lopez (2017) suggests another sufficient criterion: the sign must be held stationary during the production of two or more signs by the other hand (Gabarro-Lopez 2017:150). This seems reasonable, but I have no authority on the matter. Liddell (2003) does not give information about what kind of semantic influence the fragment may have on the following signs. See Liddell's (2003) example below:

(14)

LINGUISTICS THEORY

"Linguistics theory" (ASL). Figure 8.26a from Liddell (2003:248).

In the first two frames of (14), the signer produces LINGUISTICS, a two-handed sign. In the third frame, they produce the one-handed sign THEORY with their strong hand (the signer's right hand). We see that their weak hand (their left) maintains its handshape, location, and orientation from the previous sign LINGUISTICS. In the third frame, their eyegaze shifts from pointing forward, towards the viewer, to pointing to their right, directed at the fragment held on their weak hand.

As Liddell (2003) glosses this as "linguistics theory," we can understand that the semantic influence of LINGUISTICS on THEORY is one of adjectival modification. How this differs from simply signing the signs in sequence, I do not know. It is perfectly grammatical in ASL to modify a noun with an adjective by signing them in sequence, as shown below.

(15)

"Old movie" (ASL). Figure 7.5 from Liddell (2003:195).

It seems then that the fragment buoy in (14) may not have semantic influence after all– or at least, no more than a non-fragmented sign would. But by Liddell's (2003) eye-gaze classification, it ought to have semantic value. So it would seem that Liddell is missing something, as Nilsson (2007) and Gabarro-Lopez (2017) argue. But, as I will briefly discuss in §4.2, this ought not to have an effect on my work, since fragment buoys cannot occur within lexical signs.

3.4 Pointer buoy

The pointer buoy allows the signer to reference a concept or entity already signed by pointing to the space in which it was signed with the weak hand in a 1-handshape. According to Liddell (2003:250), pointer buoys differ from theme buoys in that they provide no new semantic information; while the use of a theme buoy indicates that its referent is thematic in the discourse, the use of a pointer buoy does not indicate anything. Liddell (2003) claims that the pointer buoy is distinct from a pronoun (which also takes the form of pointing with a 1-handshape) for the following reasons.

(16) Distinctions between a pronoun and a pointer buoy, as per Liddell (2003)

a) Pronouns in sign language cannot be held while the other hand continues signing.

b) The weak hand in a pointer buoy may be oriented with the palm facing down, which is not found in pronouns.

Consider an example:

(17)

"But the food was delicious." (ASL). Figure 8.31 from Liddell (2003:255).

In the first frame, the signer signs the two-handed sign BUT. In the second frame, they perform a 1-handshape with their weak hand, holding it low in the signing space with the palm facing down and the finger pointing toward the viewer. At the same time, they sign the one-handed sign FOOD with their strong hand. Then, keeping their weak hand stationary, the sign DELICIOUS with their strong hand. I find Liddell's (2003) reasons for distinguishing this use of the weak hand from a pronoun, listed in (16), convincing enough; what I do not find convincing is the distinction between the pointer buoy and the theme buoy. It seems that the two types of buoy vary neither in form nor in distribution, and that the only difference is whether the referent of the buoy is a

"discourse theme" or not. Liddell (2003) frequently uses the term "discourse theme" and does not ever define it, making the task of distinguishing pointer buoys from theme buoys untestable and subjective. Like the theme buoy, the pointer buoy in (17) also seems to function to keep the space alive. And as "food" is the semantic theme of the utterance, how can we say that this example does not contain a theme buoy?

Later works on buoys speak to this similarity: Kimmelman's (2014) analysis of buoys omits the notion of the theme buoy entirely. Gabarro-Lopez (2017) claims that theme buoys are unique to ASL. As I find no clear way to distinguish between theme buoys and pointer buoys from the data given by Liddell (2003), and as later scholars were not able to improve on this distinction, I will assume that theme buoys and pointer buoys are functionally identical. In this paper, I will refer to this category of buoys as "pointer buoys."

3.5 Depicting buoy

Depicting buoys are found in what Liddell (2003) calls "depicting verbs" (Liddell 2003:261). These are a subtype[6] of productive signs, also called "verbs of motion and location" (Engberg-Pedersen 1993; Schembri 2003), among many other names. Mandel (1977) describes classifiers within such verbs as "an articulator used in a construct so as to be locatively iconic of an object, so that its behavior and situation in the signing space (whether stationary or moving) represent those of the object" (Mandel 1977:95). A depicting buoy is thus a type of buoy which appears in a verb of motion and location, and which thus depicts an object.

Like fragment buoys, depicting buoys do not have a set form. Gabarro-Lopez (2017:153) emphasizes the difference between a fragment buoy and a depicting buoy: fragment buoys

[6] Schembri breaks productive signs into 3 subtypes: motion and location, handling, and visual-geometric description, also called size and shape classifiers (SASSes) (Schembri 2003:7).

appear in the transition between lexical signs, while depicting buoys appear in productive signs. See below an example of a depicting buoy (repeated from (8)).

