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Typology and channel of communication:
Where do signed languages fit in?

Dan I. Slobin
University of California, Berkeley
Departments of Psychology and Linguistics

Despite the efforts of formal grammarians to take a range of languages into consideration, there is a glaring gap in the typological coverage... (Nichols 1986: 115)

It has long been noted that the rapidly fading, linear order of presentation of speech sounds poses formative constraints on morphology and syntax. Languages abound in devices to keep track of relations between arguments, to maintain or switch reference, to relate propositions to one another, to indicate spatial relations and directions, and so on. Typological classifications of languages are possible because there are limited ways of solving such problems. Furthermore, there are unavoidable interactions between devices that deal with parts of the complex web of communicative and cognitive tasks to be solved by any particular language.

The brute physical facts of communication impose bottlenecks between communicative intent and realized message: One sound follows another, quickly replacing its trace. Some referential domains—particularly space and movement—cannot be depicted in sounds. Any linguistic message can only be a much abbreviated sketch of the mental event it aims to re-evolve. These problems of representation in the acoustic medium underlie the plethora of arbitrary grammatical forms in languages—markers such as inflections, affixes, clitics, and dozens of others. But what if it were possible to modify the bottlenecks between function and form? We now know about a collection of languages in which referents can remain perceptually accessible in the communicative space and can be returned to without complicated morphological devices. And in such languages, space and movement and the identities of clause participants can be transparently represented without an array of morphosyntactic devices to indicate subject and object, figure and ground, source and goal, and associated manners of movement. This comparison set of languages uses the manual/visual modality rather than the oral/auditory modality as the channel of communication. The set, of course, is made up of the many sign languages of the deaf—probably numbering in the hundreds—which have become the object of linguistic description only in the past half-century or so. It is by now well accepted that these are full human languages in another modality, and that therefore all typological generalizations and attempts to formulate true language universals must be based on both sets of languages. This

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chapter responds to Johanna Nichols's claim as stated in the epigraph. The goal is to expand linguistic typology in two related ways: to span the acoustic and visual modalities, and to resituate the typological status of signed languages.

Until recently, the path of linguistic description has been a one-way journey from the established linguistics of spoken languages to the newly-analyzed sign languages. The journey has also been a limited one, moving from linguistic analysis of several standard written languages to the sign languages of deaf communities living on the territories of those languages. It is beginning to be understood that the road must be two-way. That is, linguistic description of sign languages forces linguists to broaden the scope of analysis of spoken languages, paying more attention to prosody, to gesture (manual and facial), and to pragmatics. But, as currently approached, the building of new two-way roads takes one station to be a particular TYPE of language. The pathbreaking typological work of Johanna Nichols, going back to the 1980s, leads to a more interesting road network.

In the current literature of sign language linguistics the starting point of the spoken-to-signed path of analysis looks impressively diverse. Because sign languages are used across the planet, linguists in various countries have applied linguistic insights from the dominant spoken/written language to the geographically contiguous non-written sign language: English in North America, the UK, Ireland, South Africa, Australia, New Zealand; French in France, part of Belgium, and Quebec; Dutch in another part of Belgium and the Netherlands; Russian in Russia; Turkish in Turkey; Hebrew in Israel; Japanese in Japan; and so forth. What has not been noticed by sign language linguists is that this diverse range of spoken languages—including Germanic, Romance, Slavic, Turkic, Semitic, Japanese—all belong to a single typological grouping defined by Nichols. As she pointed out about a quarter-century ago:

[M]ainstream theory, despite considerable efforts to test ideas on exotic languages, happens to have looked almost exclusively at those languages which differ little from Indo-European with regard to HEADEDNESS . . . and the presence and location of overt morphological MARKING of syntactic relations—the fact that a given word bears a given affix, while another does not (Nichols 1986: 52).

