



Can constructed action be considered obligatory?

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Received 1 April 2004; received in revised form 28 June 2004; accepted 10 December 2005

Available online 7 March 2006

Abstract

A communicative device that a signer can take advantage of in the visual–gestural modality is the use of the signer’s body to depict the actions and movements of an object—whether that object be animate or inanimate. This communicative device (referred to within this abstract as *becoming the object*) is used frequently in signed narratives, but it also appears in other genres of signing. Whether or not becoming the object is dependent on the use of traditional linguistic devices (e.g., signs, so-called “classifier” constructions, word order structures, etc.) is open to question, so its role as a necessary part of ASL or any signed language may be the source of debate. This study seeks to explore the degree to which becoming the object is obligatory. To that end, production and judgment data are discussed, and it is suggested that specific examples of becoming the object appear to be obligatory for the depiction of some actions of animate objects. Further, commonly used alternative strategies to becoming the object are also discussed. The overall findings suggest that some instantiations of becoming the object can be considered obligatory in some contexts—especially for some signers. Implications of these results are discussed, especially as they concern the use of mimetic versus linguistic representations within both modalities—sign and speech.

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Keywords: Gesture; Polycomponential signs; Classifiers; Role shift; Non-manual; Verbs

1. Introduction

In *Bird of a Different Feather*, a signed narrative of a bird that is raised by eagles (Bahan and Supalla, 1992), Ben Bahan, a Deaf native user of American Sign Language (ASL), provides a poignant metaphor of the types of struggles that a child who differs physically from his parents must endure. In addition to being an eye-opening commentary on a Deaf person’s perspective, Bahan’s narrative provides the viewer with a visual candy store of various communicative devices that can be used in an ASL narrative. As one example, Bahan portrays the bird’s hunting

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skills by depicting the preparatory actions that the bird takes before swooping down from the sky in order to capture prey on the ground. In that depiction, Bahan places his hands on either side of his upper torso (just as children often do when they portray the body of a chicken) and emphatically crooks his head downward and rightward as if glaring down at the awaiting prey. The viewer is to understand that those are the head and wing actions that the bird performs in preparation for a downward swoop toward its prey. The meaning is very clear, but Bahan does not seem to use commonly accepted ASL signs in that segment. Rather, he shows what the character in the story (i.e. the bird) does by using his body, head, and eyegaze; he essentially *becomes the object*.

One may wonder if there is a way to communicate the same information imparted by Bahan when he becomes the object by instead using ASL signs and ordering them according to the grammatical rules of that language. According to Brentari and Padden (2001), the ASL lexicon contains native and non-native (or foreign) vocabulary items. The set of native items includes “core” signs (e.g., verbs and adjectival predicates) and items that have traditionally been labeled “classifiers”, the latter of which will be referred to as polycomponential signs throughout this work.¹ An example of the production of polycomponential signs in ASL is a B-handshape (indicating an object with a flat surface) alongside a bent V-handshape (indicating a four-legged animal), and Fig. 4 in Appendix D depicts these two polycomponential signs as they are articulated in the signing space in front of the signer. The resulting meaning with no context could be described as ‘a four-legged animal beside something with a flat surface that is oriented vertically’.

Appealing to the classification of signed language verbs according to morphosyntactic criteria as proposed by Schembri (2003), polycomponential signs can be described as complex verbs that include verbs of motion and location, verbs of handling, and predicates of visual-geometric description. In that framework, such complex verbs differ from verbs that are often referred to as “agreement” or “indicating” verbs and others that are labeled “plain” verbs. In terms of morphology, perhaps the main difference between a polycomponential sign and an “agreement/indicating” verb (e.g., GIVE or INFORM in ASL²) is that polycomponential signs cannot be inflected for person or number agreement whereas agreement/indicating verbs can (Brentari and Padden, 2001).³ “Plain” verbs (e.g., LIKE or KNOW in ASL), on the other hand, cannot inflect for person and number agreement, but some verbs in that category can be inflected to indicate aspectual information. Schembri suggests that verbs referred to here as polycomponential signs tend to be “. . . characterized by the highly productive combination of a range of meaningful units denoting figure, ground, motion, location, orientation, direction,

¹ I adopt the term *polycomponential signs*, following Slobin et al. (2003) to refer to the linguistic devices that have previously been referred to by various labels such as classifiers, classifier predicates, classifier constructions, etc. Schembri (2003) uses the term *polycomponential verbs*, although, as Slobin et al. note, such signs can appear as verbal, adjectival, or nominal constructions. For this reason, I choose to follow Slobin et al. and their use of the term polycomponential sign rather than polycomponential verb. As the term polycomponential suggests, these signs are typically composed of more than one meaningful component (e.g., handshape, movement, etc.), but the status of some of those components as morphemes has been questioned. Schembri argues that the claim that these signs include classifier morphemes akin to constructions that are referred to by the same label in spoken languages is open to question.

² Within this work, ASL signs are represented by English semantic equivalents in capital letters and polycomponential signs are represented by specifying a label for the handshape of the polycomponential sign.

³ There is some debate about terminology and the linguistic status of some parts of some verbs in ASL. See Liddell (2003) for a description of so-called “agreement” verbs as “indicating” verbs that contain a pointing gesture and a linguistic component.

manner, aspect, extant, shape, and distribution” (p. 6). Such forms, Schembri argues, contrast with verbs that are not polycomponential signs (e.g., plain and agreement/indicating verbs) insofar as the non-polycomponential forms have monomorphemic base forms that can combine with up to three additional units of meaning (also see Engberg-Pedersen, 1993). A major point in Schembri’s discussion of polycomponential signs is that some of the meaningful units in such forms may not actually be morphemic.

In addition to lexical items, ASL grammar can be described in terms of syntax and simultaneously articulated non-manual signals (e.g., see Bahan, 1996; Neidle et al., 2000), the latter of which could include, for example, head tilt, eyegaze information, and eyeblinks. Thus, as is the case in spoken languages with regard to words and syntax, one way to communicate by using a sign language is to articulate signs and the appropriate concomitant (or sequential) non-manual signals in an order that would be consistent with the grammar of the language. Given these claims about signed language production, a question that should be posed is the following: Since ASL can be described in terms of signs and rules in which to combine those signs, why does a signer, as in the above example, become the object? In that example, even if ASL signs for specific body movements of the bird did not exist, Bahan could have presumably utilized polycomponential signs articulated in the signing space to indicate the characteristics and actions of the bird. Does the signer become the object because it makes the segment of the narrative clearer or perhaps more correct?

Of course, meaningful communication is created in various ways. All languages have lexical items that are built of meaningless units (e.g., consonants and vowels in spoken language and hand configuration, place of articulation, or movement values in signed language), and many languages have regular word orders that identify grammatical relationships. Additionally, speakers of spoken languages utilize features of intonation such as pitch, intensity, duration, and various features of voice quality to modify lexical items and phrasal elements (Ladd, 1996). Such intonational features can signal various things such as the difference between a declarative and an interrogative phrase or concepts such as sarcasm, uncertainty, or degree (e.g., see Liddell, 2003; Okrent, 2002). Sign language users can communicate similar concepts using intonational features of the visual–gestural modality (Wilbur, 1991; Nespor and Sandler, 1999). Since it may be difficult to locate a sign in the example provided in the Bahan narrative example, could becoming the object be akin to the paralinguistic information available in spoken language intonation?

Spoken language intonation and becoming the object appear to be similar in some respects and quite different in others. As for similarities, becoming the object can provide various types of affective information about a character (e.g., mood, emotions, and distinctions such as being relaxed versus hurried). However, there also seem to be important differences between the two. First, it is not likely that spoken language intonation can provide the range and degree of information that can be provided by a signer’s visual depictions in becoming the object. For example, a signer can communicate information about an animate object (including, but not limited to, actions performed, manner of movement, relative size, and posture) and how it interacts with other objects (animate or not) simply by becoming the object—assumedly without the use of a single lexical sign. A signer could also, in some cases, become the object if the object is inanimate; such action would give the inanimate object human characteristics. Intonational features in spoken languages can certainly communicate affective, attitudinal, and emotional states of the speaker (Laver, 1994), but they do not appear to be equipped to portray the actions, movements, or relative size of an object. Thus, becoming the object does not appear to be entirely the same as the paralinguistic elements of spoken languages.

