The Role of Iconicity in International Sign

by Rachel Rosenstock

WHEN INVESTIGATING INTERNATIONAL SIGN (IS), a communication system used by deaf people at international events, the issue of iconicity versus arbitrariness is even more central than it is in natural languages. Structurally, IS consists of a very limited, conventionalized vocabulary (Rosenstock 2004). In the past, IS has been described as a "zone of 'pure' or non-language stripped of grammar and artificial . . . rules, the only syntax being one of natural order" (Garretson 1990, 44). The frequent use of gestures, body language, and role-playing or enacting has been mentioned by interpreters or presenters who have used IS (Locker McKee and Napier 1999, gf). More formal descriptions of IS structures also report a high use of iconicity in their grammatical component (Locker McKee and Napier 2002; Rosenstock 2004). Since IS is mainly a naturally developed system with only a small vocabulary as a standardized basis, the notion of iconicity in syntactic structures is important in helping us to understand how IS conveys meaning. Research on iconicity and semiotics in spoken and natural sign languages provides a rich basis for an analysis of IS. This article shows the importance of iconicity in all IS structures, especially considering current issues in iconicity research.

In this article I outline the aspects of iconicity that are relevant to the present study and discuss some of the major issues that arise from theories proposed in recent years that are applicable to IS research. Data from an international deaf convention are used for an analysis and comparison of iconic structures in English and IS. I apply models proposed by researchers to structures found in English and IS and discuss the implications for the use of IS by interpreters in international settings.

Iconicity

Development of the Term

Charles Sanders Peirce was the first to define the term "icon" (from Greek eikon, "likeness") in reference to signs: "The likeness has no dynamical connection with the object it represents; it simply happens that its qualities resemble those of that object, and excite analogous sensations in the mind for which it is a likeness" (Houser and Kloesel 1998, 9).

For many years linguists did not concern themselves with the notion of iconicity in linguistic signs. Moreover, de Saussure (1966) rejected the notion of iconicity in single signs. He claimed that even if researchers chose to include gestures or pantomime in their study of signs, the fact that human communication is based on convention is more significant than the gestures intrinsic value (66). He noted that onomatopoeia and interjections could be used to prove his principle of arbitrariness wrong but explains:

Not only are they [onomatopoeic terms] limited in number, but also they are chosen somewhat arbitrarily, for they are only approximate and more or less conventional imitations of certain sounds (cf. English bow-bow and French ouaoua). In addition, once these words have been introduced into the language, they are to a certain extent subjected to the same evolution . . . that other words undergo: obvious proof that they lose something of their original character in order to assume that of the linguistic sign in general, which is arbitrary. (69)

In subsequent years, various linguists have used language data to propose different

perspectives on the degree of iconicity in language. In recent years, the recognition of sign languages has contributed an additional, important point of view on the established theories.

In his philosophy of signs, Peirce distinguished between two main types of icons, those that consist of images and those that consist of diagrams (Peirce 1960, 158). A number of linguists have suggested that a diagrammatic iconicity in a Peircean sense applies to grammar (Bloomfield 1933; Bolinger 1968). Among others, Dolinger (1968) argues that any form in language, be it a single sign or a more complex construction, can correspond to only one meaning. He demonstrates that English sentences that are different in only small ways ("To wait would have been a mistake" vs. "Waiting would have been a mistake," [ibid. 124]), albeit related senianticaUy, have distinct meanings and are not derivatives of each other. In his book Meaning and Form (1977), Bolinger generalizes: "Any word which a language permits to survive must make its semantic contribution; and the same holds for any construction that is physically distinct from any other construction. It reaffirms the old principle that the natural condition of a language is to preserve one form for one meaning, and one meaning for one form" (ix).

Peirce explains that there does not need to be a sensuous resemblance between an object and its sign but only an analogy between the relations of the parts, particularly in cases of conventional rules as structuring entities (Peirce 1960, 158). Haiman (1980) lists several cases in which iconic principles motivate not only syntactic but also pragmatic choices, namely the correspondence between the chronological order of events and the narrative sequence (528), the morphological marking of familiar and polite pronouns as an iconic expression for the distance between interlocutors (530), and reduplication as an expression of plurality, repetition, or intensification (ibid.). Until the early 19608 signed languages were believed to be based entirely on iconic gestures and pantomime. These beliefs were widespread among not only laypeople but also linguists (see Lane 1992 for discussion). William Stokoe was the first to recognize that sign languages have, at least in part, a set of rules much like spoken languages. With the publication of the Dictionary of American Sign Language (Stokoe, Casterline, and Croneberg 1965), more linguists turned toward sign language in a quest to prove how spoken and signed languages are either similar (and thus sign language is arbitrary, like other linguistic systems) or different.