The diverse range of spoken languages that serve as reference points to sign language linguistics are all DEPENDENT-MARKING languages. Sign language linguists have not attended to the large set of HEAD-MARKING languages, spoken all over the Americas, with scattered examples in parts of the Caucasus, the Far East, Oceania, and elsewhere.

I will argue here that sign languages are best characterized as head-marking, and that this typological status is determined by the manual/visual modality, with its iconic uses of space and movement, along with face and gaze direction, and with possibilities for simultaneous expression of several meaning elements. As further consequences of these proposals, I suggest that sign languages are VERB-FRAMED as opposed to SATELLITE-FRAMED, and TOPIC-PROMINENT as opposed to SUBJECT PROMINENT. Finally, tracing the path from signed to spoken language, the manual/visual modality is also available as a simultaneous channel in spoken languages—that is, gesture and gaze direction and facial expression are indissoluble components of face-to-face communication in spoken languages.

The formulation of typological generalizations and the search for language universals must be based not only on the full set of human languages—spoken and signed, but also on the full set of communicative devices—prosodic, gestural, and others. By and large these have been omitted from traditional linguistics because they are not conventionally represented in writing

systems. Because sign languages, thus far, are stored as moving images (film, video) rather than in standardized written forms, sign language linguists have been forced to attend to the full array of expressive devices. Anthropological linguists who work with unwritten languages have also faced the task of extracting linguistic form from moving images plus sound. Much fruitless effort has been expended in trying to draw firm boundaries between “linguistic” and “nonlinguistic.” I suggest that a moratorium be declared on this rather academic endeavor of pigeon-holing and territory-defending. The growing study of sign languages can make it possible to describe larger arrays of communicative devices and to attempt to systematize them. Scott Liddell has written the first grammatical description of a sign language from a cognitive linguistic perspective. In concluding his pathbreaking book on American Sign Language (ASL), he concludes that although signed languages might be organized in different fashion from spoken languages:

It is much more likely that spoken and signed languages both make use of multiple types of semiotic elements in the language signal, but that our understanding of what constitutes language has been much too narrow. (Liddell 2003: 362)

Ultimately, what is of interest to linguists is the extent of CONVENTIONALITY of means of expression—that is, an understanding of how communicative patterns become NORMATIVE, and thereby acquirable as cultural tools. This chapter is a preliminary attempt to lay out these issues for both linguistic typologists and sign language linguists, with an eye on the further development of linguistic science.

The chapter briefly lays out six dimensions of typological analysis of sign languages: (1) LOCUS OF MARKING (dependent- vs. head-marking), (2) GRAMMATICAL RELATIONS (case-marking, agreement, alignment), (3) FRAMING (satellite- vs. verb-framed), (4) SUBJECT- vs. TOPIC-PROMINENCE, (5) REFERENCE TRACKING, and (6) SIMULTANEOUS MORPHOLOGY. Examples are drawn from ASL and several European sign languages, but this is not the place for a thorough grammatical presentation of sign languages on new typological principles. The Appendix provides a brief bibliography of linguistic treatments of some major sign languages; more can be found in the journals *Sign Language & Linguistics*, and *Sign Language Studies*.¹

The discussion is limited to clause-level issues, with particular attention to predicates and associated entities and locations. Verbs in sign languages are expressed by conventional handshapes that are located and moved with respect to conventional locations on the body and in space. The manual modality allows for the encoding of an array of meaning components in verbs, raising issues of the grammatical status of referential signs and indices. The analysis of verb-argument structure is central to current theoretical debates in sign language linguistics.