It would be useful to briefly summarize how becoming the object has been characterized in the sign language literature. As one general perspective, the act of becoming the object in sign language discourse has been described as linguistic both at the lexical level and at the sentential level. Regarding the lexical level of structure, Supalla (1982, 1990, 2003) has advanced the idea that becoming an object can be described morphemically. For example, Supalla might claim that the signer in the earlier example became a *body classifier* when he began to depict how the bird was preparing to swoop down from the sky. Padden (1990) also refers to, in her terms, the use of *role-shifting* as involving “shifting locative grids”, which is presumably a linguistic analysis of becoming the object because, according to the author, there are constraints that must be obeyed when performing such an action. As for the syntactic level of structure, one example is of a linguistic analysis refers to becoming the object as a predicate that reflects agreement with its subject (Lillo-Martin, 1995).⁴

Another way various authors have described the actions of a signer as she articulates the postures or actions of a character has been to compare that communicative device to spoken language phenomena and the behaviors of a speaker when she is reporting the speech or actions of another. These phenomena have been termed *constructed dialogue* and *constructed action* following Tannen (1989) for spoken languages and others (Winston, 1991; Metzger, 1995; Liddell and Metzger, 1998) for signed languages. Loosely defined, constructed dialogue refers to the reporting of another’s speech (also called *direct quotation*) and constructed action refers to the reporting (usually via a demonstration) of another’s actions. Liddell and Metzger (1998) and Liddell (1996, 2003), following Fauconnier (1985) and Fauconnier and Turner (1996), subscribe to the theory of blended spaces (a cognitive process that takes mental spaces as inputs and projects them onto a third space, or blend) to account for the actions of a signer becoming the object. On this view, such sign articulations are viewed, at least in part, as gestural in nature rather than linguistic, although they could co-occur with linguistic material (see also Emmorey [1999] for a discussion of “component” gestures). In the above example, the actions of the signer as he “becomes the bird” (that is, places his hands on either side of his upper torso and crooks his head downward and to the right) would likely constitute *constructed action* following these works.

Several authors would claim that users of spoken languages also commonly utilize the strategy of becoming the object, even though those authors may use different terminology to describe that act. Consonant with his analysis of constructed action in ASL, Liddell (2003) might claim that users of spoken language make use of blended spaces when they create constructed dialogue, and such an act is common in spoken language discourse.⁵ Similarly, Clark and Gerrig (1990) propose a theory that quotations in spoken language are actually demonstrations by speakers. In demonstrations, speakers use their body and voice to portray various aspects of that to which the speaker is referring. The authors contrast demonstrations with descriptions, which, they claim, utilize traditionally analyzed elements of language. A third type of communicative act exists in spoken language, according to Clark and Gerrig, and it is called *indication* (or pointing). Demonstrations and indications are frequently relegated to non-linguistic material since they

⁴ Liddell and Metzger (1998), however, provide an account of various linguistic approaches and present arguments to counter the claim that such actions can be described as linguistic.

⁵ However, it should be noted that constructed dialogue and constructed action may actually be different from one another in some respects. For instance, Emmorey and Reilly (1998) show that deaf signing children master referential shift to indicate a direct quotation (i.e., the use of constructed dialogue) by age seven, whereas the use of reported action (i.e., constructed action) is not completely mastered by the same age. These developmental differences suggest that constructed action may be more complex than constructed dialogue—at least in signed languages.

contain little to no evidence of linguistic elements and structure. We also know that users of spoken language gesture as they speak, and those gestures can depict shifts in perspective (McNeill, 1992). Yet, despite these claims about the use of becoming the object in spoken language discourse, whether or not this strategy for communication is absolutely necessary in any situation for speakers of spoken languages is unclear. Presumably, a speaker or writer (of a written language) could, with ample time, formulate a description of just about anything by utilizing words and grammar. Clark and Gerrig, however, report that many things are easier to demonstrate (i.e., via constructed action) than to describe, but they do not suggest that it is necessary to employ a demonstration rather than utilize a spoken description.

Unquestionably, becoming the object is utilized by signers of various sign languages. What, then, makes its use in conjunction with sign different than its use in conjunction with speech? One way to approach this question lies in the concept of necessity. From the literature, we know that signers become the object—especially in narratives, but do we know if they *must* become the object to communicate something? Presumably a claim that becoming the object is, in some instances, a necessary part of producing ASL, perhaps even more necessary than the production of signs and grammar at times, would suggest that this communicative device is one that takes on a particularly important role in sign languages.

As we consider the necessity of becoming the object in the signed modality, we may wonder whether becoming the object is *obligatory* in any situation. However, one of the challenges with using the term obligatory in relation to becoming the object is that it is a term that is frequently used, in formalist frameworks, when referring to grammatical elements of a language—*not* elements that may be lacking in lexical and grammatical content. For instance, we can speak of the obligatory nature of subjects in English sentences or, to some extent, overt determiners with singular count nouns in English. Yet, it is uncommon to speak of the obligatory nature of a gesture—at least for spoken languages. However, Scott Liddell, in several works (e.g., Liddell and Metzger, 1998; Liddell, 2003), has suggested that a manual deictic marker (e.g., a finger point or some other method of referencing the object) is necessary when uttering a phrase such as the following: “This is my pen” or “This is my book”—especially when the intended referent may be unclear. So, in this example, the manual deictic point may be necessary, but it is not obligatory according to some theories of language since the English phrase would still be grammatically acceptable, albeit lacking in specificity of reference.⁶ In addition to Liddell, other authors (e.g., Clark and Gerrig, 1990) might claim that such a deictic point has a certain obligatory quality to it and the entire communicative event could not be analyzed without including the indications and demonstrations of the speaker. Despite arguments about the necessity of points or gestures to indicate certain referents in spoken language, I have failed to locate works that have explored the necessity of becoming the object.

What criteria could be used to claim that an instance of constructed action is necessary or even obligatory in signed language discourse? At least a couple types of evidence might help us to distinguish whether or not an item is obligatory: if a signer would claim that a certain construction would be unacceptable without its use and if a viewer would feel that a certain construction is incorrect without its use. For instance, as mentioned above, a subject is normally obligatory for a sentence in English. If asked not to use a subject with an English sentence such as “The food is cold” even though the subject was understood (either by context or by the use of a

⁶ In a Cognitive Grammar framework, it may be the case that a manual deictic marker would be necessary with such an utterance. In such an approach, pragmatic and cognitive factors are vital components of the theory that explains grammatical structure.

manual pointing gesture), one would find it difficult to produce the unacceptable or incorrect sentence “ \emptyset is cold” in English even though a similar construction is acceptable in Spanish (e.g., “[La comida] está fría.”). However, one might replace “the food” with the pronoun “It”. Whereas the pronoun is not as informative, it maintains the syntactic integrity of the sentence. Thus, in some cases it is easy to see how obligatoriness is a salient characteristic of some linguistic material. Whereas becoming the object may or may not be considered linguistic in nature, examining it from the lens of obligatoriness could prove very useful as we continue to explore this rich and highly-utilized component of a signer’s communicative resources.

This study will explore whether or not becoming the object is obligatory by examining ASL production and reception data. For ease of discussion, I will adopt the use of the term *constructed action* for the remainder of this article to refer to instances of the signer becoming the object. In some cases, the constructed action that I describe may co-occur with the use of linguistic handshapes and perhaps other linguistic features as well. However, constructed action is usually much more than the handshapes that a signer produces, as will be described.

2. Methods

This study was conducted in two parts, which will be referred to as Part A and Part B. Part A consisted of the data collection and analysis of production data from study participants, whereas Part B consisted of data collection and analysis of judgment data. The participants from Part A did not provide judgment data for Part B of the study. Data collection for Part A took place in Pittsburgh, Pennsylvania and Rochester, New York, both moderately sized cities in the northeastern U.S. Data collection for Part B of the study occurred in Pittsburgh.

2.1. Part A

2.1.1. Participants

Ten participants were videotaped for Part A of the study. Five of the 10 will be referred to as Deaf of Deaf (DD)—having acquired ASL from interaction with their Deaf caregivers. The other five participants were born to hearing parents who did not use ASL, and each of them acquired ASL from interaction with friends, siblings, or other adults from initial exposure between the ages of 3 and 5. This latter group will be referred to as Deaf of Hearing (DH). It is customary to investigate DD signers in studies that pertain to grammatical matters because their language acquisition milestones are quite similar to those of hearing children who acquire spoken language in a typical fashion. However, I feel that it is also important to address the language production and judgments of DH signers who acquired ASL after the age of two since this group comprises between 96% and 98% of all Deaf users of ASL in the U.S. (Mitchell and Karchmer, 2004). Many of the DH members of society use ASL on a daily basis as a primary means of communication, interact frequently with other users of ASL (both DD and DH), and identify strongly with Deaf Culture and the use of ASL. Additionally, some authors have shown that children who are exposed to ASL by approximately age six may perform like native signers along various parameters (Johnson and Newport, 1989). Further details of the 10 participants for Part A of the study can be found in [Table A1](#) of [Appendix A](#).

2.1.2. Procedure

Each of the 10 participants performed the same task for Part A of the study. Specifically, each participant was videotaped while producing ASL renditions of 20 short movie clips (hereafter

elicitation clips) that depicted various animate and inanimate objects—all of which were included in an effort to elicit the use of constructed action and polycomponential signs (see Appendix B for a description of the clips). The elicitation clips averaged 10 seconds or less in duration, and some included people or animals performing an action or movement and others focused on non-living objects—some of which showed movement of some type and others that were stationary. The clips with people and animals were hypothesized to elicit the use of constructed action while the non-living objects would likely elicit polycomponential sign use, but perhaps not the use of constructed action. In a pilot test of this study, a signer used constructed action for some portrayals of the people and animals and polycomponential signs for others, which suggested that there would be examples of both types of constructions in the study data. At least two clips were designed to elicit mostly polycomponential signs (e.g., the smokestack and the cylindrical robots), which served to provide the participants with stimuli that were varied so that they would not necessarily provide constructed action for each clip in the series. Throughout the elicitation portion of the data collection, the investigator was seated beside the Deaf participant, which served at least three functions: (1) the setup allowed for a person to serve as an interlocutor for the language production, (2) the setup made it possible for the language production of both the participant and the investigator to be captured on videotape, and, more importantly for the design of this study, (3) the setup allowed the investigator to interact with the participant in order to request modifications to the participant's sign production. The Deaf participant and the investigator were, in each case, the only two people present in the room in which the data collection took place. Each participant provided two versions of each elicited clip, the details of which follow.