Several researchers were "reveling in its multifarious manifestations, excited by the differences between signed and spoken languages" (Taub 2001, 37). In particular, DeMatteo (1977) and Mandel (1977) were early supporters of a theory that included iconicity, and both proposed systematic analyses of the phenomena that pertained to iconicity that were unique for signed languages.

In subsequent years, many researchers have proposed a more balanced view (e.g., Klima and Bellugi 1979; Armstrong 1983) and have argued that "signed languages and spoken languages differ with respect to the arbitrariness between sign and referent as a matter of degree and not of kind" (Armstrong 1983, 54). To reconcile the proposal that sign language includes aspects of both arbitrariness and iconicity, more detailed studies were required to resolve the structural implications of such a claim. While the early supporters of the theory offered some structural analysis, it was not until recently that frameworks for the analysis of iconicity in syntax became available to researchers. Brennan (1990) for British Sign Language (BSL), Engberg-Petersen (1993) for Danish Sign Language, and LiddeU (1990, 2003), Wilcox (1993, 2000), van Hoek (1996), and most extensively Taub (2001) for ASL have offered detailed structural analyses. Taub (2001) has enumerated and classified various ways in which sign languages can be iconic. Figure 1 shows her subject headings, but readers should refer to her book for a more detailed discussion.

These different iconic devices in signed languages pertain to both the lexical and the grammatical (i.e., diagrammatic iconicity). The myriad ways of expressing something iconically

in sign language is evident in the many visual representations that are possible only because of the three-dimensional signing space and the additional temporal dimension.

Selected Issues in the Research on Iconicity

In this section I introduce three issues discussed in the current research that are particularly applicable to an analysis of iconicity in IS. Naturally, the scope of this article does not allow an exhaustive review of die literature on these topics. However, I provide a theoretical basis for an analysis of the role of IS iconicity and the organization of IS interpreted discourse.

Degree of Iconicity and Level of Application

Givón, in his 1985 article, nicely summarizes the scope of the application of iconicity to various levels of discourse. He emphasizes that iconicity occurs not only at the lexical level but also in both prepositional semantics and discourse: "Iconic coding may manifest itself at the concept or lexical level, as in pictographic writing. It may manifest itself at the propositional level in the coding of states and events or their sequential concatenations. Or it may manifest itself at the more complex, abstract level of various discourse-pragmatic functional domains" (189).

Prior to Givón's proposal of iconicity as a part of all levels of language, more abstract parts of grammar were often considered not iconic enough to fit into any model. He states: "I think to dismiss the systematic isomorphisms shown at this level of the grammar as somehow 'not really iconicity' would be the height of orthodox folly" (ibid., 213). Indeed, Givón's work both preceded and united a myriad of research on iconicity on all levels of language-in literature, as well as in diachronic and synchronie linguistics (see Fischer and Nanny 2001 ; Simone 1995).

In addition, an important aspect in this unifying work is the recognition that there are no clear-cut boundaries between icon and symbol. Within his category of icon, Peirce distinguished between different levels of abstraction, namely the image, the diagram, and the metaphor: "Those [iconsl that partake of simple qualities . . . are images', those which represent the relations, mainly dyadic, or so regarded, of the parts of one thing by analogous relations in their own parts, are diagrams; those which represent the representative character of a representamen [object] by representing a parallelism in something else, are metaphors" (1960, 157).

Givón takes this gradual process even further by proposing a scale between the simplest form of icon (image) to symbol (1985, 214). He emphasizes that while images include concrete, low-level details, symbols are used to create a more general, whole representation (ibid.). Givón's work, much of which is still valid even from today's perspective, broadens the usage of the term and concept of iconicity and succeeds in unifying different, sometimes even opposing, ideas into one, cohesive model. This holds both for the different levels of language (lexical, semantic, pragmatic) and for the gradience of the level of abstractness.

While Givón describes iconicity on all three levels of language, it is widely recognized that lexical iconicity in spoken languages is limited to onomatopoeia and exclamations (see de Saussure 1966). This is not the situation for signed languages, however, which in general exhibit not only a rich semantic and pragmatic iconicity but also a fairly significant number of lexical iconic signs. According to Taub (2001), "It turns out, of course, that the vast majority of concepts are not closely enough associated with a sound image. . - . For this and other reasons, iconicity is less common in spoken than in signed languages. There are fewer concepts that are appropriate for iconic representation in the spoken modality" (66).

