Homesign semantics

1.   Approximately 90% of deaf children are born to hearing parents. In some cases, parents or caregivers are unable or unwilling to acquire sign language, as a result of which the child might grow up with no exposure to a conventional public language. Nonetheless, these children can sometimes enjoy relevant communicative success by devising idiosyncratic gesture systems of their own. Most studies of so-called "homesign" phenomena focus on their syntactic and morphological properties, on the evidence they might bear of an innate grammatical capacity, or clues they might provide concerning early stages of language evolution. Less work has been done to shed light on the fine-structure of the homesign communicative process itself. In particular, there is surprisingly little discussion of whether individual homesign gestures have *meanings* – carry semantic content – in anything like the way that English words do.

This paper will attempt some modest first steps toward arguing that homesign is rightly reckoned a semantic phenomenon. This argument must combat deep-seated philosophical intuitions about what kind of phenomenon lexical semantics is and what sorts of cognitive capacities manifest themselves in the meaningful use of words. For instance, it is commonly argued in the post-Wittgensteinian tradition that an individual could not succeed in meaning anything by any word *w* unless there existed a public convention which determined the correct use of that word in his or her language community.[1] Differently motivated, but arguing to a similar effect, are the many thinkers within the post-Gricean tradition who hold that semantic content must, by its nature, be determined by arbitrary conventions holding within a body of speakers.[2]

It should be clear what challenge a semantic interpretation of homesign gestures poses to these views: contra the Griceans, there are no public conventions which govern the use of homesigns, since the gestures are the child's own creation, devised in the process of attempting, though often failing, to communicate. For the same reason, and contra the

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[1] Drawing on Wittgenstein 1953. For detailed formulations, see Kripke 1982: 89, Dummett 1978: 424-5, Wright 1980: 220, and Wiggins 1997: 522.

[2] Grice 1957; Lewis 1969; Schiffer 1972. Grice himself often adopts a more nuanced stance, as can be seen, for instance, from Grice 1982: 298.

Wittgensteinians, there are no antecedent public standards for determining correctness of use of a particular homesign gesture.

Semantic content is a highly theoretical notion. Accordingly, one might think that the challenge that homesign poses to the above conceptions of semantics would be of mostly theoretical interest. Often, however, semanticity is seen as manifesting an important, and distinctively human, cognitive capacity; e.g., a capacity for abstract or symbolic representation. It matters greatly to our understanding of the cognitive lives of these children whether they can be credited with this capacity, or whether they are denied it simply as a consequence of their lack of access to a conventional public language. I argue that evidence favors the conclusion that homesign communication constitutes a properly semantic phenomenon, although, as we shall see, a phenomenon that challenges common assumptions about what a communicative system must be like.

2. The decisive breakthrough in the study of homesign came with the demonstration, mostly due to Susan Goldin-Meadow and associates, that these sign systems display significant degrees of internal complexity. Specifically, homesigns differ from the gestures employed by infants at pre-linguistic stages in that they exhibit syntactic and morphological structure strikingly analogous to what we can recover from the utterances of hearing children with normal linguistic development. That is, a string of homesign gestures is not simply a sequence of unrelated segments. For instance, there is evidence of consistent functional word ordering: in contrast to English's *act–patient–recipient* ordering ("put the hat on your head"), homesigners robustly prefer the ordering *patient–act–recipient* ("the hat put on your head").[3] Further, each segmented sign is not an unanalyzable primitive, but can be modified according to its role in the sentential or phrasal construction, in ways analogous to how words in conventional languages are modified to mark them as adjectives, plurals, and so on. For instance, in a three-argument predicate such a ditransitive construction, a gesture which is ordinarily executed in "neutral" (chest-height) sign

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[3] See Goldin-Meadow 2005: 108.

space can be displaced in the direction of a particular object in order to mark it as occupying the patient role in the construction.[4]

It can scarcely be doubted that homesign belongs in the broad ambit of *human communicative phenomena*. While the degree and reliability of communication will vary with the patience and ingenuity of the interlocutors, these children would hardly persist in gesturing if they received no positive indication of interlocutor comprehension. The evidence of grammatical structure also strongly suggests that they should be classified as *linguistic phenomena*. What might remain an open question, nevertheless, is whether they should also be counted as involving *semantic phenomena*, i.e., whether the individual gestures employed by the children, considered as such, are meaningful in anything like the way that English words are.