First, each participant was shown an elicitation clip twice (in an effort to aid in comprehension and recall of the material in the clip) and then s/he produced an ASL rendition of what was seen (hereafter referred to as a *first-production clip*). In a prerecorded general description of the study tasks produced by a Deaf user of ASL, each participant was instructed to sign ASL (as opposed to using signing that is influenced by English) during their descriptions of the elicitation clips.

After signing the first-production clip for each elicitation clip, each participant was shown the elicitation clip again and then asked to once more explain what was seen in the elicitation clip (this production will hereafter be referred to as the *second-production clip*), but with at least one change from the first rendition. Essentially, the investigator asked the participant to exclude one of the communicative devices that had been used for that elicitation clip during the first-production clip. For the elicitation clips that contained people or animals, if the participant produced a mouth movement or body action that mirrored the same of a character in the elicitation clip, then the investigator would recreate, as closely as possible, the original production of that communicative device (and what immediately led up to it) and then proceed to ask the participant to exclude that communicative device for the second-production clip. Only one communicative device was asked to be excluded for each second-production clip. For example, for an elicitation clip that showed a seal bobbing its head up and down and opening its mouth as if making a sound (Elicitation Clip A), participants frequently mirrored the opening and closing mouth with their own mouth performing the same movement. In these cases, the investigator would ask the participant to exclude that communicative device for the second-production clip. For the elicitation clips that were designed to elicit only polycomponential signs, the investigator would ask the participant to exclude production of a polycomponential sign for the second-production clip. If a participant did not produce constructed action or polycomponential signs for the first-production clip, the investigator asked the participant to replace the verb used to depict the action of the character from the elicitation clip. It should be

noted that there were instances of participants claiming not to be able to produce a second-production clip that excluded the use of the communicative device that was asked to be excluded by the investigator. In such cases, the investigator would ask the participant at least two more times if s/he could think of another way to depict the elicitation clip without the use of the excluded communicative device, and if the participant could or would not produce a second-production clip, then the data collection moved on to the next elicitation clip. The entire data collection for Part A of the study required approximately one hour per participant.

2.1.3. Data editing and coding

In order to proceed with coding of the first-production clips and in an effort to prepare for Part B of the study, each of the first- and second-production clips that were produced in Part A were transferred to a Macintosh G4 computer, edited using iMovie software, and saved as a Quicktime movie file. All the production clips ranged in length from approximately four seconds to a little more than one minute in length, but the majority were less than 15 s in length. A few participants frequently provided a great amount of detail for each elicitation clip that was viewed, while the majority of participants only produced brief segments of signing that portrayed the action of the person or animal in the elicitation clip or the scenes with inanimate objects. In some cases, the first- and second-production clips that corresponded to any particular elicitation clip for each participant differed slightly in length (with the second-production clips being slightly shorter in duration), but there were also examples of the second-production clips being longer in duration than the first.

For the coding portion of Part A, all the production clips were viewed by a coder with at least intermediate fluency in ASL and the presence or absence of various communicative devices were recorded in a database. For instance, for the seal elicitation clip (Clip A in Appendix B), the coder would indicate if the signer opened and closed her/his mouth as if portraying the opening and closing of the seal's mouth. There were several features whose presence was recorded in the database ranging from the existence of facial/head/eye movements to movements of the torso and arms/hands to the production of ASL commonly accepted signs. An articulation was coded as constructed action if it portrayed a characteristic or trait of the human/animal/object in the elicitation clip. For instance, a signer's alternating forward-and-backward movement of each shoulder to depict the same movement of the lizard (Elicitation Clip E) was coded as constructed action. Use of the space in front of the signer in a diagrammatic fashion was particularly helpful in the identification of the use of polycomponential signs. In such cases, the signing space becomes like a map where the signer shows relative relationships between objects that are being discussed. The signer can take advantage of simultaneous articulations of the two hands to depict how objects interact with each other or their relative placements in relation to each other.

2.2. Results: Part A

The participants utilized several strategies for portraying the contents of the elicitation clips, and patterns are evident within the sets of first- and second-production clips; general patterns are mentioned here, which will be followed by detailed accounts. First, all participants produced each first-production clip, but half of the participants refused to produce several second-production clips with the absence of an instance of constructed action that was asked to be excluded. As predicted, the elicitation clips that contained humans and animals yielded constructed action use in the vast majority of first-production clips, and it was also the case that one of the clips without humans or animals (i.e., the cylindrical robots that do not resemble

humans) also elicited constructed action in the case of two participants. The constructed action was frequently accompanied by the production of polycomponential signs in the signing space, and the handshapes produced during segments of constructed action could be considered to be linguistic in form. Additionally, content communicated via constructed action in first-production clips was most frequently communicated with polycomponential signs in second-production clips.⁷ However, other strategies were also employed in second-production clips to depict content that had been portrayed via constructed action in first-production clips. Specifically, participants also used non-polycomponential signs (e.g., less complex verbs) or substituted other examples of constructed action. In a few cases, content communicated with polycomponential signs in first-production clips was communicated with constructed action in second-production clips. Additionally, some instances of a polycomponential sign from a first-production clip (specifically, those clips that did not contain animate objects in action) were replaced with the signer's perspective shift (e.g., the enactment of the head/eye movements required when someone is viewing the real-life object from the clip). Finally, the data contain two examples of a less complex verb (not a polycomponential sign) being used in the first-production clip but a polycomponential sign being used to communicate similar content in the second-production clip.

As noted, the first suggestive result is that some participants did not produce some of the second-participation clips. In most of those cases, the participant would claim that s/he would not be able to produce a depiction of the elicitation clip in question without the constructed action that was used during the first-production clip—a communicative device that the investigator asked the participant to remove for the second-production clip.⁸ Also, the investigator would allow the participant time to conceive of a way of portraying the elicitation clip scene without the constructed action in question and he would continue to encourage them (e.g., by asking at least two more times) to find a way to produce it, but those steps did not result in production of a second-production clip. The existence of second-production clips for all the participants is shown with check marks in [Table 1](#), and the dashes in that table represent the absence of a second-production clip from that participant.

As can be seen in [Table 1](#), three participants did produce all second-production clips (DD3, DH1, and DH5), but the majority (seven) of the participants did not produce them.

As noted earlier, in most of the first-production clips constructed action was used by participants to portray actions of the people and animals in the elicitation clips. In a couple cases, the movement of cylindrical robots with little resemblance to humans was also depicted using constructed action (specifically, the signer's body moving around and jerking as if bumping into something). However, the emphasis placed on the constructed action varied from participant to participant as did the specific type of constructed action that was employed. Some types of constructed action seemed to be produced by participants regardless of the emphasis placed on it. One example is the signer's use of an opening and closing mouth to depict the action in the seal clip (Elicitation Clip A). All participants performed that action during their first-production clip, but the degree of mouth opening varied with some opening their mouth very wide and others

⁷ However, in one example discussed later in this article (DD4's portrayals of Elicitation Clip G), the signer uses constructed action for the first-production clip but replaces it with signs in a syntactic phrase in the second clip.

⁸ In some cases, which were particularly easy to document, the participant would clearly refuse to produce a second-production clip. However, in other cases the participant would attempt a second-production clip while testing various possibilities. In any of those "tests" if an extended sequence of signs or constructed action was successfully produced, the segment would be counted as a second-production clip—even though the signer himself/herself indicated a lack of complete comfort with that rendition. Because of this, the data in [Table 1](#) may actually under represent the inability to produce a second-production clip.

Table 1
Production of second-production clips by participants

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
DD1	-	-	✓	-	✓	✓	-	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	✓
DD2	✓	✓	-	✓	✓	✓	✓	-	✓	✓	✓	✓	✓	✓	-	✓	-	✓	✓	✓
DD3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
DD4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	✓	✓	✓	✓	✓	✓	✓	✓	✓
DD5	-	-	✓	-	-	-	-	-	-	-	✓	✓	✓	-	-	-	-	✓	✓	-
DH1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
DH2	✓	✓	✓	✓	✓	-	✓	✓	✓	✓	✓	✓	✓	✓	-	✓	✓	✓	✓	✓
DH3	✓	-	✓	-	✓	✓	✓	-	✓	✓	-	-	✓	-	✓	✓	✓	✓	-	-
DH4	-	✓	✓	-	-	✓	✓	-	✓	✓	✓	-	✓	✓	-	✓	-	-	✓	-
DH5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

opening their mouth only slightly. In general, the constructed action produced by the different participants varied from emphatic to subtle portrayals of the same action. As noted in Table 1, three participants felt that they could not produce a second-production clip without the opening and closing of the signer's mouth.