(18)

"(There is) a cat lying on a fence." (ASL). Figure 9.9 from Liddell (2003:278).

In the first two frames of (18), the signer signs FENCE, a two-handed sign. In the third frame, they sign CAT with their strong hand (their right), maintaining the handshape, location, and orientation of their weak hand from the previous sign. Note that the 4-handshape performed by the weak hand does not denote the numeral four; it is the handshape used in the lexical sign FENCE. At this point, it is impossible to say whether the weak hand is performing a meaningless phonological perseveration or a depicting buoy. But in frame 4, the signer performs the ANIMAL classifier with their strong hand and locates it just above their weak hand. Now, the weak hand refers to FENCE. And it is not a new fence, but the same one that was established in frames 1 and 2. This depicting buoy differs from a pointer buoy in two ways:

a) it does not take the 1-handshape as it would in a pointer buoy but instead maintains the 4-handshape, which depicts FENCE, and
b) it does not point at the fence or fence-space, as it would if it were a pointer buoy, but itself embodies the fence.

3.6 Point buoy

Point buoys were first identified by Vogt-Svendsen and Bergman (2007). As they said,

> "A point buoy neither represents, nor points at, a prominent discourse entity… A point buoy serves as a prop in relation to which other signs can be located" (Vogt-Svendsen and Bergman 2007:217).

Point buoys function to create a shared reference point between the signer and viewer, specifically helping to indicate the relation between entities in time or space. Vogt-Svendsen and Bergman (2007) also assert that point buoys vary in whether they take the form of a 1-handshape or a B-handshape[7], but are identical in use and function (218). (See Appendix A for examples of 1- and B-handshapes.). They also specify that when a point buoy represents a point in time, it restricts the signing space to one dimension (so that the hands may only move forward and back, or up and down, or left and right). When a point buoy represents a point in space, they say it restricts the signing space to two dimensions (e.g., the hands may only move up, down, forward, and back, but not left and right) (Vogt-Svendsen and Bergman 2007:232).

Vogt-Svendsen and Bergman's (2007) description of the point buoy is based only on their observations of Norwegian and Swedish Sign Languages (NTS and STS respectively), but subsequent scholars have adopted the definition that Vogt-Svendsen and Bergman proposed, and have found instances of point buoys in other languages including French Belgian Sign Language by Gabarro-Lopez (2017:134). I adopt Vogt-Svendsen and Bergman's (2007) criteria for point buoys in my analysis of signs from other languages including ASL and LIS, since there is no evidence that I should do otherwise.

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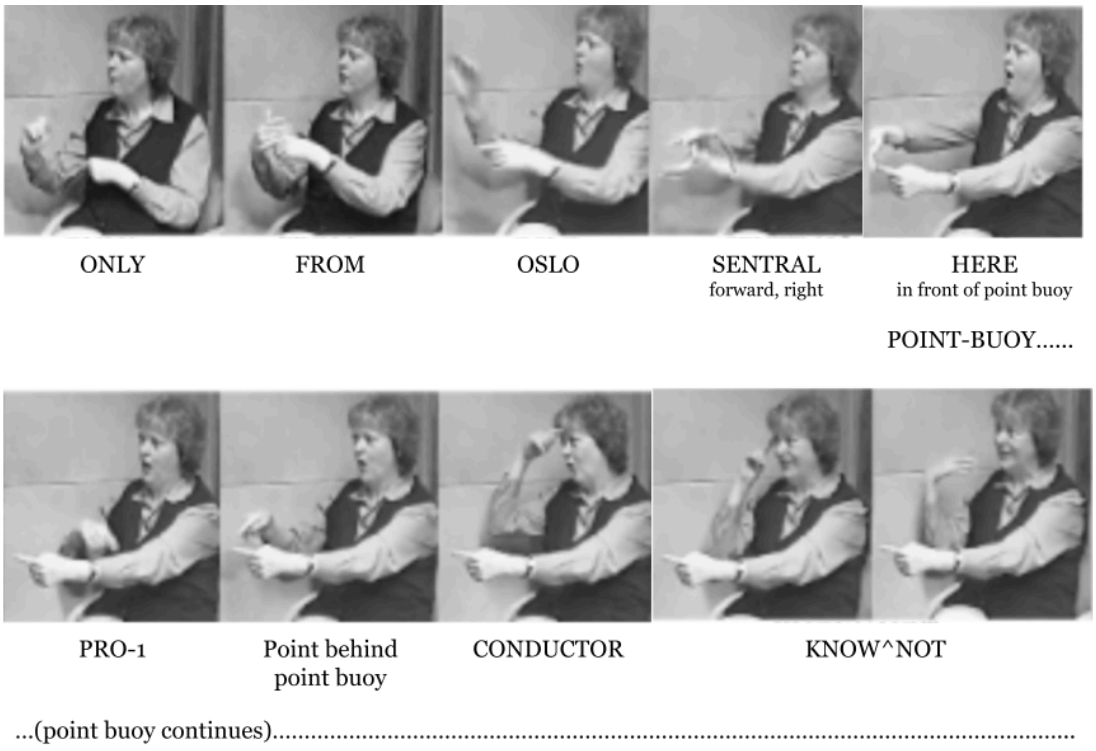
[7] Vogt-Svendsen and Bergman (2007) distinguish between these two forms, calling them POINT-B and POINT-G–POINT-B for the one that takes the B-handshape and POINT-G for the one that takes the G/1-handshape. The only difference between the G-handshape and the 1-handshape is orientation; I do not consider this a valid distinction. Because POINT-B and POINT-G are identical in function, I do not distinguish between them in this paper.