3.   For a way to motivate a negative answer to this question, we could turn to Terrence Deacon's revival of the Peircean tristinction between *icon*, *index*, and *symbol*.[5] According to Deacon (1997: 70), "icons are mediated by a similarity between sign and object, indices are mediated by some physical or temporal connection between sign and object, and symbols are mediated by some formal or merely agreed-upon link irrespective of any physical characteristics of either sign or object." Symbols, then, are unique in being *arbitrary mappings of form and meaning*. In the whole of the natural order, the ability to deploy symbols for communicative purposes is a distinctively human cognitive capacity. It is not a trifling matter whether homesigners partake of this capacity or whether they are denied it as part of their lack of access to a public conventional language. For in the next instance, Deacon argues that semantic content is the exclusive provenance of symbolic communication, and that symbolism depends on public conventions: "when we say that something is a 'symbol,' we mean that there is some social convention, tacit agreement, or explicit code which establishes the relationship that links one thing to another" (Deacon 1997: 71). Iconic and indexical forms of communication do continue to play a significant supplementary role even in symbolic communication systems. But token icons and indices are not *meaningful* in the way that token symbols are. Considered as such, they are expressions of a very different, less evolved cognitive capacity.

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[4] See Goldin-Meadow 2005: 111-112.
[5] Peirce 1902. For an attempt to apply this tristinction to child language, see Golinkoff and Hirsh-Pasek 2000.

4.   Data to support a Deacon-inspired analysis of homesign communication are not hard to seek. Goldin-Meadow provides the following classification of kinds of gestures found in typical homesign:

> The children [observed in the study] produced three kinds of gestures. *Deictic* gestures typically were pointing gestures that maintained a constant kinesic form in all contexts. These deictics were used predominantly to single out objects, people, places, and the like in the surroundings. In contrast, *characterizing* or *iconic* gestures were stylized pantomimes whose form varied with the intended meaning of each gesture (e.g., a fist pounded in the air as someone was hammering; two hands flapping in the presence of a pet bird). Finally, *marker* or *modulator* gestures were head or hand gestures (e.g., nods and headshakes, two-handed "flips" in which the palm rotates from down to up) that are conventionalized in American culture and that the children used affirm, negate, or convey doubt. (Goldin-Meadow 2005: 68)

I will here set aside modulating gestures,[6] to focus on the remaining forms, which appear to fit neatly into Deacon's scheme of icons and indices. Thus, Goldin-Meadow's classification seems to support the following diagnosis: even though each child's gesture repertoire is idiosyncratic, the gestures typically remain bound to two kinds of forms; those that signify by pointing (the deictics) and those that signify by drawing a picture in the air (the iconics). Syntax and morphology aside, this observation could plausibly lead one to suspect that what is going on here is not semantics: the deictics can be accounted for in terms of directing the interlocutor's visual gaze toward particular objects in the shared environment, whereas the iconics belong in the ambit of pictorial representation rather than semantic representation. If this is correct, then the empirical data do not mandate our taking these gestures to have semantic properties, even though, in an important sense, they can be used in communication. These children, one might want to say, are pointing and they are drawing pictures. But they are not *saying* anything; they are not *expressing propositions* in the way that speakers of conventional languages are.

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[6] Crudely, they are not referential phenomena, in the sense that so captivates semanticists, but more like sentential operators ("yes," "no," "maybe"). Moreover, it is plausible that they are among the relatively few gestures that the children adopt from their social environment, and so fall outside the scope of the present argument.

Homesign, then, should not be counted as a manifestation of a semantic or symbolic capacity, since the individual gestures are not arbitrary mappings of form and content. By its failure of arbitrariness, homesign communication does not allow for the flights of abstraction that is a matter of routine in ordinary language use, but must remain tied to the here-and-now. Homesign succeeds in mimicking some important properties of full-blown conventional public languages, such as rudimentary syntactic and morphological structure, but not their semantic properties.

5.   As I will argue, however, this analysis focuses too much on the outward *form* of homesign gestures, failing to consider the full reach of their *use in real-time communication*. Closer examination of the data reveals that the restriction to deictic and iconic gestures is primarily a restriction on form, not on content. And as we shall see below, the separate question of why there should even be such a restriction on form will turn out to have a natural and intuitive answer, though one with deep and interesting consequences.