Locus of marking: dependent-marking and head-marking

Nichols (1986, 1992; Bickel & Nichols, 2007) has foregrounded the importance of HEADEDNESS for typological classification of languages. On the level of the clause, the predicate

¹ There is new work on “village sign languages”—that is, isolated local communication systems of the deaf that have arisen in contexts away from the urban centers of standard sign languages and schools for the deaf. These languages may not make full use of all of the grammatical devices discussed in this chapter. Much of this research is based at the Centre for Sign Languages and Deaf Studies University of Central Lancashire, UK, directed by Ulrike Zeshan (<http://www.uclan.ac.uk/ahss/research/islands/index.php>) with forthcoming publications in the Typology Series of Ishara Press (<http://www.def-intl.org/ishara/?q=node>). Related work is based at the Max Planck Institute for Psycholinguistics in Nijmegen, Netherlands (<http://www.mpi.nl/>). Here I use the term “standard sign languages” to refer to the established languages of the Deaf in education and public interactions in major industrial countries.

is the head and the dependents are its arguments and adjuncts. The roles of the dependents can be marked on the dependent or on the head (excluding instances of double-marking or lack of marking). Example (1) is drawn from Russian, a typical dependent-marking language:

- (1) a. *on* *vidit* *menja*
 PRO.3SG.MASC.NOM see.3SG.PRES PRO.1SG.ACC
 ‘he sees me’
- (1) b. *ja* *vižu* *ego*
 PRO.1SG.NOM see.1SG.PRES PRO.3SG.MASC.ACC
 ‘I see him’

Syntactic roles are marked by the nominative and accusative forms of the pronouns; the verb does not mark these roles, but indexes features of the arguments (person, number) along with tense and aspect. By contrast, (2) shows a typical head-marking language, K’iche’ Mayan (Pye 2007: 48):

- (2) a. *x-in-r-il-oh*
 COMP-1ABS-3ERG-see-STATUS
 ‘she/he/it saw me’
- (2) b. *x-Ø-inw-il-oh*
 COMP-3ABS-1ERG-see-STATUS
 ‘I saw him/her/it’

All of the information regarding argument roles is marked on the verb; this is a full sentence, without the need for independent pronouns. K’iche’ has ergative/absolutive alignment, and the PRONOMINAL AFFIXES on the verb identify these two roles as related to participants indexed by person and number.

Sign languages pattern like K’iche’ rather than Russian. Typically, verb meaning is carried by a conventional handshape that moves from source to goal. For example, the corresponding ASL construction is formally parallel to (2a) rather than (1a) (though without morphosyntactic alignment, as discussed below). Locutors (first and second persons in an interaction) are deictically present, needing no independent pronominal form. Other arguments are established by spatial loci, either physically present or created in signing space. Thus in the current scenario the first-person argument is obvious and the third person can either be physically present or “set” in signing space by a previous communicative act. That location retains its identity until changed. Again, no independent pronominal form is needed: a deictic point to the location is sufficient. The verb, in this instance, consists of a horizontal V-handshape, indicating the gaze, moving from a location established for the relevant third person and moving towards the face of the signer, rotating the wrist to end up directed at the signer’s face. There is no standardized means of writing sign language examples (but see Frishberg, Hoiting, & Slobin in press; Hoiting & Slobin 2002; Slobin et al. 2001). The rough schematism in (3) will serve for the present purposes. The generalizations presented here are based on the two sign languages that I have worked on, ASL and Sign Language of the Netherlands (SLN); however, at this level of abstraction, they seem to apply to standard sign languages in general.

- (3) LOCUS₃-V_{GAZE.HANDSHAPE}-ORIENTATION:HORIZONTAL.PALM-DOWN.AWAY-V_{ROTATE+MOVE.TOWARD.SELF}
 3SG.ACTOR-look -1SG.UNDERGOER
 ‘he looks at me’

This can be read, roughly, as: ‘a horizontal V-handshape palm-down oriented away from the signer begins at a locus established for a third person and moves toward the signer while rotating the wrist towards the signer.’ The corresponding form for (3b) would begin with the V-handshape at the signer’s face, oriented toward the third-person locus and moving toward it. Note that the loci are inherent components of the verb. They exist only as starting and ending locations of a moving handshape and are not signed by separate devices in a clause. A handshape and movement pattern with respect to one or more established loci is therefore a grammatical word in the sense of Bickel and Nichols (2007).