Now see an example below of a point buoy marking a point in space in a productive sign:

(19a)



"(That day, the airport trains) from Oslo Sentral were only departing from here (where we were standing), but the conductor did not know that." (NTS). Figure 3 from Vogt-Svendsen and Bergman (2007:222).

In the fifth frame of (19a), the signer produces a point buoy with their weak hand (their left) in the 1-handshape, using it to mark a point in space. They use their strong hand (their right) to point to the space directly in front of the point buoy, indicating that that is where the train would depart from. In the sixth frame, they perform a first person pronoun, and then in the seventh frame, point to the space directly behind the point buoy, indicating their own location relative to the point buoy and the place of departure for the train. So by the seventh frame we understand that the point buoy indicates the space between the signer and the train tracks. Notice that the signer continues to maintain the point buoy throughout the eighth through tenth frames.

Below, see an image of the signs made slightly later in the discourse, when the signer discusses a new location in the train station.

(19b)

TRACK OVER-THERE

...(point buoy continues).....

"The track on the other side" (NTS). Figure 3 from Vogt-Svendsen and Bergman (2007:223).

With their weak hand, the signer continues to produce the point buoy in front of their body. With their strong hand, they first produce the lexical sign TRACK, and then point to a position in front of them and to their left, crossing their strong arm over their weak arm in order to do so. Whereas before in (19a), the signer was only moving their strong hand in one dimension (forward and back), they now move their hand to the left, bringing in a second dimension.

I don't know why the signer used a buoy instead of just using their own location as a reference point for the train tracks. But they did, so we analyze it.

Now see an example of a point buoy marking a point in *time*:

(20)

"I often borrow the car from Sunday through Tuesday because I work on Monday and Tuesday." (NTS). Figure 7 from Vogt-Svendsen and Bergman (2007:231).

In the fourth frame of (20), the signer produces a point buoy with their weak hand (their left). At the same time, they produce the sign SUNDAY with their strong hand (their right), directed

towards the buoy, but not touching it. Thus, the notion of SUNDAY is situated near but not at the buoy. In the fifth frame, their strong hand takes on a 1-handshape for the sign FROM-TO, taking the point buoy (which represents the beginning of a timeline, near SUNDAY) as its starting point. The strong hand moves across the body from the contralateral side to the ipsilateral side. On the ipsilateral side, it signs TUESDAY (seventh frame), indicating that TUESDAY is the ending point of FROM-TO. Thus, with the help of a point buoy, the signer has established a visual representation of a timeline in front of their body, from Sunday to Tuesday.

In the tenth frame, they sign PERIOD-FROM-TO in front of their body– the same place the FROM-TO sign took place. PERIOD-FROM-TO thus takes on the meaning of the timeline that has been established in the same place– that is, the period of time from Sunday to Tuesday. See how in frames ten through twelve, the weak hand has the B-handshape, not the 1-handshape. In the thirteenth and fourteenth frames, the buoy disappears entirely, allowing the signer to sign the two-handed signs REASON and WORK. The buoy reappears by the fifteenth frame, where the signer is again listing their routine on different days. So we see that the buoy first establishes the timeline, disappears when not necessary, and then reappears to be referenced when the signer needs to communicate about time.

As Vogt-Svendsen and Bergman (2007:232) describe, the time-related point buoy shown in (20) limits the signing space to only one dimension. We see this in the fact that the strong hand only moves from left to right, not traveling along either the y- or z-axes. That the point buoy restricts the movement of the strong hand makes it unique amongst all other types of buoys, whose phonological restrictions apply only to the weak hand and not to the movement of the strong hand.

3.7 Summary

Between Liddell (2003) and Vogt-Svendsen and Bergman (2007), six types of buoys have been named: list, theme, fragment, pointer, depicting, and point. I subsume the notion of theme buoy under the label "pointer buoy." (22) summarizes the information presented in this section.