The constructed action that was produced was frequently accompanied by polycomponential signs, but not always. In some cases the signer would only use his/her body to portray the action in the elicitation clip, but in other cases the signer would use what appeared to be a polycomponential sign (i.e., a linguistic handshape) to depict the hands/feet of the object. An example of the former is the use of a signer's clinched teeth and shaking head to depict the head of the dog that was performing the same action in Elicitation Clip K (a dog playing alone with a toy). An example of the use of a polycomponential sign with constructed action would be a signer depicting the lizard's movement in Elicitation Clip E (a lizard walking away from the camera) by moving his/her shoulders as if walking slowly while holding his/her hands in the handshape of one of the polycomponential signs to represent limbs or feet.

With regard to the replacement of constructed action in the first-production clip with polycomponential sign in the second-production clip, two examples are provided. In Elicitation Clip A (the seal), several participants chose to use a polycomponential sign that depicted the seal's mouth opening and closing; the handshapes were approximately the following: an ASL flat-O handshape would open up to an ASL bent B-bar handshape (see Figs. 1 and 2 in Appendix D) then return to the flat-O handshape. This opening and closing usually occurred two to three times (the seal in the elicitation clip opened its mouth in that manner three times). In most cases, the articulation of the polycomponential sign handshapes occurred in the neutral space immediately in front of the signer, but two participants articulated the polycomponential sign near the signer's mouth area. Also, polycomponential signs were commonly used in the second-production clips to depict a person or animal's body and the manner of movement shown in the elicitation clips.

An interesting result obtained in a couple of the second-production clips was the signer performing a perspective shift (portraying head/eye movements required when someone is viewing a real-life object) to replace the use of a polycomponential sign from the first-production clip. For example, one participant (DD3), when asked to not use an ASL Bent-V polycomponential sign (depicting a bee landing on a flower from Elicitation Clip L) in his second-production clip chose to portray that action as the signer moving his head and eyes (with no concomitant hand/arm movements) as if following the movement of the bee through

the air and landing on the flower immediately in front of him. Another example was a participant (DH1) looking upward (as if gazing at a tall smokestack immediately in front of her) and then indicating with a five-handshape (all fingers extended, spread apart, and the index through the pinky fingers are wiggling) that smoke is emitting from the opening in the smokestack.

As noted earlier, some participants did not produce constructed action in first-production clips when expected, but instead produced polycomponential signs to communicate the same idea. But, when asked to eliminate a polycomponential sign for the second-production clip, constructed action was sometimes employed. For example, one participant (DD4) used polycomponential signs to depict an ant carrying a leaf (Elicitation Clip C) in his first-production clip, but when asked to avoid using his examples of polycomponential signs for the second-production clip he produced constructed action (specifically, the depiction of a slightly hunched back and both hands near his right shoulder as if carrying a heavy object).

Finally, the use of a non-polycomponential sign in the first-production clip was, in at least one example, replaced by the use of a polycomponential sign in the second-production clip. In this case, the signer did not produce any constructed action or polycomponential signs in the first-production clip. The only communicative device that served to depict the action of the character from the elicitation clip was the verb that indicated the general action that was being performed. Specifically, DH3, in his first-production clip rendition of Elicitation Clip C, signed the following: RED ANT BRING/CARRY LEAF BRING/CARRY. The signer did not use constructed action showing that the ant was holding the leaf over its head or above its shoulders (as did several of the participants for this clip), and he did not use polycomponential signs to show, in the signing space, that an ant carrying a leaf was scurrying toward and into a hole (as did several of the participants in their second-production clip). Rather, he used the verb CARRY/BRING (see Fig. 3 in Appendix D) within a syntactic phrase to communicate the action in the elicitation clip.⁹ When asked to not use the verb in the second-production clip, DH4 then utilized two polycomponential signs, a bent V-handshape depicting the ant and a B-handshape depicting the leaf, to indicate the action from the elicitation clip (see Fig. 4 in Appendix D).

Frequently, participants in Part A commented on how awkward it was to attempt a portrayal of some elicitation clips without the use of constructed action and, in some cases, polycomponential signs. These comments came from participants who did not produce some of the second-production clips as well as participants who did—even though they were able to produce a rendition without constructed action or polycomponential signs. Comments such as “it is impossible”, “you need that to be clear”, “you need to provide that so that it is more informative” were common. Oftentimes the participants mentioned that it was possible to produce a second clip without constructed action, but they preferred the first clip that they had provided. For instance, DD2 struggled in producing a second-production clip when asked to substitute the torso movement from his constructed action. He claimed, “substituting the body ‘brings it down a level’ but it is possible”. DH3 also mentioned in depicting the seal, “You can do it without the mouth, but I prefer it with the mouth”. After the entire data collection for each session the participants were given an opportunity to comment on what they had done, and similar opinions were shared with the investigator.

⁹ The signer actually mouthed the word “carry” while signing the sign CARRY/BRING.

2.3. Part B

2.3.1. Participants

There were 18 participants for Part B of this study,¹⁰ and the goal of this portion of the data collection was to obtain judgments of first- and second-production clips from Deaf individuals who did not participate in Part A of the study. The participants included Deaf individuals who use ASL on a daily basis—either with their Deaf and Hearing family members or with their co-workers. Most of the participants in Part B of the study work at a school for the Deaf that encourages the use of sign language for communication. Characteristics of the participants for Part B can be found in Table A2 of Appendix A.

2.3.2. Procedure

There were 66 production clips (33 first-production and 33 second-production) used for Part B of the study. Only a portion of all the production clips was chosen for this portion of the study for several reasons. First, as was mentioned above, some of the participants in Part A did not produce a second-production clip. In those cases, the first-production clip for that elicitation clip was automatically excluded from the judgment clips. Additionally, in an attempt to maximize the number of participants who could provide judgments for Part B, the judgment session was planned to only include the number of production clips that could be viewed and judged in approximately one hour. Thus, a limited number of first- and second-production clips were chosen for the set of judgment clips. First- and second-production clips that contained clear differences in the production of communicative devices between clips were chosen. In most cases, the participant provided an example of constructed action for the first clip, but did not do the same for the second clip. No production clips were used that only focused on the use of polycomponential signs for both clips.

The participants' task for Part B was as follows: First, they would view an elicitation clip that corresponded with the four subsequent production clips to be viewed. The first- and second-production clips were randomized throughout the viewing so that a particular signer was not viewed twice in a row and so that the second-production clip for any particular signer might be viewed first or second by the participants. After viewing each production clip, the participant would rate the signer's depiction of that particular elicitation clip on two parameters: degree of clarity and degree of correctness (an example page of the recording sheet can be found in Appendix C). An explanation, in ASL, was provided by the investigator to the participants prior to the viewing and judging of the clips, which included an explanation of the procedure and of the two questions. For both questions, the participants were asked to focus on the signer's portrayal of the action of the person/animal/object in the elicitation clip, and they were also advised to not give a clip high ratings simply because there were many descriptive details about the person or animal as well as the surroundings. Some of the longer clips included many details, but the participants in Part B were asked repeatedly to focus on the action of the person or animal in the elicitation clip and how the signer depicted that action. A poster written in English with important points (such as to remember to focus on the signer's portrayal of the action of the person or

¹⁰ Data were actually collected for 20 participants, but two of the participants noted, after the data collection session had taken place, that they were first exposed to ASL after the age of 15. While data from those two subjects may not have changed the results of the study, they were not included because the reliability of judgments from such late learners is unclear.

animal rather than on other details of the signer's description) was placed in a prominent location to remind participants of various items throughout the viewing and judgment task.

2.4. Results: Part B

Various results of Part B are first presented in general terms and then followed with specific examples. First, a majority of the clips pairs were judged significantly different from each other (with the second-production clips receiving the higher scores with the exception of a couple clips). This section also includes detailed account of three clip pairs that were consistently judged significantly different from each other at the $p < .01$ level. To continue that presentation, the number of tokens of "1" (i.e., completely "NOT CORRECT") for those three clip pairs are shown. Next, two clips that received higher ratings for correctness in the second-production clips are presented. Finally, clips pairs that yielded no significant difference in judgments are tabulated in relation to the majority of first- and second-production clips from this part of the study that were judged significantly different from each other. An example of a clip pair with no significant difference completes the presentation of the data from Part B of the study.

In more than half of the first- and second-production clip pairs that were used for Part B of the study, participants judged first-production clips significantly different from second-production clips (see Table 2).

In Table 2, values for means and standard deviations for the question of correctness can be found on the right-most columns, whereas values for the question of clarity can be found to the left. In reading the table, it may be useful to compare means for *clip 1* and *clip 2* for each question (either *clarity* or *correctness*). If two means were found to be significantly different, both values are indicated as such with either "*" or "***"—depending on the significance level of the result. As one can note by examining Table 2, in all but two of the differences that were significant, the first-production clips were rated higher than the second-production clips; the two that differed are discussed later in this section. In some cases (15 clip pairs of the total 33 clip pairs), significant differences between clip pairs were designated along both parameters: clarity and correctness. However, in some cases, a clip pair was judged significantly different in only clarity (four clips) or correctness (six clips).