Example 3 is clearly a head-marked construction, with the argument roles indicated on the verb by what can best be characterized as PRONOMINAL AFFIXES, with no need for free-standing pronouns. The locus established in signing space for the third person does not exist in physical form; rather, it is re-evoked when it is involved in the movement of a sign. Its referential status is transitory, applying for the length of a relevant discourse segment including pre-established participants—participants that have been “set upon the stage,” as it were. Much of the linguistic debates about the proper syntactic analysis of sign languages strives to keep that point in space as an independent “pronoun,” but it seems more appropriate to characterize it as a pronominal affix on a verb, because it does not “exist” except when indexed in an utterance (whether by means of a predicate or simply by deixis). Note, too, that physically present persons and objects can also be incorporated as SOURCE or GOAL of a linguistically encoded event.

Neither the handshape nor the location/movement pattern can be construed as the “stem” of the verb; rather it is their cooccurrence that specifies a particular verb. The movement only indicates SOURCE and or GOAL. The V-handshape occurs in a number of ASL and SLN lexical items, depending on hand orientation, location, and movement pattern (e.g., ‘see’, ‘ignorant’, ‘smoke-cigarette’, ‘two-legged animate being’, ‘scissors’, and others). It is not even clear that a noun-verb distinction can be drawn for many lexical items. For example, the V-handshape of ‘scissors’ can also mean ‘cut with scissors’, depending on the movement pattern.

The head-marking characteristics shown in (3) apply equally to intransitive, transitive, and ditransitive clauses. An argument can be introduced as a topic or can be indexed by a spatial location or physical entity. Once it is on the stage, it is incorporated in the predicate as a classificatory handshape². Such handshapes reference an established theme in verbs of motion; for example, in ASL and SLN a vertical V-handshape with wiggling fingers, moving in some direction, encodes the meaning of a human being walking forward. In transitive and ditransitive verbs, the classifier references an established theme as patient; e.g., a vertical cupped hand (C-handshape) incorporated into a SOURCE-GOAL movement indicates caused movement of an object such as a cup, either as a verb of transfer (‘give’) or a verb of placement (‘put’), depending on the identification of the GOAL and an aspectual affix on the verb. (In ASL a sudden stop, or hold at the conclusion of an arc movement can distinguish placement at a location from transfer to an intended recipient). An agent can only be indicated by a pronominal affix or, by default, by the signer him or herself.

As Nichols (1986: 105) has noted: “The amount of head-marked morphology that can be concentrated in a single word seems virtually unlimited, to judge from the elaborate polysynthesis

² The term “classifier” is the generally accepted designation, following Frishberg’s (1972, 1975) analogy between ASL and Navajo. In recent years there has been some uncertainty about the use of this term; Berkeley-based sign language linguists have introduced the term “property marker” to designate pronominal affixes that reference predicate arguments (Slobin et al., 2003; also see papers in Emmorey 2003). The traditional classifier term is used here to conform with current practice.

of languages like those of the American Northwest.” The richness of verb morphology in sign languages has led linguists to describe these languages as “polymorphemic” (Engberg-Pedersen 1993; Wallin 1990) or “polycomponential” (Bergman & Wallin 2003; Schembri 2003; Slobin et al. 2003). The components are copresent and relatively transparent, being produced simultaneously by handshape(s), movement patterns, and various facial and body modulations. Sign languages are thus agglutinative in their polycomponential morphology, but with far more simultaneity than is possible in the vocal modality.