Because pointer buoys and point buoys have such similarity in form, I reiterate the distinctions between them:

(21)

Pointer buoy	Point buoy
● Points towards a discourse element ● Only points out one location ● Does not limit the strong hand's movement	● Represents a point in space or time ● More than one location can be related to it ● Limits the movement of the strong hand to one or two dimensions

(22)

	Function	Handshape(s)	Points or represents?	Is pointed at	Restrictions on the strong hand
List	Represent a list and allow signer to refer back to individual list items	ONE, TWO, THREE, FOUR, FIVE	Represents the enumerated items. Does not point at anything.	By the strong hand, to indicate which item of the list is being discussed	None
Pointer (+ theme)	Reference a concept or entity that was signed previously, and signify that it is important	1-	Points at the space defined by a previous sign. May represent that sign.	By the strong hand to directly reference the theme of the discourse.	None
Fragment	Carry semantic content from the previous sign into the current one	Any	Represents the conceptual entity invoked by the previous sign. Does not point at anything.	By nothing	None
Depicting	Iconically represent an entity that was signed previously, allowing the signer to use it in a classifier construction	Any	Represents the conceptual entity it depicts. Does not point at anything.	By nothing. It interacts with the strong hand in a depicting space	None
Point	Serve as a prop which other signs may be related to temporally or spatially	1- or B-	Neither represents nor points at any discourse entity.	Not pointed directly at. The strong hand points at locations near the point buoy, using the point buoy as a spatial reference	Limited to two-dimensional movement for point buoys in space, one-dimensional movement for point buoys in time

3.8 Recall and pivot buoys: a function-based categorization

Given the list of functions in (22), I suggest a two-way split for the types of buoys.

Recall buoys, including list buoys, pointer buoys, and fragment buoys, recall some notion which was overtly discussed earlier in the discourse. In the case of list buoys, this is a set of entities which may be directly assigned to the list buoy by the signer in the process of enumeration.

Pivot buoys, including depicting buoys and point buoys, mark a point in space to which signs can be visually related or "pivot" around.

(23)

Recall buoys			Pivot buoys	
List buoys	Pointer buoys	Fragment buoys	Depicting buoys	Point buoys

This function-based categorization is able to respond to some criticism of the original buoy system. Kimmelman, Safar, and Crasborn (2016) strongly criticize the way Liddell (2003) groups all buoys together, on the grounds that:

a) Buoys are incredibly multi-functional; the only thing they all have in common is form.
b) A form-based definition is sub-optimal because it is specific to the sign-language modality, especially when each of the individual functions of buoys have analogs in spoken languages.

I think that their shared form would be enough to make them interesting as a category, even a modality-specific one. And since there is evidence of simultaneity in spoken languages (see Vermeerbergen, Leeson, & Crasborn 2007:4), I am not even sure that buoys are unique to the sign language modality. However, with the binary system of recall buoys and point buoys, I have shown that buoys can be categorized based on their shared functions. And additionally, there is a shared function which may be said to be shared across all buoys:

(24) Buoys indicate a specific point in space or piece of information to be referenced by the strong hand.

There remains an important question, however: are all stationary signs which are held while the other hand moves instances of buoys? And if not, by what objective criterion can we identify buoys? The qualification given in (24) is subjective. Future iterations on this work would propose a definition of buoy which is testable.

4 Looking for buoys in lexical signs

In this section, I discuss each of the five types of buoys and whether it is possible for them to appear in lexical items. I begin with recall buoys (list, pointer, and fragment) and then move on to pivot buoys (depicting and point).

4.1 List buoy

See below the signs for OPTION in ASL (25a) and LSF (25b).

(25a)

OPTION

"Option" (ASL). From Spreadthesign.

(25b)

OPTION

"Option" (LSF). From Spreadthesign.

The two examples show the sign for OPTION in ASL (25a) and LSF (25b). In (25a), the signer performs the 2-handshape with their weak hand (their left). They then use the thumb and forefinger of their strong hand to perform a plucking motion consisting of grasping one of the fingertips of the weak hand and then pulling away. The signer first plucks at their weak hand's index finger, and then plucks at their weak hand's middle finger. In (25b), the signer performs the 5-handshape with their weak hand (their left). They then use the thumb and forefinger of their strong hand to perform the same plucking motion, grasping the tip of their weak hand's middle finger and pulling away.

These signs have significant similarities to the list buoy I showed in §3. Both use numeral handshapes, as list buoys must. The concept of "options" does invoke the idea of a set, as a list does. The signers refer to the extended digits one at a time, the same way signers refer to individual extended fingers when enumerating or referencing items from a list buoy.

4.2 Fragment buoy

Because fragment buoys definitionally come at the transition between two lexical signs, they are irrelevant when discussing individual lexical signs. Perhaps in the future, the definition of fragment buoys could be expanded to include ones which are produced at the transition between

two morphemes in a single sign. I have not found any data which would benefit from this redefinition, so I will move on.

4.3 Pointer buoy

See below the sign for ABOUT in ASL.

(26)

ABOUT[8]

"About" (ASL). From ASL-LEX.

In this sign, both hands take the 1-handshape. The weak hand is positioned with the palm facing toward the signer and the index finger pointing up and towards the contralateral side of the body. The strong hand has the palm facing down. It draws a circle near, but not touching, the tip of the weak hand's index finger, and then contacts the tip of the weak hand index finger.