Taub concludes that the disparity between spoken and sign languages, which in the past has been attributed to the inferiority of iconic signs, might well be grounded in the modality (ibid., 67). Cuxac (1999), in his work on French Sign Language, notes that the degree to which sign languages are iconic in both lexicon and syntax strongly supports Langacker's (1987) notion of

a more direct correlation between language and cognition (184). This also underlines Givón's notion that iconicity in language is interwoven in a complex system (1985). Taub (2001) mentions various areas of sign language syntax in which the loss of iconicity seems highly unlikely due to the interconnectedness of grammatical convention and iconic motivation. She names the classifier system, pronoun system, and the inflections of the verb system, among others. These are also described in detail in Liddell (2003), who frames them in terms of their iconic, conventionalized nature and their direct reflections of the happenings in the "real world" (see the discussion on pronouns in ibid., 78ff).

Competing Motivations

In investigating the levels of iconicity, one must consider what motivates the degree of arbitrariness or iconicity of a certain construction. Haiman (1983), in his article "Iconic and Economic Motivation," proposed opposing factors that influence both the choices a speaker makes and the way in which the grammar develops. He suggests that two competing motivations-one iconic and one economic-are responsible for most of the different forms of grammatical constructions (571). Economy governs the structure of language on the conceptual dimension. Haiman quotes Zipf's (1935) "principle of least effort," which is evident in the lexicon of most languages: "The lexical structure of all languages will reflect those semantic domains with which their speakers are most familiar: in those domains, words will tend to be short and semantically opaque. In less familiar domains, words will tend to be semantically transparent, or iconic" (ibid., 802).

According to Haiman, this principle can bring about either harmonic constructions that on the surface appear iconically motivated (see ibid., 808, for examples of coordination reduction) or constructions that, because of competing motivations, seem arbitrary (ibid., 809). Another possibility is that the two principles (i.e., iconic and economic) compete, and only one "wins." Haiman demonstrates this by pointing out that some Papuan languages fail to undergo reduction when it seems economically more sensible and instead adhere to the iconic motivation (ibid., 813). He concludes that, while languages at first might tend to be naturally more iconic, "limitations on such iconic motivation arise as a consequence of the need for generalization" (ibid., 816). Haiman (1980) illustrates this contention with the taboo languages and everyday languages in Australian languages, which demonstrate that an iconic motivation of grammar and vocabulary has to give way to more abstract and opaque structures in the more frequently and widely used everyday language.

Givón (1985) further proposes that competing and conflicting motivations have their source in the different levels of iconicity-lexical, semantic, or pragmatic principles-rather than in economic considerations alone. He maintains that the different word orders that languages exhibit can be traced to either a semantic iconicity (figure-ground, perceptual-saliency oriented) or a pragmatic iconicity (task-urgency oriented). Since both factors are natural sources, the outcome of the competing motivations cannot always be predicted (See Givón 1985, 212). Simone's (1995) work on pragmatic iconicity (especially on utterances as tools for actions) underlines the necessity of realizing that both economic and iconic considerations influence linguistic forms and patterns. She argues that, while economic factors enable us to communicate effectively in creating larger, more abstract categories, it is only through the diagrammatic iconicity of utterances that an action can follow (167).

In a later article Givón mentions a third type of motivation for the evolution of arbitrariness and iconicity in language (1995). In demonstrating parallels between linguistic and biological systems in terms of their iconic aspects, he reasons that, when analyzing language, we must have an understanding of human beings' underlying cognitive and neurological abilities (ibid., 67). Armstrong (1983) and Stokoe (1980, cited in Armstrong 1983) explain why iconicity should be more prevalent in signed languages than in spoken languages. They agree that the auditory input is much less detailed in its contribution to a mental representation of our

surroundings. It is mainly the visual receptors that contribute to our worldviews or mental pictures (Armstrong 1983, 56).

Taub also proposes that human beings' biological foundations are a motivating factor for the degree of iconicity of a linguistic system: "Language, in any modality, is motivated-it draws on structures and associations in the language user's conceptual system. Iconicity, a feature of all languages, is based on our ability to associate sensory images with concepts, simplify those images, and create analogues of them using the resources of the language" (2001, 231). Thus, the degree of arbitrariness in a linguistic structure is motivated not only by iconic and economic considerations but by biological and neurological aspects as well.

Child Language Development and Language Universal

Dan Slobin (1985), in his article on the universality of different principles of iconicity in child language, notes that children of many different linguistic backgrounds share numerous concrete syntactic features based on iconic motivation. He describes children's preference for a separate negative marker in a variety of languages, namely English, Polish, Turkish, Japanese, and Hungarian (ibid., 223). However, apart from analyzing various other areas, Slobin observes-among all children in all cultures and languages-that youngsters have a tendency to make their idiosyncratic language system simpler than that of the community by applying more iconic principles than the adult language accepts (ibid., 229).