In a study of the acquisition of SLN as a first language, Hoiting (2005, 2009) characterizes deaf toddlers as “verb attenders” arguing “that the modality of sign languages makes action and motion salient, drawing attention to verbs.” She finds that the early vocabularies of deaf toddlers acquiring SLN show relatively high proportions of predicates in comparison with children acquiring spoken dependent-marking languages like English. At comparable levels of vocabulary development, predicate tokens make up 47% of signs in SLN, compared with 20% in English. Following the path from signed to spoken languages, Hoiting finds comparable data in studies of acquisition of head-marking languages:

The verb-oriented patterns of early vocabulary reported here are similar to those found in the acquisition of spoken head-marked languages, such as Mayan (de León, 1999, for Tzotzil; Pye, 1992, for K’iche’) and Inuktitut (Allen, 1996; Fortescue & Lennert Olsen, 1992). In a paper appropriately titled “Why Tzotzil (Mayan) children prefer verbs over nouns,” de León points out that “the patterns of verb semantics orient the learner to refer both to objects and actions by a single semantic packet contained in the verb root” (de León, 1999, p. 3). She presents data for two children “beyond the 50-word level”: verbs made up 52% of the vocabulary for a child of 1;8, and 58% for a child of 1;9. A K’iche’ Mayan child studied by Pye (1992) had a vocabulary made up of 45% predicates at age 2;1. [Also see papers in Pfeiler 2007.] (Hoiting, 2005: 181-2)

Similar studies have yet to be done in comparison of adult discourse patterns in various head-marking languages in the two modalities. Re-situating sign languages typologically opens up new opportunities for crosslinguistic analysis.

Grammatical relations: agreement, case-marking, alignment

The linguistic descriptions of standard sign languages listed in the Appendix almost always make use of traditional terms—verb “inflections” as “agreement markers”; grammatical relations such as “subject” and “object”; grammatical case categories such as “dative” and “accusative”; and classical phrase-structure grammar. There are no general considerations of alignment patterns such as nominative/accusative and ergative/absolutive, though there has been some speculation about the natural “ergative” typology of emerging sign languages (Goldin-Meadow 2003). In the typological reorientation suggested in this chapter, none of these traditional terms is obviously applicable to sign languages. In fact, it is not even clear that these languages have grammatical relations in the traditional syntactic sense, because roles of nominal arguments are not marked by independent morphology. Rather, roles are inherent in the lexical semantics of verbs. Example (3) and the subsequent discussion required no recourse to the traditional frameworks. It may be sufficient to frame descriptions in terms of semantic roles, perhaps using designations of macroroles such as ACTOR and UNDERGOER.

The determining factor for languages in the manual modality seems to be the availability of expression by means of motion—and it is evident that most semantic roles take part in relations that can be conceived of in terms of motion, simultaneously articulated by handshapes that reference properties of participants. This is true of actual motion, such as that involved in intransitive and transitive acts of translocation and object transfer, as well as metaphorical or fictive motion, such as conceptual motion in verbs of perception, communication, path

description, and many more (e.g., ASL verbs such as ‘look at’, ‘inform’, ‘criticize’, ‘help’, ‘describe-shape’). Spoken languages, bedeviled by the limitations on production and reception imposed by the bottlenecks of the acoustic medium—particularly the need for sequential rather than simultaneous morphology—exhibit a proliferation of opaque morphemes to distinguish, for example, path characteristics designated by categories such as allative, ablative, cislocative, venitive, centripetal, centrifugal, etc. Mithun (1999: 139-151), in surveying the languages of native North America, repeatedly points to “elaborate grammatical means for describing location and direction,” listing “a vast set of verbal proclitics for specifying spatial distinctions” in a typical language of the Northwest Coast. Clearly such formal markers are irrelevant to depiction of motion in the visual medium, and these sorts of terms have not been applied in sign language linguistics. For example, there is no opaque marker that means ‘move away from’, because the direction of a sign’s movement is physically visible. Perhaps all that is required is a directional path of a sign, along with anchor points that have been established in discourse. (The obvious iconicity of movement does not mean that these languages are simply “gestural” or “pantomimic,” because each sign language has its own established conventions for the uses of space and movement [see Taub 2001].)