Three clip pairs that were consistently judged to be different from each other (i.e., significance was reached at the $p < .01$ level) in both clarity and correctness are briefly described in Table 3. Differences between first- and second-production clips are shown in bold font.

Only the specific actions of the signer as s/he portrayed the actions of the character from the clip are explained in the descriptions.¹¹ Note that in the first clip of (1), the signer's own mouth is opening and closing to communicate that the seal in the elicitation clip did the same, whereas in the second clip of (1) the signer uses a polycomponential sign form to communicate the same meaning. In that version, a non-manual puffing of the cheeks co-occurs with the opening of the hand to portray the opening of the seal's mouth. In (2), the main difference between the two clips is the signer's use of a downward head tilt and action as if she is drinking from the fountain, which occurs in the first clip but not the second. Finally, note that in (3) the signer actually reverts to using signs and word order to communicate that the woman in the clip extended her arms

¹¹ Some first- and second-production clips contained signs or fingerspelling to indicate what was being referenced with polycomponential sign forms or constructed action forms. Additionally, some contained other descriptive details that were not necessarily about the character's action in the elicitation clip. As mentioned in the methods section, judges were instructed to focus on the ways in which signers communicated the actions of the character.

Table 2

Means and standard deviations from judged first- and second-production clips (*t*-tests)

Elicitation clip	Part	Question #1: Clarity				Question #2: Correctness			
		Clip 1		Clip 2		Clip 1		Clip 2	
		Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
A (seal)	DD2	4.26**	0.65	3.21**	1.18	4.05**	0.84	2.57**	1.17
	DD4	3.52	1.02	3.31	1.10	3.26	1.04	2.89	1.15
	DH1	4.15	0.76	3.68	1.05	3.94*	0.91	3.15*	1.50
	DH3	3.21	1.27	3.57	1.07	2.78	1.39	2.94	1.26
	DH5	4.68	0.47	4.42	0.60	4.52*	0.77	4.10*	0.87
B (water fountain)	DD4	4.42	0.69	4.05	0.84	4.36*	0.83	3.42*	1.26
	DH1	3.68**	0.82	2.89**	1.24	3.52**	0.84	2.26**	1.04
	DH2	3.84**	0.89	2.73**	0.99	3.68**	1.15	2.26**	0.99
	DH4	4.26	0.65	3.94	1.02	3.84	0.83	3.68	1.10
	DH5	4.36*	0.59	3.73*	1.04	4.05*	1.17	3.42*	1.38
C (ant)	DD1	3.72	0.95	3.42	0.69	3.44	0.98	3.00	0.66
	DD4	4.21**	0.85	3.05**	1.17	3.68*	1.00	2.89*	1.28
	DD5	3.78	0.91	3.63	0.68	3.52*	1.02	3.10*	0.99
	DH3	3.73*	1.04	4.21*	0.91	3.31	1.15	3.73	0.87
	DH5	4.63	0.68	4.42	0.60	4.36	0.95	4.26	0.87
D (lizard chewing)	DD2	4.26	0.73	4.21	0.70	4.05	0.70	3.89	0.99
	DD3	4.05*	0.91	3.78*	0.85	3.68	0.94	3.78	0.97
	DD4	2.05**	1.02	2.78**	1.39	2.00	0.81	2.42	1.12
	DH1	4.59*	0.69	3.89*	0.73	4.47**	0.77	3.36**	1.01
E (lizard walking)	DD2	4.47**	0.69	3.78**	1.22	4.26**	0.93	3.68**	1.20
	DH1	3.89	0.65	3.89	0.80	3.05*	1.22	3.63*	1.06
	DH2	2.89**	1.19	2.10**	0.99	2.47**	1.21	1.63**	1.01
	DH5	4.26	0.87	4.52	0.51	3.42	1.53	3.89	0.87
F (snake)	DD1	3.89**	0.80	2.94**	1.02	3.52**	1.21	2.42**	1.01
	DD2	4.10*	0.87	3.42*	1.38	4.26**	0.87	3.00**	1.41
	DD3	3.73	0.93	3.78	0.63	3.47	1.26	3.15	1.11
	DH1	4.36**	0.76	3.78**	0.85	3.73	1.32	3.15	1.21
	DH4	3.52*	0.77	2.94*	1.12	3.42**	1.17	2.31**	1.05
	DH5	4.63**	0.49	3.73**	0.80	4.57**	0.50	3.36**	1.49
G (cart-wheel)	DD2	3.36	1.34	2.94	1.17	3.15**	1.01	2.68**	1.15
	DD4	3.73**	0.93	2.36**	1.30	3.42**	1.12	2.36**	1.38
	DH2	4.00**	0.94	2.42**	1.07	3.84**	0.89	2.26**	1.04
	DH4	4.52*	0.51	4.10*	0.73	4.52*	0.61	3.73*	0.87

* $p < .05$.** $p < .01$.

before performing the cartwheel. The signer opted to use the phrase **POSSESSIVE, signer refers to left then right arm, OPEN, SUPPORT** ('... [her] arms opened up and then she used them to support her cartwheel . . .') instead of extending his arms (because he was asked if he could describe the elicitation clip without extending his arms). In other words, he opted for the use of signs and word order rather than the constructed action that had been used the first time.

Table 3
Differences between three first- and second-production clips

Clip	1st/2nd	Method for communicating the character's action from elicitation clip
1. DD2 clip A	1st	<ul style="list-style-type: none"> ● PS/CA^a; both hands (5-hs) at sides of body as if portraying flippers ● CA: torso/head forward and backward movement ● CA: forward single lean of torso and head ● CA: mouth opens/closes as if portraying mouth of seal ● CA: head moves up slightly as mouth opens and down slightly as mouth closes
	2nd	<ul style="list-style-type: none"> ● PS: right hand (flat-O hs, opens to a bent B-bar hs 3 times) to portray seal's mouth opening and closing ● left hand is holding dominant arm between wrist and elbow ● CA: cheeks puff out each time hand opens ● CA: torso moves upward slightly with opening of hand and downward with closing of hand
2. DH2 clip B	1st	<ul style="list-style-type: none"> ● PS: left hand (hand bends forward at the wrist joint and the index finger crooks forward) to portray woman bending over ● PS: right hand (hooked-5 hs [see Fig. 5 in Appendix D]) turns an imaginary knob on the imaginary fountain ● CA: the head moves downward and the lips purse as if drinking from a fountain ● CA: the head moves back to regular orientation as the non-dominant hand and index finger straighten out ● CA: the signer wipes her mouth area
	2nd	<ul style="list-style-type: none"> ● CA/PS: the right hand (hooked-5 hs) turns an imaginary knob on the imaginary fountain and that is held for a few seconds ● eyegaze is forward and downward
3. DD4 clip G	1st	<ul style="list-style-type: none"> ● ASL sign: SPIN-AROUND ● CA: the signer extends his arms to either side ● ASL sign: SPIN-AROUND ● PS: (right hand: V-hs for person, left hand: B-hs for floor [see Fig. 6 in Appendix D]) ● PS: V-hs shows that person beginning a flip ● ASL sign: ROLL ● PS: V-hs shows person lands on feet and stands
	2nd	<ul style="list-style-type: none"> ● The following ASL signs are used in this order: SPIN-AROUND ON POSSESSIVE signer refers to left then right arm with a B-hs OPEN SUPPORT ROLL ● PS: (right: V-hs for person, left: B-hs for floor) ● PS: V-hs shows that person begins a flip ● ROLL ● PS: V-hs shows person lands on feet and stands

^a Abbreviations used: CA, constructed action; PS, polycomponential sign; hs, handshape.

Finally, Table 4 shows the number of judges who rated each clip in Table 3 along the dimension of correctness with a (1), which is the lowest score possible on a scale of 1–5.

As can be noted, one of the first-production clips received a rating of “0” (i.e., no judge felt that DD2's first-production clip of the seal elicitation clip was entirely incorrect) and two received ratings of “1” (i.e., one person out of 18 felt that the signer did something that was entirely incorrect). However, the numbers of “1” ratings for the second-production clips were

Table 4
Judgments of “incorrect” for Table 3 clips

Clip	1st/2nd	Tokens of “1” for judgment
DD2		
A	1st	0
	2nd	4
DH2		
B	1st	1
	2nd	4
DD4		
G	1st	1
	2nd	8

Table 5
Higher ratings for “correctness” in second-production clips vs. first-production clips

	1st/2nd	Method for communicating the character’s action from elicitation clip
1. DD4 clip D	1st	<ul style="list-style-type: none"> ● ASL sign: CHEW
	2nd	<ul style="list-style-type: none"> ● Referencing CA with a point: the signer points to his mouth while moving his jaw as if chewing something
2. DH3 clip C	1st	<ul style="list-style-type: none"> ● ASL sign: BRING/CARRY
	2nd	<ul style="list-style-type: none"> ● PS: left (dominant) hand: bent V-handshape depicting an ant; right hand: B-hs depicting a flat object that is on top of the ant, both hands are moving forward in unison

higher (4, 4, and 8, respectively). From these three clip pairs we can see examples of the differences in ratings that were assigned to first- and second-production clips; the second-production clips were rated entirely incorrect more often than the first-production clips.