Researchers have also observed this tendency in ASL, albeit to a lesser degree than expected. In a comparative study of the role of iconicity in different communication systems, deaf children acquiring ASL used a more iconic representation than the intended target in only 25 percent of their errors (as judged by native adult ASL users) (Morford, Singleton and Golding-Meadow 1993, 246). Orlansky and Bonvillian (1984) investigated the effect of iconicity on the speed of sign language acquisition. Their results suggest no advantage for a child if a conventional sign has a high degree of iconicity, but they state that parents observed their children using pantomime and gestures with a strong resemblance to the referent when the children had not yet mastered the ASL sign for the concept (ibid., 290). This indicates that, left to their own devices, children utilize a more iconic representation of referents (if not fully iconic). This was also observed in the investigation of other communication systems conducted by Morford, Singleton and Goldin-Meadow (1993).

Homesign systems tend to be highly iconic in nature, especially in the handshapes. Morford, Singleton and Goldin-Meadow (1993) noticed that home signers used handshapes that were not part of their normal repertoire in order to more iconically describe objects presented in their study (ibid., 248). At the same time, home signers have a more abstract representation of referents, which they categorize for either shape and form or for usage (ibid.). This contrasts with the last group they studied: novice signers (hearing children with no exposure to sign communication systems). This group, who successfully relied on iconicity to establish a relationship between their gesture and the referent, failed to categorize and group specific objects of semantic closeness (ibid., 7). Studies have shown that adult groups of hearing nonsigners, when confronted with having to sign, show an ability not only to develop iconic signs and gestures but also to use basic classifiers, pronouns, and special loci (described in Taub 2001, 226). What is the implication of this tendency to create a complex syntax and a limited but working vocabulary based solely on iconicity?

Reliance on iconicity at both the lexical and the syntactic level shows how ingrained the principles are in cognitive processing. This helps to explain how deaf people are able to establish both spontaneous and more conventional systems across linguistic borders with rapidity and ease (ibid., 225).

Data

The data used for this analysis were recorded at Deaf Way II, a convention on Deaf culture that took place in July 2002 in Washington, D.C. The recorded lectures were given in ASL and then translated into voiced English. From this English source text, interpreters translated into International Sign Language. Altogether, eight lectures were taped. For this research, segments from two of these lectures were randomly chosen.

Five minutes of Lecture A, titled "Deaf Women United," and five minutes of Lecture B, titled "Deaf Entrepreneur ship" were transcribed and glossed (see the appendix for glossing conventions). The IS glosses were made before listening to the English source text in order not to bias the transcription. Meaningful units of the source text were matched with corresponding units of IS translations. Omissions, additions, expansions, and reductions were noted. Syntactic structure and lexical items in both texts were compared in order to identify structural choices the interpreters made in their translation from English to IS. In the examples presented in this article, the English transcripts are labeled AE and BE, and the corresponding IS transcripts are labeled AIS and BIS.

Interpreter A is hearing, and a native user of BSL. She is a professional interpreter and has more than twenty years of experience interpreting IS. Interpreter B a native signer, and a professional interpreter of Auslan and BSL and has interpreted at numerous international events.

Analysis and Discussion

The notion that iconicity and economy are competing on the discoursepragmatic, syntactic, and lexical levels is the basis for this analysis of IS and English data. One can expect the temporal limitations of an interpreting situation to control many choices at the discourse-pragmatic level. While in a free text, an IS user can elaborate on concepts and repeat units as many times as necessary, in the situation analyzed here, the IS text has to be produced so as to approximate the English source text in production time. At the same time, the information contained in the source text should be conveyed as completely as possible.

In the following sections the examples of structures on the aforementioned levels of language illustrate these competing motivations. The distinction between the levels is not always clear-cut. Expansions of single English lexical items into longer IS phrases does not necessarily reflect the lack of a corresponding sign in IS. It may instead indicate discourse-pragmatic choices such as a suspected lack of knowledge of the topic or the IS interpreters attempt to bridge cultural differences. The general distinction of a syntactic level and a discourse-pragmatic level might seem artificial since, as I mentioned earlier, IS lacks a standardized grammatical system. The patterns that are included in the syntactic category are limited to a short, meaningful unit of several signs or words and signal changes that the IS interpreter makes in this domain. In the transcriptions and examples, the lexical level is marked with italics, the syntactic level with bold, and the discourse-pragmatic level with bolded italics.

Lexical Level

On the lexical level, English has several thousand conventionalized units available to express meaning. On the other hand, IS is limited in its conventional choices to only a few items. In the comparison of IS and English text, several techniques to bridge this discrepancy are evident.

Substitutions

Some of the substitutions found are simplifications of conventionalized English items into conventionalized IS items. This technique appears in various places, as the following examples illustrate:

EXAMPLE 1.