The first thing to note is that arbitrariness is a matter of degree. Even full-blown conventional sign languages such as ASL make extensive use of deixis and iconicity.[7] This does not mean that its individual gestures are not properly semantic, even in cases where their meaning can be traced to their form in fairly obvious ways. Moreover, the fact that signs are iconic in form does not mean that they are comprehended or processed as such by the signers who nonetheless make competent use of them.[8] An illustration of this fact can be found even in the simplest of deictic gestures. Deaf children acquiring sign language can commit pronoun reversal errors just like hearing children sometimes do.[9] That is, cognitively normal hearing children will sometimes refer to themselves by "you" and to the hearer by "me" or "I."[10] In English, this phenomenon is explained by the fact that the word forms "you" and "me" are arbitrarily related to their meanings. Children's early exposure to these words is typically in situations where "me" refers to the adult speaker while "you" refers to the child. It is striking,

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[7] For a classic study, see Frischberg 1975.

[8] As Michael Tomasello (2008: 147) points out, the gradual erosion of iconicity in conventional sign languages, the beginnings of a "flight to the arbitrary," can be traced back to children who competently acquire the sign and its meaning, but fail to realize how the sign's meaning is iconically related to its form.

[9] See Petitto 1987.

[10] For an overview, see Dale and Crain-Thoreson 1993.

then, that deaf children often make the analogous mistake in sign language, despite the fact that the relevant gestures are, one would think, transparently deictic – the gesture for "me" involves pointing to oneself and the gesture for "you" involves pointing to the hearer. These observations show that these gestures can function cognitively like arbitrary mappings of form and meaning just like words in conventional language do, in spite of their deictic form.

But ASL gestures, however much they may retain deictic or iconic form, are part of a fully conventionalized system of communication. In what ways does the communicative use of deictic and iconic homesigns allow for arbitrariness? For instance, following the train of thought sketched above, it would be natural to assume that deictic gestures are restricted to referring to concrete objects in the shared, perceptually accessible environment. This appears to be the case for the use of deictic gestures by pre-linguistic hearing children. Homesigns, however, are precisely not limited in this respect: homesigners make extensive use of displaced reference, typically by way of deferred ostension. In such cases, they may be *indicating* an object in the immediate environment, but *referring* to another, non-present object.[11] For instance, a child may refer to her absent father by pointing to the chair in which dad usually sits. This capacity for displaced reference is, as one might expect, delayed in deaf children, but follows a normal developmental trajectory after its onset.[12]

More impressive, however, are instances of what I will call *double displacement*. Where our first example involved reference to a non-present object by way of a deictic gesture in actual space, double displacement involves reference to an absent object by way of combining deixis and iconicity in a projected space. Essentially, the child iconically represents a non-actual spatial framework, and then refers to an object by its would-be location in that projected space. Thus, a child refers to her sled by a gesture indicating an imaginary wall space and a nail on that wall (indicated by hammering motion), this being the nail on which the sled usually hangs. This is reference at two steps' displacement, no longer indexed to mutually salient objects in the shared environment. The sled is referred to by its location, the location is referred to by iconically representing it in an imaginary space.[13] It is a complex gesture, but its meaning is simple: *sled*.

[11] For studies of displaced reference in homesign, see Butcher, Mylander and Goldin-Meadow 1991; Morford and Goldin-Meadow 1997.
[12] Goldin-Meadow 2005: 138.

[13] Goldin-Meadow 2005: 74.

With this, we see how homesigners' use of deictic and iconic gestures in real-time communication goes far beyond what we observe in pre-linguistic children[14] or in the gestures adults employ to supplement their spoken utterances.[15] These uses illustrate, I argue, a fundamentally semantic capacity at work. To the question, *does these childrens' use of signs mean anything, does it express propositions?* the natural answer seems to be "yes": a string of signs can express a proposition such as *I would like to go sledding, please*.[16]

6.   It seems, then, that homesigns, in spite of being predominantly deictic and iconic in form, allow for significant degrees of arbitrariness. It is natural to ask why there should even be this restriction in form, if their content can range beyond. There is a simple explanation for this, but an explanation that will require us to revisit some fundamental assumptions about how a communicative system is structured. The restriction to deictic and iconic forms does not reflect limitations on homesigners' capacity for symbolic representation – that is, their (relative) inability to introduce arbitrariness into their gestural systems –, but rather the exigencies of the communicative situation they find themselves in. In Goldin-Meadow's words (2005: 226): "the deaf children must keep their gestures grounded in the here-and-now and relatively transparent, or no one will understand them." While there is room for the introduction of significant arbitrariness in homesign systems, such arbitrariness must always be tempered by their interlocutors' capacity to comprehend. So far as these things go, then, the cognitive limitations lie not on the side of the language-deprived child, but on the side of her interlocutors.

We can model the situation on Clark's collaborationist account of discourse.[17] Clark describes a dynamic process where interlocutors, building on presumed common ground, will

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[14] See Tomasello 2008: 111-117.