The two second-production clips that were rated higher in terms of correctness than their corresponding first-production clips are described in Table 5.

In both first-production clips explained in Table 5, the signers used less complex verbs (CHEW and CARRY/BRING) without constructed action or polycomponential sign use. However, when asked to not use that sign for the second-production clip, the strategies for communicating the two ideas differed: one used constructed action (i.e., pointing to his mouth while pretending to chew on something), and the other used polycomponential sign forms (i.e., one for animal and one for the leaf) to describe the action/movement of the animals from the elicitation clip. In both cases, judges rated the second-production clip significantly higher along the dimension of clarity than the first-production clip.

As noted earlier, not all production clip pairs were judged to be significantly different from each other in terms of clarity and correctness. Of the 33 pairs of production clips that were presented to the judges in Part B, eight pairs of clips were not judged significantly different from each other in both parameters of clarity and correctness. An additional six clips were not judged different in terms of clarity and four clips in terms of correctness. Thus, out of 66 comparisons, 26 (or approximately 39%) were not judged significantly different from each other on any one of the parameters. This means that more than half (61%) of the clips were seen as different when, in

Table 6
Example of no significant difference between first- and second-production clips

Clip	1st/2nd	Method for communicating the character's action from elicitation clip
DD2		
D	1st	<ul style="list-style-type: none"> ● PS: both hands are held immediately in front of the signer's mouth, the left hand represents the lower jaw of the bug while the right represents the upper jaw ● PS: the right hand alternates with a PS (1-hs) that represents the bug's legs going into the lizard's mouth ● CA: the signer's own mouth is opening and closing and portraying an emphatic chewing action ● CA: the signer's head is moving backward and forward emphatically to accompany the chewing action
	2nd	<ul style="list-style-type: none"> ● PS: both hands are held out in neutral signing space ● PS: the right hand moves up and down once as if showing the action of taking a bite then moves around in a circle on the left hand ● PS: right hand (U-hs) to depict the bugs legs entering into the mouth ● these "bite" and "leg-swallowing" movements are repeated in the same order twice ● CA: as the hands are moving, the signer's head moves up and down each time the dominant hand moves up and down ● CA: the signer's head moves backward every time the PS shows the legs of the bug moving into the mouth ● CA: the signer's jaw is moving while the right hand is moving in a circle on the left hand to depict chewing

most cases, either constructed action or an example of a polycomponential sign was not used in the second clip while it had been in the first.¹²

One example of first- and second-production clips that were not judged to be significantly different from each other on either the clarity or correctness dimensions was DD1's portrayal of a lizard eating a bug (Elicitation Clip D). The two versions are described in Table 6.

In Table 6, the main difference between the two clips has to do with the placement of the hands (in front of the signer's mouth versus out in neutral space) and the use of signer's mouth that opens and closes in the first clip but not the second. However, note that the second-production clip shows the signer moving his jaw as if chewing, so there is only lack of movement with regard to opening and closing of the mouth in that clip.

3. Discussion

One piece of evidence regarding the obligatory nature of constructed action to communicate specific actions of animate objects comes from data that were never produced by the participants in Part A: the unwillingness to articulate a second-production clip that did not contain a specific example of constructed action or polycomponential signs. As is shown in Table 1, when asked to not include an example of constructed action that had been produced in the first-production clip, several of the participants, more than once, strongly objected to the acceptability of such an articulation. For those signers and those elicitation clips, the use of specific instances of

¹² If we consider those clips that are approaching significance ($p < .10$), then seven additional clips would be added to the number bringing the total to nearly 72% for those that are meaningfully different from each other in terms of clarity or correctness.

constructed action might be considered obligatory. However, that was not the case with all the participants. As shown in Table 1, participants did produce second-production clips for many of the clips—even though they were asked to not include specific instances of constructed action or polycomponential signs in those clips. In those cases, usually the participants would replace the constructed action productions with polycomponential sign forms. What this seems to suggest is that constructed action may be obligatory for some and the preferred method for others. One could argue that constructed action was “naturally” produced for many of the first-production clips, but some participants utilized other strategies to portray human and animal movements in the second-production clips—even though those non-constructed action strategies may not have been optimal from the signer’s and a viewer’s perspective.

In addition to the evidence for obligatoriness from the production data, judgments about the correctness of some second-production clips can also support the idea of the obligatory nature of specific instances of constructed action. As was demonstrated in Table 4, some judges rated certain second-production clips with a “1” for correctness (i.e., not correct at all on a scale of 1–5). Perhaps these particular judges are like the signers who refused to produce second-production clips without certain instances of constructed action; they feel that constructed action is obligatory and its non-use is incorrect in some cases. Certainly the high number of “1” ratings ($n = 8$) for DD4 in his second-production of Clip D could attest to this fact. As is shown in Table 3, example (3), the main difference between his first- and second-production clips was the use of extended arms in his first-production clip to depict the outstretched arms of the woman in Elicitation Clip D versus his use of the sign OPEN in the second-production clip in reference to his arms. Paradoxically, the use of ASL signs in a phrase generated more judgments of “incorrect” than the use of constructed action.

Evidence that speaks to the preferred nature of constructed action over polycomponential sign forms and, in some cases, individual signs comes from the significant differences that were found between the first- and second-production clips along the dimensions of clarity and correctness. As can be seen in Table 2, more than 60% of the clips were rated higher when they contained specific instances of constructed action over the use of polycomponential sign forms to communicate various things. The general claim is that the polycomponential sign forms (or even single signs) are not viewed as entirely incorrect by most judges, but rather that they are seen as less preferable. With respect to the dimension of correctness, many judges assigned ratings of “2”, “3”, or “4”, which suggests that correctness, as far as the judges are concerned, should be measured gradiently rather than categorically. It was not the case that judges only rated the clips as either “1” (entirely incorrect) or “5” (fully correct). Thus, it could also be argued that most of the judges might claim that constructed action is preferred rather than obligatory—and that claim could be made in terms of correctness and clarity.

One result of asking signers to avoid the use of either constructed action, polycomponential signs, or even a specific sign (in the absence of constructed action and polycomponential sign in their first-production clip) is that it has been possible to see how signers use constructed action, polycomponential signs, and other signs as different ways of communicating the same idea or concept. This shows that there are indeed alternative strategies for communicating the same information—just as was posited for the Bahan example provided at the beginning of this work. As was mentioned in the results section, polycomponential signs frequently replaced constructed action, a change in perspective or point of view sometimes replaced polycomponential signs (even though there was no animate object in the elicitation clip that would elicit the use of a change in perspective), and constructed action sometimes replaced polycomponential signs. Thus, the exclusion of one communicative device called for the use of another. If we consider a

shift in perspective as an instance of constructed action even though there was no character in the original elicitation clip that would elicit the production of that character, we could see how constructed action and polycomponential signs become alternative strategies for communicating various things.

However, based on ratings from the judges, constructed action, polycomponential signs, and the use of individual signs seem to differ from each other in terms of the clarity of the information that is communicated. Additionally, each of those devices has limitations to its use. Regarding the amount of clarity in communicating the actions or movement of an object, constructed action (with possible polycomponential signs accompanying the constructed action) seems to be the most clear device, which is evidenced by the consistently higher judgments on the parameter of clarity that were given for first-production clips. Assumedly, the use of polycomponential signs without constructed action is less clear for demonstrating the actions or movement of a character as was seen in various second-production clips. Finally, the use of less complex verbs (either inflected verbs or those that do not or cannot inflect) are the least clear.

As communicative devices there appear to be advantages and disadvantages to the use of constructed action, polycomponential signs, and less complex verbs. Constructed action may be very clear (i.e., provide a great deal of information) for communicating how an object acts or moves or the emotions of the object. However, particular instantiations of constructed action (i.e., the body performing one action, the head held in a specific orientation, a specific emotion on the signer's face, etc.) can be linked to a specific situation or event. Polycomponential signs, following the reasoning given above, may be less clear if used without constructed action, but the forms of polycomponential signs can be used to describe more contexts and their ability to co-occur with a larger number of signs (and co-occur with constructed action) is greater. However, less complex verbs, which can combine with other signs and non-manual signals following the grammar of the language, can be used to refer to the most contexts (e.g., the verb CARRY/BRING can be used to refer to bringing a plate of food, a refrigerator, large automobile, etc.). However, it appears that these non-polycomponential signs provide the least amount of clarity when referring to a specific type of action or movement and the emotions that accompany such actions.