"needs" "conference"

PROBLEM MEETING

In some instances, one sign can represent different lexical items in English:

EXAMPLE 2.

"business"

"organization"

GROUP

In addition, IS substitutes a superordinate term, GROUP, for several subordinates that are instances of the same category in English. The assumption that IS generally uses superordinates that are schematic in their representation to substitute for subordinate and more specific instances in the source language seems logical, but another substitution, shown in example 3, suggests a different analysis:

EXAMPLE 3.

[H]ow do you get financial resources? (BE, line 1)

MONEY GET-PILE PAYMENT POiNT WHAT? (BIS, line 2)

What are the sources available to you? (BE, line 4)

PRO. 1 THNK WHAT WORK MYSELF WHAT? (BIS, line 3)

. . . Who were at-home moms . . . (AE, line 45)

ME WHAT? (AIS, line 46)

In example 3, the English relative and interrogative pronouns "who," "what," and "how" are all translated with IS WHAT. Hale (1992), in his article on Damin, an auxiliary language of the aborigine community of Lardil in Australia, describes a similar phenomenon. In Damin, which is used exclusively by initiated men, the broad vocabulary of Lardil is replaced by a total of two hundred lexical items. Hale describes the lexicon of Damin as being maximally abstract, yet at the same time sufficiently expressive: "The Damin lexicon must achieve a balance between abstraction and expressive power, since it must satisfy two essentially contradictory requirements. It must be such that it can be learned quickly and, at the same time, it must be such that it can be used, in cooperation with Lardil inflectional morphology and syntax, to express any idea which Lardil itself can be used to express" (ibid., 40).

The examples of Damin resemble the techniques employed in IS. Damin uses superordinate terms to describe concrete items in Lardil ("domestic animals" instead of specific vocabulary such as "dog," "horse," or "cattle") and then utilizes compounding to specify beyond the superordinate level. Damin also simplifies complicated domains (e.g., pronoun or kinship systems) and substitutes more abstract, schematic terms (e.g., "ego" and "alter" replace a system of nineteen distinct pronouns). The use of WHAT in IS to replace a group of relative or interrogative pronouns in the source language is comparable to this mechanism in Damian.

Another kind of substitution is equal in phonological material but makes use of metaphors. For example, HEART-GROW and LEARNGROW ("self-esteem" and "learn," respectively) use location (the chest represents feelings, and the head represents knowledge) and movement (a

"growing" movement to indicate an increase)-something that the English lexical items do not exhibit. The fact that the IS interpreter uses these constructions reflects the underlying assumption that the movements and locations are iconic in all cultures and can be understood in a metaphorical construction to represent abstract concepts.

The English phrase "recognize their work" also uses iconic means to convey an abstract concept. The IS interpreter signs LIFT-HAT, which metonymically represents the concept of "recognition." This is clearly a culturally motivated sign that is iconic only to those who share the cultural knowledge that lifting one's hat conveys respect.

Most of the substitutions found in these data seem to have been made for economic reasons. When an English term is substituted for a simpler, conventionalized IS term, specific information can get lost. On the other hand, the temporal constraints regulate the number of additions and omissions. If a substitution is possible, the interpreter seems to choose a simplification over an expanded explanation of the intricacies of a lexical item.

Repetitions

Another strategy on the lexical level is the repetition of signs in more than one form. Only Interpreter A used this technique. The English concepts "afternoon," "establish," and "proud" were each signed in two ways. In two of these three cases the first sign is identical to the ASL sign for the concept. In terms of the neutral nonmanual signals, the repetitions are not repairs of the first sign.

Moody (2002) observed that IS interpreters working in specific countries try to incorporate national conventional signs into their signing. The repetitions found in lecture A may be a reflection of this. In two of three cases, the first sign is also an ASL sign, despite the fact that both interpreters are BSL natives. In a broader perspective, the repetitions may signify the interpreter's attempt to reach as many audience members as possible. Using different signs to show the same concept might achieve a greater overall understanding.

Reductions

Several longer phrases in the English text are reduced to shorter constructions in the IS translation. An example of this is the use of the conventionalized IS sign INVITE for the English phrase "to become part of" or CONNECT for "go online."

The metaphorical use of the up-down axis for several English phrases occurs at different places in lecture A. For example, "improve the quality of life, "enhancing the life," and "better the quality of life" are all expressed with an upward movement of the hands in front of the chest (LEVEL-UP++).