The 1-handshape can appear in any of the four buoy types we are considering (list, pointer, depicting, and point). I think the sign that the weak hand produces here is not a list buoy, because the word "about" has nothing to do semantically with listing or enumerating, unlike "option". And there is nothing for the weak hand to be depicting, so it cannot be a depicting buoy. Whether it is a pointer buoy or a point buoy is more difficult, but I argue that it is a pointer buoy due to the meaning of the word "about." Pointer buoys are recall buoys, whereas point

[8] Labeled "about_1" on ASL-LEX. Accessed November 2025.

buoys are pivot buoys. And the word “about” contains a notion of topic, but no notion of spatiality, as is implied by a pivot buoy. Additionally, the movement of the strong hand occurs in all three dimensions, which it would not if it were restricted by a point buoy.

The question then becomes: what concept or entity is the pointer buoy here recalling? Because of the abstract and almost metalinguistic meaning of the word “about,” I believe the pointer buoy here does not truly recall any concept, but only mimes or depicts recalling a concept. It has a sort of empty referent. Whether this makes it a true pointer buoy or only a mimicry of one is not clear to me, nor is it clear whether this distinction is an important one to make. I leave that an open question for future scholars.

4.4 Depicting buoy

See below the sign in ASL for HIGHLIGHTER.

(27)

HIGHLIGHTER

“Highlighter” (ASL). From ASL-LEX.

In (27), the ASL sign for HIGHLIGHTER, the weak hand takes the B-handshape with the palm facing up and the fingers pointing away from the signer. It is located before the ipsilateral shoulder. The strong hand takes the Baby-O-handshape and begins at the base of the palm of the weak hand, with the tip of the index finger and the knuckles of the other fingers touching the

palm. The strong hand then slides along the weak hand towards the fingers without changing shape or orientation.

Here, the sign is quite iconic. The weak hand portrays a piece of paper or other writing surface, and the strong hand portrays the highlighter– or perhaps the hand of someone holding a highlighter. Each hand directly depicts something. The strong hand depicts the item which the sign communicates, while the weak hand provides context about the environment in which the highlighter would be used. Thus, the sign produced by the weak hand is a clear example of a depicting buoy within a lexical item.

4.5 Point buoy

See the LIS sign for CIRCLE below.

(28) 

CIRCLE

"Circle" (LIS). From Spreadthesign.

In (28), the Italian (LIS) sign for CIRCLE, both hands perform a 1-handshape with the palms facing out. The signer's weak hand (their right) is stationary in front of the ipsilateral shoulder. The strong hand (their left) begins with the tip of the index finger touching the tip of the index finger on the weak hand. It then moves in a circle on the xy-plane, finishing at its starting point, again touching the index finger of the weak hand.

The sign is iconic; it represents a shape by drawing that shape in the air. Here, neither hand depicts a particular entity. The strong hand does the work of outlining the circle. The weak hand marks the starting and ending point of the strong hand's movement.

The 1-handshape is allowed by all four eligible types of buoys. Of these four types, two must represent something: a list buoy must represent the enumerated items, and a depicting buoy must represent its referent. The weak hand in (28) does not seem to represent any particular concept or referent. This leaves us with the options of pointer buoy and point buoy. The strong hand moves only on the xy-plane, as it should if restricted by a point buoy. Inversely to the discussion for (26), I argue that (28) displays a point buoy and not a pointer buoy because its function is spatial, as a pivot buoy is, rather than topical, as a recall buoy is. The weak hand in this sign, serving as the starting and ending point for the strong hand's tracing movement and doing nothing else, seems quite in line with the function of the point buoy in (20), in which the signer draws a timeline in front of themself with a point buoy marking the beginning.

Now see another example:

(29)

BASEMENT

"Basement" (ASL). From ASL-LEX.

In (29), the ASL sign for BASEMENT, the strong hand performs an A-handshape with the palm facing in and the thumb pointing up. It is located in front of the signer's chest. The weak hand

performs a B-handshape with the palm facing down. It is located in front of the signer's chin, hovering above the strong hand without touching it. The strong hand then moves in a circle on the xz-plane without changing orientation.

Here, the sign is somewhat iconic. The weak hand appears to depict the ground-level, while the strong hand depicts the space beneath it. It is not clear to me whether the weak hand depicts the ground (or floor of the first floor of the building) itself, or only the height of the ground in relation to the basement. The weak hand certainly does not itself depict the concept of BASEMENT, and yet it provides context which contributes to the meaning of the sign. Neither hand necessarily depicts BASEMENT itself, but it is communicated in the relationship between the two hands; BASEMENT is defined as something which is beneath some horizontal plane.

The B-handshape makes the sign performed by the weak hand a candidate for a depicting buoy or point buoy. Both depicting buoys and point buoys are pivot buoys, dealing with laying things out in space, which BASEMENT certainly does. While it is plausible to assume that the weak hand in (29) depicts the ground, it is not certain; it could instead depict the bottom floor of the building, for instance. That it is not clear what in particular the weak hand would depict makes it less convincing that (29) has a depicting buoy. In contrast, it does seem to fulfill the function of a point buoy: it "serves as a prop in relation to which other signs can be located" (Vogt-Svendsen and Bergman 2007:217). Of course, because it is only a single lexical item, it is not located in relation to other *signs*, but in relation to the other hand. But otherwise, the definition seems to fit. It is by its relation to the weak hand that the strong hand conveys the meaning of BASEMENT. And the movement of the strong hand is only in two dimensions (on the xz-plane), in keeping with the movement restrictions imposed by point buoys.