As an example of the degree of clarity of reporting the action of an animate object with signs over the use of constructed action, we can turn to the example of the depiction of a woman performing a cartwheel (see Table 3, example [3]). In some cases, there may not exist accepted signs that adequately describe certain actions such as the outstretched arms of someone who is about to perform a certain body action or just completed one. If one were to want to communicate such an action in ASL, the clearest and most "correct" way to do it might be to perform constructed action. As reported in Table 3, the strategy of DD4 in his second-production clip was to use signs (e.g., reference the arms and then sign OPEN), but this strategy was not viewed by nearly half of the judges as clear nor as correct as his first rendition, which involved constructed action to depict the outstretched arms of the woman performing the cartwheel.¹³

First- and second-production clips with similar ratings (i.e., no significant differences) by the judges likely had different examples of constructed action or clear polycomponential sign usage that successfully replaced the use of constructed action or polycomponential sign from the first-production clip. Note that the second clip in (1) of Table 6, DD2's use of jaw movement (for chewing) and clear polycomponential sign formulation depicting an upper and lower jaw that was chewing a bug seemed to be sufficient for judges to rate that clip as highly as the first-

¹³ Schembri (2003) also reports that Auslan (Australian Sign Language) signers sometimes use polycomponential signs and other times they use lexical signs to represent the motion of an animate being.

production clip that involved the signer’s mouth opening and closing. The jaw movement was likely enough for the two clips to be judged similarly by the participants—rather than having no mouth movement at all. Thus, the use of a different instantiation of constructed action (jaw movement as if chewing) allowed the second-production clip to be judged similarly in terms of clarity and correctness as the first-production clip. This is an example of the lack of necessity for a specific instantiation of constructed action (in this example, the opening and closing mouth), but perhaps the necessity is for *some* type of constructed action to depict movement in the character.

This brief discussion of one participant’s renditions of a lizard chewing on a bug raises a question that has not been addressed in this work: To what extent could instances of constructed action, as labeled in this work, constitute lexicalized non-manual signals (or, more specifically, mouth gestures) that *must* accompany the production of certain signs? Sutton-Spence and Day (2001) refer to the “lexical” function of some mouth gestures as they accompany British Sign Language signs, and they provide as one example a signer’s “kissing gesture” on the lips that accompanies the lexical sign KISS.¹⁴ For the present study, one must first consider differences, if there are any, between a less complex verb and a polycomponential sign. In some cases these two “types” of signs may be articulated similarly, and that may create uncertainties about how to label such an articulation. For instance, the sign CHEW may be articulated very similarly as the polycomponential sign that depicts the chewing of something, but one wouldn’t expect values of phonological parameters (e.g., handshapes and movements) to change in the sign CHEW over the course of the articulation while handshapes and movements may change in a polycomponential sign. This is a key characteristic of polycomponential signs that distinguish them from less complex verbs: polycomponential signs appear to be more productive and can appear in various instantiations to match the referent that they are describing. Presumably, the forms of non-componential signs are not as flexible. In the case of the example of DD2 using an alleged polycomponential sign to depict the animal’s chewing action, I chose that label (rather than designating the sign as the verb TO-CHEW) because DD2 uses another polycomponential sign (with his right hand) simultaneously with the polycomponential sign depicting the lower jaw of the lizard to depict the legs of the bug entering the “mouth” of the lizard. Presumably, the form of the sign CHEW in ASL cannot be changed in the middle of its articulation to the degree that the polycomponential signs can change to depict various aspects of the referent. Since DD2’s articulations in this example have been labeled polycomponential signs, one would not necessarily expect lexicalized mouthing to accompany such signs as it could be expected with less complex verbs.

In the present study, there were eight elicitation clips that had the potential to elicit some type of mouth gesture. Those eight are the following: A (the seal), B (the woman at the water fountain), D (the lizard chewing), F (the snake uncoiling and opening/closing mouth), K (the dog barking at camera), O (the dog playing tug-of-war with toy), S (the shark biting/swallowing a fish), and T (the lizard catching/eating a butterfly). Of the eight, five seem to be capable of eliciting lexicalized mouth movements concurrently with verbs such as CHEW, BARK, and BITE. So, not all mouth gestures in the data could be considered lexical. For instance, in Elicitation Clip A, the seal opens and closes its mouth emphatically as if bellowing a loud cry. Its mouth movements differ from those that are involved in a dog’s bark (e.g., slow and sustained

¹⁴ Woll (2001) also discusses such mouth gestures that accompany signs, but she labels them “enaction”. To what degree such mouth gestures can be considered lexical versus instances of constructed action is beyond the scope of this paper, but they provide an area that should be explored in future research.

versus quick and repeated, respectively). Thus, I would not consider mouth gestures that accompany a signer's rendition of the seal to be lexicalized. This is but one example of a mouth gesture that I consider to be constructed action, and there are others in the data. Future work will need to clearly differentiate between what could be considered a lexicalized mouth gesture and what would not fall into that category.

What the different types of data from this study seem to suggest regarding the original question about the obligatory nature of constructed action is the following: Some types of constructed action appear to be obligatory in some contexts for some users of the language—both in terms of a user producing constructed action and in terms of what an interlocutor (or receiver) feels about the use or lack of constructed action to describe an action or movement. However, many users of ASL may claim that constructed action is preferred, rather than obligatory, to obtain the highest degrees of clarity and correctness. In other words, based on these data, the obligatoriness of constructed action can be said to vary depending on the individual, but its obligatory nature for some users should not be understated. For some judges, the need to see the movement or action of a specific object – albeit a part of the movement or action – with the use of constructed action is clear.

There are other accounts of constructed action that have hinted at its obligatory nature by examining where it tends to occur and its frequency. Aarons and Morgan (2003) report, based on their data, that there exist systematic co-occurrence possibilities for constructed action and polycomponential signs. Supalla (1990) suggests that serial verbs of motion occur with systematic orderings of a “body classifier” followed by a verb of motion or location. Metzger (1995) reports that, in her data, constructed action is more common than constructed dialogue (i.e., quoting another person in one's own words). Taub and Galvan (2001:178) suggest that “. . . even when alternative forms (nouns, lexical verbs, fingerspelling, or extended explanations) are available, signers overwhelmingly use iconic classifiers and referential shift”. Finally, Liddell (2003:362) writes that “. . . [t]he gradient and gestural aspects of the signal are not peripheral or paralinguistic. They are required to be present and central to the meanings being expressed”. Regardless of how becoming an object is analyzed (as linguistic or non-linguistic) the fact is that its frequency and importance as a communicative device in ASL and other signed languages and its obligatory character seem irrefutable.¹⁵

It would be worthwhile to briefly examine *why* constructed action may be considered obligatory in some instances of signed language discourse. From the results of this study, it appears that clarity and “correctness” may have something to do with that. However, there are likely other reasons for its obligatory nature. First, Roy (1989:247–248) discusses that constructed dialogue may, in fact, make a signer's discourse more “vivid or interesting” or “understood more completely”. There is also the ineffable quality of some types of propositions. As Clark and Gerrig (1990:793) suggest, “. . . many things are easier to demonstrate than describe. Imagine trying to describe how to tie a shoe, parry a lunge in fencing, or knit purl. These you are almost forced to demonstrate”. In other words, becoming the object may be easier for the signer to do than to string along various signs into grammatical sentences to “describe” the same information. Using such an explanation, one could also imagine that it might be easier for the interlocutor to comprehend the information as well, although we don't know that definitively from psycholinguistic research.

¹⁵ As mentioned earlier, Aarons and Morgan (2003) explore this phenomenon in South African Sign Language. Other authors have discussed similar structures in other sign languages such as Danish Sign Language (Engberg-Pederson, 1992) and British Sign Language (Morgan, 1999; Sutton-Spence and Woll, 1999).

3.1. Implications and questions for future research

There are various questions that are raised as a result of the findings of this preliminary study of constructed action, and some of those questions could have implications for our understanding of the human language faculty. One such question is whether constructed action, in part or in whole, is gestural or linguistic in nature. The answer to this question is beyond the scope of this paper. However, if, upon further analysis of constructed action data, it is determined that qualities of language (e.g., being discrete, categorical, combinatorial, etc.) are not evident in constructed action, then various implications for the nature of human language might be suggested.

First, it should be pointed out that the existence of constructed action in signed language does not seem to hinder the development of traditional linguistic features within sign languages. That is, signed and spoken language share many of the same basic characteristics (e.g., discrete and categorical units in phonology [e.g., see Klima and Bellugi, 1979; Brentari, 1998], and syntactic structures that govern the combination of signs [e.g., see Neidle et al., 2000]), despite the fact that there also exists a robust system of what seems to be mimetic representation (i.e., constructed action) in sign. There is nothing new about a claim that signed and spoken language share basic linguistic features, although it is perhaps more noteworthy given that a system for a very different type of meaning formation, the use of the body to depict the actions and characteristics of a referent, is so robust and even obligatory in signed language in some cases.

Whether or not gestures are commonly obligatory with the simultaneous production of spoken language, or even in alternation with it, is open to question. As mentioned earlier in this work, there are instances where the use of gesture that accompanies spoken language would perhaps make it easier to communicate something as opposed to simply using a verbal description. Yet, people frequently manage to have efficient and effective spoken conversations without seeing each other and taking advantage of constructed action. An important question for future research is whether or not constructed action is obligatory in certain contexts for users of spoken language.