In some cases, reductions may be the result of the temporal constraint, which limits the use of phonological material. The data show reductions at the lexical level only when English phrases or expressions are used that correspond roughly to conventionalized IS signs. The sign LEVEL-UP, which uses the up-down axis to show improvement, demonstrates this. Since this sign is used to correspond with a variety of English phrases, we can assume that it is part of the conventionalized lexicon or at least that it is part of the established lexicon for this particular context. While the general meaning is maintained, the quantity of phonological material is reduced.

Expansions

Many lexical items in English are expanded into phrases in IS. In most cases, specific aspects of a word's semantic frame are represented in an iconic manner. The selection of different aspects of the semantic frame is based mostly on the context of the lexical item in the sentence or discourse. For instance, the concept "loan" is translated differently in two different

contexts:

EXAMPLE 4.

"Or you get a loan from a government program" (BE, line 7)

ASK WRITE LIST CIVE-THEM

ASK THEM THEY-GIVE-PAYMENT (BIS, line 9)

ASK POINT S-B-A WAIT THEY-GIVE-PAYMENT

WORK++ PAY-BACK++ (BIS, lines 18-22)

In the first translation, the application process is emphasized; in the second translation, the entire process of obtaining a loan, working, and repaying it is conveyed. This type of expansion uses a surrogate person's actions to convey a concept that is expressed nominally in English. The same principle is used in IS in expressing the concept "small-scale manufacturing": MAKE CLOTHES CLIMACHINE-SEW CLIHAND-SEW HAMMER LIST-SEVERAL.

Another kind of expansion is evident in the IS translation of the English "developed countries." Here, IS uses a descriptive phrase with more elaboration of the meaning of "developed": WORLD AREA MONEY RICH PERFECT. "Member" is conveyed in the same manner: PERSON PANEL WORK IN PANEL.

In this category, the focus shifts from limiting phonological material to ensuring understanding. The interpreter expands or paraphrases English words in order to give the audience full access to the concept in the context of the lecture. The immediacy of these expansions is apparent in the translation of "loan" (see earlier). While in the first translation, the IS interpreter emphasizes the initial phase of the lending process, the second translation includes all of the steps in the process (requesting, receiving, working, repaying). The IS interpreter is constantly under pressure to assess the relevant aspects of a certain concept and then create a representation that is short (thus adhering to temporal constraints) and clear (thus conveying the content of the lecture).

Syntactic Level

On the syntactic level, IS exhibits various patterns that are different from the English source text. As explained previously, some of the techniques described in this section also pertain to the discourse level. The decision is based on the scope or the function of the change in the IS text. For instance, IS users often string together lexical items without any syntactical markings, thereby leaving the audience to infer relationships between the lexical items. In this transcription, unit boundaries, sentence types, and several other inferences were made by observing the IS interpreters' use of nonmanuals.

Reduction of Fixed Phrases

One technique that interpreters use to reduce lag time and match the source and target text on a temporal level is to delete or reduce fixed phrases. Phonologically long passages can be reduced to single signs or short phrases with the same content:

EXAMPLE 5.

"What we are going to do today is . . ." (AE, line 1)

NOW WHAT? (AIS, line 1)

EXAMPLE 6.

"In underdeveloped countries, those opportunities are few and far between" (BE, line 14)

WORLD AREA POOR, MONEY WHAT, PRO WHAT (BIS, line 26)

These reductions clearly show the focus on delivering the content of the message rather than staying faithful to form or structure (see Seleskovic 1978 and Metzger 1999 for discussion).

Rhetorical Questions

Both sets of data show the use of rhetorical questions in IS instead of English relative clauses or declaratives. In example 7 a relative clause is translated as a rhetorical question in IS:

EXAMPLE 7.

"I want to talk about what DWU is all about." (AE, line 5)

DISCUSS WHAT? DEAF WOMAN GROUP WHAT? (AIS, line 5)

Example 8 shows an English declarative translated into a rhetorical question. The context of the IS phrase lets the audience deduce that WHAT refers to "opportunities":

EXAMPLE 8.

"In underdeveloped [countries), those opportunities are few and far between" (BE, line 14)

WORLD AREA POOR MONEY WHAT? PRO WHAT? (BIS, line 26)

Classifiers

In IS, classifiers replace prepositional phrases in English (a phenomenon that occurs in many full-fledged sign languages as well):

EXAMPLE 9.

"We get women representatives from all over the U.S." (AE, Une 13)

PANEL CL:1-PERSON AMERICA CLIALL-OVER CL:1-PERSON GO PANEL (AIS, line 18)

This technique allows an iconic rather than an abstract representation of the relationship.

Simplification of Complex Phrase Structure

The data show several instances in which complicated sentence structures are simplified and rearranged. The term for this practice is parataxis.

EXAMPLE 10.