4.6 Summary

In this section, I presented a set of lexical signs and argued that list, pointer, depicting, and point buoys can all appear in lexical signs. I argued that fragment buoys cannot appear within lexical signs, because they must appear in the transition from one lexical sign to another. (30) shows an updated version of (23), presenting my conclusions on buoys thus far.

(30)

	Recall Buoys			Pivot Buoys	
	List	Fragment	Pointer	Depicting	Point
Can appear in lexical signs?	Yes	No	Yes	Yes	Yes

5 Form Buoy: A new type of buoy

There are some signs which meet the phonological requirements of buoys (that is, having a stationary weak hand and a moving strong hand) but which do not necessarily fall into any of the five categories of list, fragment, pointer, depicting, or point. In this section I show examples of such signs and argue that they are a distinct type of buoy, which I call the "form buoy."

See the DGS sign for TUBE:

(31)

TUBE

"Tube" (DGS). From Spreadthesign.

In Figure (31), the German (DGS) sign for TUBE, both hands perform a C-handshape with the palms facing towards one another. They are held with fingertips touching to form a circle in front of the signer's chest. The strong hand then moves forward, maintaining the same shape and orientation.

This sign is somewhat iconic; the hands work together to outline the shape of the tube. At the beginning of the sign, when the hands are touching, they form a circle, representing the cross-section of a round tube. As the strong hand moves forward, it demonstrates the length of the tube. The weak hand, remaining stationary, communicates that it is not that a circle is moving forward, but that the circle communicated earlier is to be combined with the length to communicate a cylinder shape.

The C-handshape ought to immediately put (31) into the category of depicting buoy. However, Liddell (2003:261) defined depicting buoys in relation to "depicting verbs," also called verbs of motion and location, where each hand represents a discrete entity. In contrast, TUBE is more reminiscent of a point buoy, where the hands draw the outline of the entity in order to communicate its size and shape to the reader. But TUBE does not fit our current definition of point buoy, because it uses a C-handshape, when point buoys ought only to use 1- or B-handshapes. Thus, we have (32):

(32) Two options for categorizing TUBE

a) Expand the definition of point buoy to be more inclusive of different handshapes.
b) Create a new type of buoy, filling the gap between point buoys and the more freeform depicting buoys.

On the one hand, there is precedent in the literature for categorizing the weak hand's function in signs like TUBE and NECKTIE as point buoys, following (32a). In their study on how signers communicate abstract shapes, Ferrara and Napoli (2021) found that signers tended to use

"edge-drawing handshapes" like 1- and I- to draw 2-dimensional shapes, while using "surface-drawing handshapes" like B- and 5- to draw 3-dimensional shapes (Ferrara and Napoli 2021:35). In this study, Ferrara and Napoli expanded the notion of "point buoy" to include signs with the handshapes B- and 5-, contra Vogt-Svendsen and Bergman's (2007) specifications (Ferrara and Napoli 2021: note 14).

On the other hand, Vogt-Svendsen and Bergman (2007) include in their definition of point buoys the specification that point buoys limit the signing space from three dimensions down to only one or two dimensions. I see this as an important functional distinction which would be lost if we expanded the definition of point buoys to support three dimensional drawing. Thus, I propose a new type of buoy, following (32b), which I call a "form buoy."

(33) The form buoy functions to demonstrate the shape and extent of a physical referent. Its handshape depicts the shape of the referent. Movement by the strong hand depicts the extent of the referent. It points at nothing and is pointed at by nothing. It is a type of pivot buoy.

Under this framework, "point buoy" would correspond to signs which depict a two-dimensional element, where the signing space is restricted to one or two dimensions. "Form buoy" would correspond to signs which depict a three-dimensional space, where the signing space is not restricted. Thus, the notion of "form buoy" does not contradict Ferrara and Napoli's (2021) findings, nor does it require a redefinition of Vogt-Svendsen and Bergman's (2007) "point buoy," which would make the "point buoy" a less specific and thus less useful term.

The introduction of the form buoy within lexical signs begs the question: do form buoys also exist in productive signs? The answer is likely yes, although I do not have an example. But just as point buoys are used productively to indicate shapes or locations, but may be lexicalized

in specific cases like the signs for geometric shapes, the same ought to be true for form buoys. Any time a signer is describing the form of some object, they should be able to use a form buoy.

See below another example of a form buoy within a lexical sign: the ASL sign for NECKTIE:

(34)


NECKTIE[9]

"Necktie" (ASL). From ASL-LEX.

In (34), the ASL sign for NECKTIE, both hands take the Baby-C-handshape with the palms and fingers oriented towards the signer's body. The weak hand is positioned at the signer's sternum with thumb and index finger touching their body. The strong hand begins directly on top of the weak hand, with thumb and index finger touching the signer's chest. The strong hand then moves up towards the signer's neck, maintaining contact with the signer's body.