Although sign language linguists are satisfied to describe motion in physical terms rather than morphological categories, it has apparently been more difficult to let go of the traditional terms of grammatical relations. And so there are redundant designations of the same clause participants as “subject/object” and “agent/patient,” with no formal means of distinguishing these two types of categorization. This confusion may stem from the unexamined acceptance of dependent-marking typology. In signed communication the anchor points of paths do not require a formal syntactic designation: they simply ARE THERE as established by the conventions of the language. For example, in a signed utterance meaning ‘I give Johanna a book’, the first-person is established by default as the starting point of the path; the recipient is established either by motion towards a physically present person or towards a spatial location that has already been established in signing space as ‘Johanna’ by prior naming and pointing; the book has been pointed to or labeled prior to the expression of the clause, and it is referenced in the predicate by a particular classificatory handshape. The directionality of the sign (often along with gaze direction) encodes the relationship between the participants. There is no formal motivation to label any of these participants in the syntactic terms of grammatical relations (subject, direct object, indirect object), grammatical cases (nominative, accusative, dative or ergative, absolutive, oblique), or semantic roles (agent, patient, recipient). All of the necessary information for clause interpretation is present in the meanings of spatial locations, handshapes, and motion; and the interpretation itself does not seem to need anything but some set of semantic roles.

It follows that there is no such thing as “grammatical agreement” in these languages. For example, if a location in signing space has been established as ‘Johanna’, a verb that moves toward that space does not have an “inflection” that “agrees with” a nominal. Nor is the point in space a “pronoun.” There is, in fact, nothing syntactic for the verb to agree with, and so although it has pronominal affixes (if we want to use that term), it has no agreement inflections. Andrej Kibrik (2004: 2) has made the same point with regard to a spoken head-marking language, Abkhaz. Consider the verb/clause in (4):

- (4) *i-l-z-i-j°it'*
 3NEUT.NOM-3SG.F.OBL-for-3SGMASC.ERG-wrote
 ‘He wrote it to her’

As he notes, in a discussion that applies with equal force to sign languages with their head-marking typology: “Against the background of [dependent-marking] stereotypes, this can be

understood as agreement of the verb with multiple NPs.” He goes on to point out, however: “Nominals are not an inherent part of the clause that consists primarily of the inflected verb” (Kibrik 2004: 2). In signed discourse it appears that nominals are not prosodically included in clauses; rather, they tend to be set on the stage in independent communicative acts.

Following Bickel and Nichols (2007), it may be appropriate, therefore, to describe sign language verbs as exhibiting “pronominal agreement”—but this is not an analysis that has been proposed in formal analyses of sign languages, which adhere to syntactic definitions of grammatical agreement. In a sign language, once referent locations have been established for a clause, SOURCE-GOAL movement is the only grammatical operation available for encoding both literal and non-literal (conceptual, metaphorical, fictive) motion. Therefore, there is no formal distinction between what have been called “spatial verbs” and “agreeing verbs” (pace Padden 1988, 1990, and many other sign linguists). There are, however, some verbs that cannot move in space because they are articulated on the signer’s body (Padden’s “plain verbs”), such as the crossed arms over the chest meaning ‘love’ in ASL. Here ASL makes use of word order, generally SVO, with independent points or nominal forms for the two arguments. In such clauses, there are no grammatical markers on either head or dependents; the only grammatical device is word order. Other sign languages use auxiliary verbs to carry pronominal affixes and maintain head-marking³. In these instances the body-anchored lexical verb is accompanied by a form that moves from SOURCE to GOAL in standard fashion. The form is a sort of dummy verb with no semantic content in itself, serving only to mark arguments, as in most signed verbs, by means of pronominal affixes associated with pre-established locations or entities. (Hoiting & Slobin 2001 note that the SLN auxiliary is a grammaticization of a verb meaning ‘act on’.)⁴