In order to address that question, it is perhaps necessary to consider differences between the gestures that users of spoken language produce simultaneously with their speech (i.e., gesticulation) and gestures that may be produced without speech. It has been reported that the gestures that speakers utilize to complement spoken language discourse appear to be qualitatively different than the gestures that users of spoken language produce when they are forced to communicate information only via the medium of gesture (Singleton et al., 1995). In essence, iconic gesture seems to be more robust when it is not accompanied by spoken language. Since gestural and linguistic material would necessarily reside in the same modality for users of signed languages (unless a signer were to produce mimetic vocal gestures concomitantly with the manual material of signed language), the situation in sign could be described as different than that in speech. Another question that could be asked concerns a signer's constructed action and whether or not it is more robust (i.e., more meaningful, more efficient, etc.) than a speaker's simultaneous gestures with speech (i.e., gesticulation).

These points about differences in the use of gesture between the signed and the spoken modalities raise certain questions about sign. For instance, does the robust nature of constructed action have an effect on the structure and form of signed languages that would make them differ in some non-structural ways from spoken languages? As an example, do signed languages have fewer signs, in general, than spoken languages have words (see Johnston and Schembri, 1999 for

a discussion of this topic)? If so, is that a result, at least in part, of the ability of constructed action to foster communication when a lexical sign does not exist for certain items—especially those items concerning the postures and actions of animate beings?¹⁶ Also, what is the effect of the interaction of constructed action with devices that can be described as more linguistic in nature and how does that differ from spoken languages and the simultaneous use of gesture by its users?

In essence, the existence of constructed action in signed languages continues to challenge us to examine how linguistic and gestural material work together to form human communication. In a work that proposes reasons for the development of language primarily within the province of speech rather than sign, *Goldin-Meadow and McNeill (1999)* suggest that speech is not a good medium for mimetic representations so it has evolved primarily to carry the linguistic (i.e., segmented and combinatorial) parts of human meaning creation for communication. By reviewing various works, the authors make it clear that segmented and combinatorial structure is not simply within the province of speech, but the manual (or sign) modality is also adept at such communication, and segmented and combinatorial structure is part of the foundation of human language structure. What is being suggested in the current work is that, what might be considered mimetic representation (i.e., ‘becoming the object’ or constructed action) is obligatory in some cases within the sign modality, which perhaps makes sign different from speech in this area of communication. In other words, the sign modality has allowed for the creation of mimetic (i.e., gestural) systems that are necessary parts of communication because of how they have evolved alongside linguistic (i.e., categorical, segmented, combinatorial) material. If this suggestion, albeit preliminary, proves to be true, there is a great deal to be learned about how the two types of systems are dependent on each other when given the opportunity—a locus of study that is provided to us by the sign modality.

There exist a myriad of other questions within the study of constructed action. A particularly important one seems to be: What tends to elicit the use of constructed action versus what does not? We know from the data of this study that descriptions of animate beings easily elicit constructed action production, but what about inanimate objects such as a tree, dirt, water, or a computer printer? It is likely that descriptions of some of these items could elicit constructed action use, while others may prohibit it. Additionally, are there specific types of constructed action (e.g., mouth and facial movements) that are more obligatory than others (e.g., limb and torso movements), and how can we best distinguish between constructed action and lexicalized non-manual signals? Finally, how does the use of constructed action interact with various aspects of the phonology, morphology, or syntax of a signed language? This is an area ripe for various avenues of inquiry.

4. Conclusion

This study has begun to explore the obligatory nature of certain movements that a signer produces to communicate the actions of a character (whether it be an animate or inanimate being). These movements, referred to here as constructed action, have been viewed by some researchers as having linguistic qualities and others as being comparable to non-linguistic gestures. Regardless of the claim, constructed action can be very meaningful, and it

¹⁶ Another possible reason that sign languages have smaller vocabularies is that they are relatively young and haven't had the time to develop the extensive vocabularies of some spoken languages.

appears to be a communicative device that is utilized frequently in ASL and other sign languages.

While the signer may have various types of resources at her command (e.g., lexical signs, polycomponential signs, and grammatical rules), it seems to be the case that the use of constructed action may be optimal to communicate certain actions in ASL—especially those of animate beings. In fact, constructed action appears to be obligatory in some contexts. This was confirmed by production and judgment data that are reported herein. Specifically, users of ASL seem to prefer the use of constructed action over the use of other devices such as polycomponential signs and the use of other less complex verbs; this was true for both signers producing ASL and signers judging renditions of the production clips. This article, however, also reports how constructed action, polycomponential signs, and less complex verbs function as alternative resources that a signer can use to communicate a proposition.

Perhaps Ben Bahan, in his narrative about the bird raised by eagles, could have communicated that the bird crooked its head quickly and looked downward by using ASL signs, polycomponential signs, and grammar to combine those elements. However, it may be the case that Bahan himself may have objected to trying to use those devices to communicate what can be made clear by simply becoming the object—not to mention what others may have thought of such a depiction.

Acknowledgments

I would like to acknowledge my gratitude to three anonymous reviewers and the volume editors for their thoughtful and very helpful comments on an earlier draft of this paper. Additionally, I thank all those Deaf individuals who participated in this study as well as those who provided assistance throughout various portions of the study such as testing a pilot version of the production study and locating participants for involvement in the study. I also thank the administration and staff at the Western Pennsylvania School for the Deaf for all their help. All errors in this article are, of course, my own.

Appendix A. Participants

See [Tables A1 and A2](#).

Table A1
Part A participants

Participant	Gender	Age	DD/DH	Age of exposure	Deaf siblings	Completed education
A	Female	43	DD	Birth	1	Masters
B	Male	44	DD	Birth	–	Bachelors
C	Male	35	DD	Birth	3	Associates
D	Male	23	DD	Birth	1	Associates
E	Female	22	DD	Birth	–	2 years college
F	Female	40	DH	3	–	Masters
G	Female	47	DH	5	–	Masters
H	Male	34	DH	4	–	Bachelors
I	Female	34	DH	3	–	Masters
J	Male	47	DH	4	1	Masters

Table A2
Part B participants

Participant	Gender	Age	DD/DH	Age of exposure	Deaf siblings	Completed education
1	Male	35	DD	Birth	1	Associates
2	Male	36	DD	Birth	4	Associates
3	Female	46	DD	Birth	1	Associates
4	Male	34	DD	Birth	–	High school
5	Female	30	DD	Birth	1	Masters
6	Female	36	DH	5	–	Bachelors
7	Male	31	DH	5	–	High school
8	Male	54	DH	5	–	Associates
9	Male	35	DH	3	–	Bachelors
10	Male	56	DH	6	–	High school
11	Male	55	DH	5	4	Masters
12	Female	32	DH	7	–	Bachelors
13	Female	51	DH	5	–	High school
14	Male	45	DH	3	1	Masters
15	Male	32	DH	2	–	Bachelors
16	Male	36	DH	5	–	Associates
17	Male	45	DH	3	–	Associates
18	Female	54	DH	5	–	GED

Appendix B. Brief descriptions of the elicitation clips

A: seal on rock bobbing up and down and opening/closing its mouth as if calling out

B: woman walks down hallway and takes a drink from water fountain

C: ant carrying large leaf on back walks over rocky surface and into hole

D: lizard looks around while chewing and swallowing a large bug

E: lizard looks around as slowly walks away, its body twisting left/right with each step

F: snake uncoils and recoils while lifting head up/down and flicking tongue

G: smiling girl turns in a circle, opens arms wide, and then does a cartwheel

H: snake slithers rapidly sideways over the desert

I: ant flails legs as struggles upside-down with beetle

J: two small cylindrical robots (void of human characteristics such as a head, eyes, limbs, etc.) play, bumping into and interacting with one another

K: dog plays alone with stuffed toy and then barks at camera

L: bee lands on flower

M: boy walks toward store, opens door and enters

N: spider shifts back and forth moving legs and antennae

O: girl and dog play tug-of-war with stuffed toy

P: centipede crawls up and over rock

Q: man applies mortar and carefully places brick on wall

R: smoke billows out of a tall smokestack

S: shark catches and eats a fish

T: lizard catches butterfly with tongue and eats it

Appendix C. Example portion of recording sheet for Part B (judgment task)

MOVIE CLIP AFBB

1. How clearly did the signer portray the action of the person/animal in the movie clip?

NOT-CLEAR/VAGUE

MOST CLEAR

1

2

3

4

5

2. How correct was the portrayal of the action of the person/animal in the movie clip?

NOT-CORRECT

MOST CORRECT

1

2

3

4

5

Comments?

Appendix D. Additional figures



Fig. 1. Flat-O (polycomponential sign).



Fig. 2. (open) bent B-bar (polycomponential sign).



Fig. 3. CARRY/BRING (ASL sign).



Fig. 4. B-hs on bent V-hs (polycomponential signs).



Fig. 5. hooked 5 (polycomponential sign).



Fig. 6. V-hs on B-hs (polycomponential signs).

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