"A grant could once again be given through the government" (BE, line 16)

GOVERNMENT MAYBE SMALL PAY (BIS, line 30)

In one case, a negative conditional in English is translated as a positive conditional ("We may not have time" becomes ME TIME [displaying a specific nonmanual marking]). In some instances, the order of information is also changed. I don't think more examples will be necessary-they really do make the same point . . . Whether these are conscious choices by the IS interpreter or consequences of online processing cannot be deduced from the instances observed here.

Discourse-Pragmatic Level

On the discourse-pragmatic level, the data demonstrate many techniques that are anecdotally described for IS (e.g., general coping mechanisms such as omissions or additions) (see Locker McKee and Napier 2002). I briefly describe the techniques found in the data and give an example for each one.

Omissions

Both Interpreters A and B omitted a substantial portion of the English source text. These omissions are underlined in the English texts. Generally, the omitted information is not crucial to comprehension of the lecture. The majority of omissions are more detailed elaborations on basic concepts or additional background information. In the following examples, the marked passages were omitted in the IS translations:

EXAMPLE 11.

"We are a fairly new organization, which was established in 1985." (AE, line 15)

"Those opportunities are few and far between, as my researchjhows." (BE, line 14)

In Lecture A, numerous omissions are related to the use of proper names. The English source text includes a list of seven proper names and states. Interpreter A included the states but not the names.

In only a very few instances was information omitted that was crucial to the understanding of the overall meaning of the lecture. In Lecture A, lines 37 to 39, the English source text describes the history of Deaf women in Ohio and its relevance to the DWU. The IS interpreter omitted lines 38 and 39. Without this information, however, line 37 must have seemed displaced to the international audience:

EXAMPLE 12.

"And there's a rich history of Deaf women in Ohio (AE, line 37)

that's not only important for Ohio but all of the United States. (line 38)

I lost track of it today but was there, too." (line 39)

ALSO MY HOUSE AREA O-H-I-O HOUSE AREA (AIS, line 41)

The same kind of partial omission occurred in Lecture B in lines 32 to 35. In these cases, the audience is privy to only part of the information and might not be able to comprehend it without more of the context.

Addition of a List

Both interpreters used the addition of a list to structure information that, in the English text, was presented as an enumeration. In both instances, the first item was explained and connected to a placeholder on the nondominant hand after the fact. For the other items, the placeholder was indicated before an elaboration on the item. In Lecture B, different options were translated into items on a list:

EXAMPLE 13.

"your own savings ... or you get a loan . . . or, for example, from the SBA." (BE, line 5-8)

[. . .] PILE GROW. LIST-ONE OR LIST-TWO MAYBE YOUR GOVERNMENT [. . .] LIST-THREE HERE AMERICA S-B-A (BIS, line 6-10)

In Lecture A, a long list was added in lines 23 to 35. Because the list included eight items, both hands had to be used in order to include all of the items. The first item was connected to the placeholder only after it was mentioned. The other referents were introduced before being linked to a placeholder. The first five items were shown on the nondominant hand. The referents for the last three items were added on the dominant hand.

Use of Surrogate Space

Both interpreters frequently used surrogate spaces to illustrate or explain concepts that are impersonal in English. In the IS data, PRO.1 was used almost exclusively as the generic person (I refer to this as a "personal generic"). English, the source text, used "you," the secondperson singular, as the generic. In some cases, this generic was translated into IS. In example 14 the interpreter first chose YOU and in the same sentence switched to the generic:

EXAMPLE 14.

"You might think about setting up your own business." (BE, line 2)

YOU WANT PRO. 1 WORK SET-UP MYSELF (BIS, line 1)

The neutral nonmanuals suggest that the use of both YOU and PRO.1 as generics in the same sentence is based on the online processing that simultaneous interpreting requires. Interpreter A used the personal generic PRO.1 even more consistently than Interpreter B:

EXAMPLE 15.

"how you can become part of DWU" (AE, line 6)

WANT INCLUDE PRO.1 (AIS, line 9)

The distinction between the personal generic and a personal pronoun is not always obvious. This is an interesting aspect for future investigations on the comprehension of IS interpreted data.

Apart from the use of a personal generic that could be interpreted as a surrogate, several concepts that can be expressed in conventionalized items are "acted out" in IS:

EXAMPLE 16.

"Secondly would be crafts, you know, typical artwork, making small handicrafts." (BE, line 40/41)

MAKE FIX++ HAMMER POINT CL:SET-UP DOLLS YOU LOOK BUY++ EXCHANGE (BIS, line 54-56)

As the IS translation shows, the IS interpreter conveys the concept of artwork or handicrafts with the use of a surrogate acting as if producing these items.