This sign is iconic. Similarly to the sign in (31), it depicts the shape and extent of its referent. The weak hand marks the bottommost point of the tie. The strong hand begins in contact with the weak hand and then moves away. Its movement path demonstrates the extent of the referent. There is one difference: in (34), the strong and weak hands are oriented in the same direction, while in (31), they are oriented opposite one another as if mirrored. The matching handshapes serves two different purposes: in (31), the matching handshapes come together to

[9] Listed as "tie_2" on ASL-LEX. Accessed November 2025.

form a single shape, while in (34), the matching handshapes serve only to indicate that the referent has a consistency of form.

The ASL sign for NECKTIE in (34) is even more like a point buoy than TUBE in (31), given the purpose of the matching handshapes. However, the Baby-C-handshape, being itself two-dimensional, must outline an object which is three-dimensional. This, I believe, puts NECKTIE firmly in the category of form buoy.

Further work must be done on the notion of "form buoy" in order to integrate it fully with the current theory on buoys. Examples of form buoys within productive signs must be identified. A review of which handshapes are associated with form buoys vs point buoys is necessary, since Ferrara and Napoli (2021) include B-handshapes in their "surface-drawing handshapes," which are three-dimensional, but Vogt-Svendsen and Bergman (2007) include the B-handshape as an option for point buoys, which cannot be three-dimensional.

Future work here should also look at the distribution of pivot buoys within productive signs. I suspect that point and form buoys both may only appear in Size and Shape Specifying (SASS) classifier constructions (Schembri 2003), while depicting buoys may only appear in classifier constructions of Location and Movement (Liddell 2003; Schembri 2003). If that is the case, it is worth looking into whether other types of buoys may appear in other types of classifier constructions, like Handling constructions (Schembri 2003). And if it is the case that each type of classifier construction has unique buoys which are possible within it, then we should consider whether we ought to draw a one-to-one parallel between types of buoys and types of classifier constructions, in which case the categories of point buoys and form buoys ought to be combined. To my knowledge, there is not yet an agreed-upon set of types of classifier constructions (I have

been following Schembri 2003, adapted from Engberg-Pedersen 1993), but as scholars work towards the goal of creating one, perhaps they will consider buoys simultaneously.

This section points out a gap in the current taxonomy of buoys: it does not account for buoys which are partially depicting of the referent, but not fully depicting. I propose the form buoy to fill this gap, and recognize the potential need for other additions in the future.

6 Lexicalization

I would be remiss not to address the topic of lexicalization at all, when my work deals so heavily with the relationship between productive and lexical signs. Lexicalization is the process by which words enter a language's lexicon. Specifically, many lexical signs are the result of a productive sign becoming lexicalized. Sandler and Lillo-Martin (2006) describe this process:

> "Classifier constructions continue to be a productive source of new words, becoming ''frozen'' forms in which handshape, movement, and location have only phonological, and not morphological status. Such forms undergo a transformation when they enter the lexicon, conforming to the prosodic constraints on lexical words" (Sandler and Lillo-Martin 2006:97).

I believe the close correspondence between buoys in lexical items and buoys in productive signs is due to one of two reasons: each lexical sign is either the lexicalized form of some productive sign, or it is etymologically distinct from productive signs and instead depicts a productive sign. Either way, it brings up a question: do buoys within lexical items really have functions, or are they just visual and arbitrary?

Arbitrariness in lexical items, especially lexical items which are iconic or are based etymologically in depiction, tends towards ease of articulation (Johnston and Schembri 2010).

Producing and holding a buoy requires energy from the signer and creates more complexity for the viewer to parse. That these signs developed to include buoys indicates that there is some function the weak hand performs which is not superfluous. If we can conclude that buoys within lexical items have a function, then we may consider both lexical signs and productive signs to be fertile areas for future research on buoys.

On the other hand, perhaps this complexity of articulation truly is arbitrary, and any lexical signs which seem to contain buoys are just early on in the process of lexicalization. If so, I believe we can still call them buoys, but we would know that a buoy within a lexical item is always a derivative of a truer buoy within a productive sign. Then future research on buoys ought to focus only on productive signs. If we can say whether buoys in lexical items tend to remain long after the signs become lexicalized, we could take that as evidence that buoys serve a function in lexical items. I suggest a study to test this:

The study would take a set of cross-linguistic minimal pairs: one word in two different sign languages, with similar articulation except for the buoy. Say, for example, CIRCLE in both LIS and BSL. The articulation is the same, where the signer traces the outline of the circle in front of them with their strong hand, which performs a 1-handshape. The movement occurs on the xy-plane. The only difference is that the LIS sign uses a point buoy, and the BSL sign does not. Another pair could be FALL in both LSF, which contains a depicting buoy, and DGS, which does not.

Then, looking at the history of the sign without the buoy, perhaps we could tell whether it once contained a buoy which was lexicalized out. Comparing the ages of the two signs in the minimal pair could also yield information if there is a trend for signs without buoys to be older

than signs with buoys. If that were the case, it would be evidence for buoys in lexical signs being only vestigial and not meaningful.