[15] See Clark 2004: 379-381 on "concomitant" or "collateral" gesture use.

[16] Butcher et al., also report an observation of a child making systematic reference to his own gestures: "David appeared to be able to distance himself from his own gestures and treat them as objects to be reflected on and referred to, thus exhibiting in his self-styled gesture system the very beginnings of the reflexive capacity that is found in all languages and that underlies much of the power of language" (Butcher, Mylander, and Goldin-Meadow 1991: 329). They tie this development to what they describe as a "systematization of the lexicon": "At 3;3, however, David began to systematize his lexicon, changing it from a collection of gestures, each treated as a whole, into a system in which the component parts of each gesture contrasted in a meaningful way with the component parts of the other gestures in the lexicon. [...] In order to systematize his lexicon, David must have been able to treat his gestures as parts of a symbolic system. We speculate that it may be this same ability to distance himself from his gestures that allowed David to manipulate the contexts in which he produced his pointing and characterizing gestures so that his interlocutor could interpret those gestures as symbols for nonpresent objects" (ibid.: 331).

[17] Clark and Wilkes-Gibbs 1986; Schober and Clark 1989.

actively seek ways of boosting information flow by between themselves by using old words with new, context-specific meanings. Their usage thereby departs from what might be considered conventional in the language at large. In so doing, they will carefully monitor for interlocutor comprehension, and make the requisite adjustments where needed. Where there is no evidence of failure of comprehension, this new mode of expression will be added to the common ground for the next stage of discourse.

Something similar goes on in homesign communication. Starting out with simple deictic reference and iconic representation, homesigners can get increasingly adventurous with content over time, spurred on by evidence of comprehension at earlier stages, to the point where a bystander (the "overhearer" rather than the "addressee" in Clark's vocabulary) may no longer apprehend any connection between a gesture's form and its representational function in this particular conversational context. Thus, homesigners will retain the deictic and iconic gesture forms, just like discourse collaborators in Clark's experiments continue to use the old word forms rather than invent new ones. And just like there is no restriction in theory on the degree to which Clark's subjects can depart from what is considered conventional in the language at large, homesigners also can introduce an arbitrary degree of arbitrariness into their gesture systems, so long as their interlocutors show signs of comprehension.

7. In conclusion: homesign communication does offer a significant challenge to our ordinary conception of semantic communication. But the challenge is not best seen in terms of a failure of Saussurean *arbitrariness*, but rather in terms of a failure of Saussurean *bidirectionality*. The non-bidirectionality of homesign communication can be seen in the following: interlocutors strive to comprehend as best as they can, but are, for the most part, incapable of reciprocating in kind. They will use similar gesture forms, but with no grammatical structure and with few of the enhanced functions (e.g., deferred ostension, double displacement) that the children put into theirs. It is this failure of bidirectionality, not the childrens' lack of symbolic cognitive abilities, which limits their gesture repertoires to deictic and iconic forms, and which restricts the degree of arbitrariness they can introduce into their gesture systems.

Indeed, perhaps the most decisive evidence for my interpretation comes from seeing what happens when a number of homesigners are brought together over a longer period of time and the restrictions which follow from the lack of bidirectionality are lifted. We possess one detailed

account of such an event, namely that which precipitated the emergence of the Nicaraguan Sign Language (ISN). Freed from the limitations of interacting only with people whose primary communicative channel is a conventional language to which they had no access, deaf children in the Managua region of Nicaragua developed a full blown sign language from scratch over the course of a mere 10-15 years.[18] Homesigns played a crucial causal role in this development.[19] The early stages of the development of the ISN consisted essentially in a rich tapestry of pidgins of these various idiosyncratic homesign systems. The next stages – where the communicative system would congeal into a full-blown language – can be seen a creole emerging from these pidgins. But the basic gestural shapes evidenced in homesign systems are still recognizable in the ISN. We can see, if we will, the conventionalization process as a matter of speakers converging on a *code*, i.e., as settling on what a gesture is to mean in their mutual linguistic transactions *henceforth*. This, however, does nothing to suggest that these gestures had no meaning *hitherto*. In fact, the opposite is evidently true: they had meanings, only not conventional meanings.

Thus, the empirical evidence offers no reason to resist the conclusion that homesign manifests a symbolic cognitive capacity, or that homesign gestures carry semantic content in communicative contexts in ways relevantly similar to how the words of conventional languages do.