In sum, it would appear that linguistic descriptions of sign languages have no need for the terminology and machinery of grammatical agreement morphology. And, with additional consideration of the affordances of the manual/visual modality, there is no need for the morphosyntactic machinery of grammatical relations. Furthermore, semantic relations seem to emerge from lexical and discourse semantics, rather than being part of the grammar of the clause. If all of these revisions are accepted, then sign languages also constitute a possibly unique linguistic type, with no alignment pattern at all. This is because there are no arbitrary grammatical categories to align with formal markers—no nominative/accusative or ergative/absolutive or active/stative or agent/patient, and no relevant formal markers. In fact, alignment may be a peculiarity of the auditory modality, and not a necessary linguistic universal.

³ Various sorts of auxiliaries with pronominal agreement have been reported for a number of sign languages: German Sign Language: (DGS = Deutsche Gebärdensprache: Pfau & Steinbach 2007), Israeli Sign Language (ISL: Meir 2003), Japanese Sign Language (JSL: Fischer 1996), Sign Language of the Netherlands (SLN: Bos 1994, 1996; Hoiting & Slobin, 2001), Taiwanese Sign Language (TSL: Smith 1990).

⁴ A large proportion of verbs that are formed on the body without the possibility of movement in space can be categorized as mental state expressions, such as ‘desire’, ‘enjoy’, ‘feel afraid’, ‘forget’, ‘know’, ‘love’, ‘suffer’, ‘think’, ‘understand’, ‘worry’ or as communicative acts, such as ‘punish’, ‘tell lie’, ‘tempt’, ‘threaten’ (ASL: Baker-Shenk & Cokely 1980: 269). These predicates seem to express conditions anchored in the self that can be projected outward. Because the self-anchoring ties the sign to the body, the projection has to be realized by other means. It seems clear that the manual modality plays a key role in establishing the formal properties of such verbs. Further analysis of nondirectional verbs in various sign languages may reveal distinct lexical semantic categories.

Framing: verb-framed and satellite-framed

Talmy (1985, 1991, 2000) has proposed a typological split between languages that encode path of motion in the verb—**VERB-FRAMED LANGUAGES**, and those that encode path in an element associated with the verb—**SATELLITE-FRAMED LANGUAGES**. For example, the Romance languages are verb-framed, with verbs that conflate motion and direction, such as ‘enter’ and ‘exit’. Germanic and Slavic languages are satellite-framed, with elements such as adverbial path particles ‘go in’ ‘go out’ or path prefixes ‘in-go’, ‘out-go’. As Slobin and Hoiting (1994) have pointed out, the manual modality makes sign languages intrinsically verb-framed:

A verb of directed motion in a gestural language, of necessity, moves through space. That is, space is used to represent space, and motion is used to represent motion. This is not to say that sign languages are iconic. There is, by now, ample evidence that the natural languages of the deaf are symbolic and schematized systems of representation, consisting of conventionalized, discrete morphemes. However, because motion is used to represent motion, it is natural in sign languages to use a directed gesture to encode directed motion. This is because once one has set up loci in signing space, one cannot separate a moving gesture from the direction in which it moves. (Slobin & Hoiting 1994: 488-9)

Talmy discusses two more components of motion events: **FIGURE** and **MANNER**. Taking these features into account, sign languages present an interesting mixed type. In Talmy’s **FIGURE-TYPE** languages—exemplified by Atsugewi—the verb predicates a type of figure, such as ‘small-shiny-spherical object’ or ‘slimy lumpish object’. Path is expressed in satellite-framed fashion by verb particles that also conflate ground, such as ‘into a liquid’ or ‘into a corner’. Sign languages are like Atsugewi in that the moving handshape is a property marker for figural characteristics such as ‘erect linear’ or ‘large spherical’. But they are unlike Atsugewi in that verbs, rather than satellites, encode path, and ground is not conflated with path. Sign languages are thus both verb-framed path-languages and verb-framed figure-languages.