This section discusses the topic of lexicalization as it pertains to buoys within lexical items. I acknowledge the possibility that buoys within lexical items are only vestigial and not truly functional. I propose a study by which to investigate this question.

7 Conclusion

In this paper, I present a series of examples across sign languages to show that buoys can appear in lexical items, not just in productive signs. I argue for the dismissal of Liddell's (2003) "theme buoy," but adopt the remaining buoys from Liddell (2003) and Vogt-Svendsen and Bergman (2007): list, fragment, pointer, depicting, and point. I point out a gap left by these five types of buoys, which I propose to fill with the novel form buoy. Below is the final revised form of the table in (30).

(35)

	Recall Buoys			Pivot Buoys		
	List	Fragment	Pointer	Depicting	Point	Form
Can appear in lexical signs?	Yes	No	Yes	Yes	Yes	Yes

I categorize the six types of buoys into two sub-categories by function: recall buoys and pivot buoys. Recall buoys, which include list, fragment, and pointer buoys, have a shared function: they all recall a notion discussed earlier in the discourse to be referenced by the strong hand. Pivot buoys, which include depicting, point, and form buoys, have a different shared

function: they all mark a point in space which may be referenced by the strong hand in order to visually relate signs to one another.

I suggest multiple avenues for future work on this topic, including the persistent need for a testable definition of buoys, further research on the novel form buoy, and investigation into the relationship between lexicalization and buoys within lexical items.

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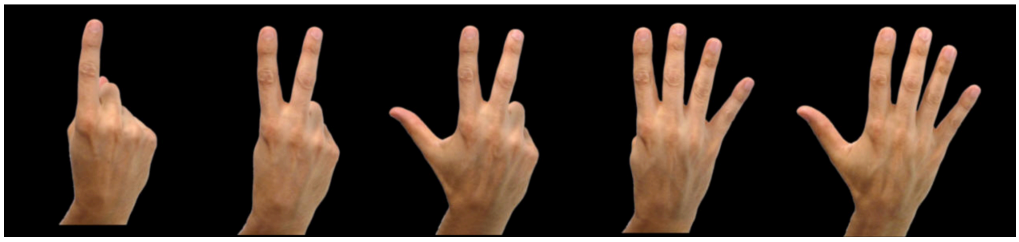
Appendix A: Handshapes

(A1) Handshapes 1-5. From Lifeprint.



1- 2- 3- 4- 5-

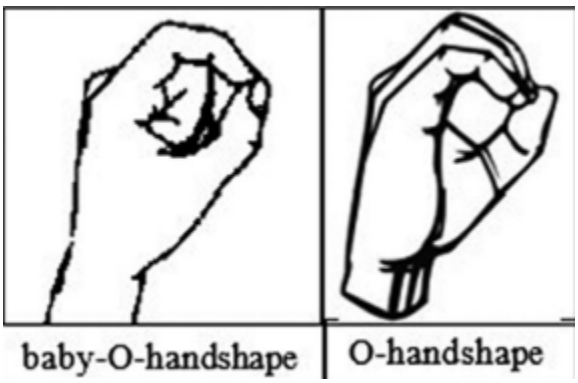
(A2) Two variations on the B-handshape. From Lifeprint.

(A3) The Flat-O-handshape. From Ferrara and Napoli (2021).

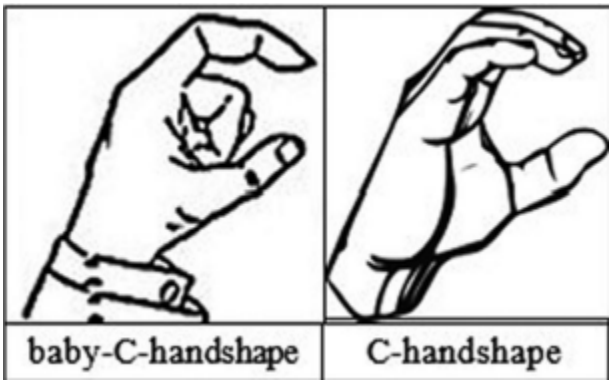
(A4) The A-handshape. From Lifeprint.	
(A5) The Bent-V-handshape. From Lifeprint.	
(A6) The I-handshape. From Lifeprint.	

(A7) The S-handshape. From Lifeprint.

(A8a, A8b) The Baby-O-handshape and O-handshape. From Ferrara and Napoli (2021).



(A9a, A9b) The Baby-C-handshape and C-handshape. From Ferrara and Napoli (2021).



Appendix B: List of languages mentioned

Language name	**Abbreviated name**	**Name on Spreadthesign**	**Note**
American Sign Language	ASL	English (United States)	
British Sign Language	BSL	English (United Kingdom)	
Italian Sign Language	LIS	Italian	
Norwegian Sign Language	NTS	N/A	Called NSL by Vogt-Svendsen and Bergman (2007)
Australian Sign Language	Auslan	English (Australia)	
German Sign Language	DGS	German (Germany)	
French Sign Language	LSF	French (France)	