Use of Token Space

This limited set of data shows only a partial use of token space. In Lecture A, the board of the DWU is set up in neutral space in front of the interpreter and is used in subsequent constructions. In line 4 (AIS) PANEL is used the first time. In lines 13, 18, and 36 it occurs again in the neutral space, and classifier movements end at the location. In line 20 the basic sign PANEL appears in a more complicated construction. The interpreter refers to single members of the board and uses the nondominant hand to sign PANEL and the dominant hand to point to the single fingers of the sign. This construction clearly shows the flexibility and

retention of tokens.

In Lecture B the interpreter sets up two concepts as tokens. To her left, she indicates developed countries and to her right, developing countries. After setting up the concepts in line 40 (BIS), the interpreter exploits the token spaces to contrast and explain properties of both items. The utilization of tokens in this instance reduces production time and allows for a more visual representation. In line 50 (BIS) the IS interpreter translates the following English text into IS:

EXAMPLE 17.

"In developing countries the types of

businesses are much more limited." (BE, line 37)

POINT-rt (head-shake) roiNT-lft (head-nod)

POINT-rt (head-shake) NO SO-SO (BIS, line 50)

The IS interpreter had previously established the concept of "types of businesses" as the topic for an entire section. The addition of a token space demonstrates how tokens can support the interpreter's organization of concepts.

Repetition

The IS text shows several repetitions that are not translations from the English source text. One type is the repetition of the topic of a paragraph at the end of the unit:

EXAMPLE 18.

CL:GROUP-OF-PEOPLE EXCHANGE GOOD (AIS, line 56)

REGULAR WOMAN GATHERTHINK EXCHANGE (AIS, line 58)

MEET-PERSON HELLO++ AND-SO-ON

CONNECT++

WANT REGULAR ALSO MAYBE CONCEPT

WANTTELL-ME LEARNTELL-ME LEARN + + LEARN-GROW

PEOPLE WOMAN DEAF LIFE EXCHANGE (AIS, line 63)

This sort of repetition might be necessary because of the lack of syntactical connectedness of the concepts in a paragraph. By introducing the concept, expanding on it, and then repeating it, the interpreter ensures that the audience understands that the expansion still belongs to one topic. This discourse-pragmatic device might be a means by which IS interpreters can connect ideas within a longer sequence.

Another time, Interpreter A adds information to a sentence that had been introduced earlier in a different context. In the source text in line 20, the lecturer introduces herself as being from Ohio (translated in IS in line 23). Later, in line 37, she again refers to Ohio but in a different context:

EXAMPLL 19.

"And there's a rich history of

Deaf women in Ohio" (AE, line 37)

ALSO MY HOUSE AREA O-H-I-O (AIS, line 41)

In the IS translation, the interpreter refers to the fact that the lecturer herself is from Ohio instead of translating only the information given in the English sentence.

Discussion

Interdisciplinary research is one of the pillars in the study of semiotics and iconicity. The contributing areas of philosophy, linguistics, literature, psychology, and biology, for example, pose challenging questions to the researcher applying the theoretical framework of iconicity to an undescribed communication system. As demonstrated earlier, the development of the general field has profited enormously from a lively discussion about various aspects of the degree of iconicity, level of application, motivation, and so on, and more insights will undoubtedly be gained from future research on signed languages around the world. While Taub's (2001) in-depth analysis of iconic and metaphorical devices in ASL reveals principles and phenomena unique to ASL, more research on other signed languages and on theoretical implications is necessary.

The analysis of International Sign is greatly helped by knowledge both of the general field and of sign-language-specific research. Givon's paradigm of levels of language not only helps concentrate the analysis on a lexical level but also guides studies toward the semantic and pragmatic aspects. Haimans work on competing motivations sheds some light on the various factors that influence interpreters' work in international settings. The limited time available for translation and the attempt to maintain semantic faithfulness vis-à-vis the source language constantly affect the interpreter's choices. Lastly, the issues of the universality of language and both natural and unnatural child language acquisition are crucial to every investigation of IS comprehension.

The current study provides examples from IS interpreted data that support the claim that iconicity plays an important role on all levels of this communication system. The discourse setting, an interpreted lecture, puts pressures on the IS user that are expressed in the competing motivations of economy and iconicity. At times, as in the omissions or the use of tokens, the economic considerations clearly override the need for iconicity. In other contexts, such as lexical choices or explanations of basic terms, the repetitions or expansions suggest a heavier reliance on an iconic motivation. The theoretical considerations discussed here have allowed a detailed analysis of many areas and given insights into the motivation behind the use of IS in this setting.

Today, research on iconicity is still trying to incorporate the implications of the recognition of signed languages and needs further detailed investigation. In the future, IS will hopefully provide new, interesting insights into the universality of iconic representations.

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