References:

Butcher, Cynthia, Carolyn Mylander and Susan Goldin-Meadow. 1991. "Displaced Communication in a Self-Styled Gesture System: Pointing at the Non-Present." *Cognitive Development* 6(3): 315-342.

Clark, Herbert H. and Deanna Wilkes-Gibbs. 1986. "Referring as a Collaborative Process." Reprinted in *Arenas of Language Use*, University of Chicago Press & Center for the Study of Language and Information, 1992.

Dale, Philip S. and Catherine Crain-Thoreson 1993. "Pronoun Reversals: Who, When, and Why?" *Journal of Child Language* 20(3): 573-589.

Deacon, Terrence. 1997. *The Symbolic Species: The Co-evolution of Language and the Brain.* New York: W.W. Norton & Company.

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[18] For an account, see Senghas 1995.
[19] See Kegl, Senghas, and Coppola 1999; Morford and Kegl 2000.

Dummett, Michael. 1978. "The Social Character of Meaning." In *Truth and Other Enigmas*. London: Duckworth.

Frishberg, Nancy. 1975. "Arbitrariness and Iconicity: Historical Change in American Sign Language." *Language* 51(3): 696-719.

Goldin-Meadow, Susan. 2003. *The Resilience of Language: What Gesture Creation in Deaf Children can Tell us about how all Children learn Language*. New York: Psychology Press.

Golinkoff Roberta M. and Kathy Hirsh-Pasek 2000. "Word Learning: Icon, Index, or Symbol?" In *Becoming a Word Learner: A Debate on Lexical Acquisition*. Oxford University Press.

Grice, H.P. 1957. "Meaning." Reprinted in *Studies in the Way of Words*. Cambridge, MA: Harvard University Press.

Grice, H.P. 1982. "Meaning Revisited." Reprinted in *Studies in the Way of Words*. Cambridge, MA: Harvard University Press.

Kegl, Judy, Ann Senghas and Marie Coppola. 1999. "Creation through Contact: Sign Language Emergence and Sign Language Change in Nicaragua." In Michael deGraff, ed., *Language Creation and Language Change: Creolization, Diachrony, and Development*, Cambridge, MA: The MIT Press.

Kripke, Saul. 1982. *Wittgenstein on Rules and Private Language*. Cambridge, MA: Harvard University Press.

Lewis, David. 1969. *Convention: A Philosophical Study*. Cambridge, MA: Harvard University Press.

Morford, Jill P. and Susan Goldin-Meadow. 1997. "From Here to There and Now to Then: The Development of Displaced Reference in Homesign and English." *Child Development* 68(3): 420-435.

Morford, Jill P. and Judy Kegl. 2000. "Gestural Precursors to Linguistic Constructs: How Input Shapes the Form of Language." In David MacNeill, ed., *Language and Gesture*. Cambridge University Press.

Peirce, Charles S. 1902. "Logic as Semiotic: The Theory of Signs." Reprinted in Justus Buchler, ed., *Philosophical Writings of Peirce*, New York: Dover Publications.

Petitto, Laura Ann. 1987. "On the Autonomy of Language and Gesture: Evidence from the Acquisition of Personal Pronouns in American Sign Language." *Cognition* 27(1): 1-52.

Saussure, Ferdinand de. 1916. *Course in General Linguistics*. Charles Bally and Albert Sechehaye, eds., Roy Harris, trans., La Salle, Il: Open Court. 1983

Schober, Michael F. and Herbert H. Clark. 1989. "Understanding by Addressees and Overhearers." *Cognitive Psychology* 21(2): 211-232.

Senghas, Ann. 1995. "The Development of Nicaraguan Sign Language via the Language Acquisition Process." In D. MacLaughlin and S. McEwan, eds., *BUCLD 19: Proceedings of the 19ᵗʰ Annual Boston University Conference on Language Development*, Boston, MA: Cascadilla Press.

Schiffer, Stephen. 1972. *Meaning*. Oxford: Clarendon Press.

Tomasello, Michael. 2008. *Origins of Human Communication*. MIT Press.

Tomasello, Michael. 2003. *Constructing a Language: A Usage-Based Theory of Language Acquisition*. Harvard University Press.

Wiggins, David. 1997. "Languages as Social Objects." *Philosophy* 72(282): 499-524.

Wittgenstein, Ludwig. 1953. *Philosophical Investigations*. Translated by G.E.M. Anscombe. Oxford: Blackwell.

Wright, Crispin. 1981. "Rule-Following, Objectivity, and the Theory of Meaning." In Steven H. Holtzman & Christopher M. Leich (eds.), *Wittgenstein: To Follow A Rule*. London: Routledge.