With regard to expressions of manner, Talmy describes several types. In verb-framed languages manner is expressed in some sort of gerundial or adverbial adjunct to the main verb, such as ‘enter running’, whereas in satellite-framed languages manner can be conflated with the verb in constructions such as ‘run in’. In addition, as proposed by Slobin (2004), path and manner can both be encoded by formally comparable elements, as in serial verb constructions such as ‘run enter’. Sign languages—again, due to the manual modality—present yet another type, which Slobin and Hoiting (1994) designate as “complex verb-framed.” In constructions containing a boundary-crossing verb, a separate verb is needed, analogous to verbs in spoken verb-framed languages such as ‘enter’, ‘exit’, and ‘cross’. With such predicates, manner is expressed in serial verb constructions such as ‘run enter’. When boundary-crossing is not at issue, manner can be conflated with both figure and path. For example, an inverted V-handshape with wiggling fingers moving toward a goal means something like ‘human being approaches runningly’.

Again, the nature of the modality—spoken or signed—seems to determine a collection of interrelated typological characteristics.

Subject- or topic-prominence

Given the claim that sign languages have no agreement morphology, and that a head-marked clause can constitute a full sentence, it would be expected that there is also no grammatical subject category. Following Li and Thompson’s (1976: 466) initial formulation:

“In Topic-Prominent languages, there will be a surface coding for the topic, but not necessarily for the subject.” Sign language discourse, like discourse that has been documented for various head-marking languages, shows a very low proportion of free-standing nominal elements. As Kibrik (2004: 2) has pointed out with regard to Abkhaz: “Nominals are not an inherent part of the clause that consists primarily of the inflected verb.” Mithun (1999) makes similar observations in her detailed survey of the many head-marking languages of native North America. Free-standing nominal expressions are vanishingly rare in connected discourse, because pronominal affixes on verbs carry continuing reference to established referents. Mithun reports (personal communication, April 27, 2009) that whereas Chafe has established a noun:verb ratio of 1:1 in English conversation, the comparable figure in Mohawk is 1:17.⁵

When nominal expressions do occur—in both spoken and signed head-marking languages—they tend to introduce a topic which remains onstage until a shift of topic. Sign languages employ a range of devices for marking topic. For example, Sutton-Spence and Woll (1998: 60-1) lay out the following five means of marking topic in British Sign Language (BSL), characterizing BSL as one of many “topic-comment languages”:

In topic-comment structures, the topic is set up and re-established each time it is changed. ... It is marked in several ways.

1. It comes first.
2. It is followed by a pause – e.g. SCHOOL (pause) LETTER SEND. An English translation would be *It was the school that sent the letter.*
3. The eyes are widened during the topic, followed by a pause...
4. It can be accompanied by a head nod...
5. The topic may be signed and held with one hand while producing the comment with the other hand.

These features have been noted for ASL and SLN, and other sign languages also have a range of similar topic-marking devices. It seems most appropriate, then, to categorize sign languages as topic-prominent, rather than subject-prominent. (This proposal has been made for ASL by Friedman 1976, and for Israeli Sign Language by Rosenstein 2001.)

Reference tracking

Once a topic is set up in signing space, it remains there, often as a latent element that can be re-evoked by gaze, body shift, and other sorts of deixis. In some instances, it can be maintained by the nondominant hand while the dominant hand is engaged in forming a new predicate. Liddell has introduced the term BUOY for a collection of such devices in ASL, noting that: “Semantically they help guide the discourse by serving as conceptual landmarks as the discourse continues. Since they maintain a physical presence that helps guide the discourse as it proceeds I am calling them *buoys*” (Liddell 2003: 223). For example, a scene may be set up in which a flat nondominant hand encodes the ground and the dominant hand locates a person on that ground by means of an inverted V-handshape. The ground-hand can stay in place while the figure-hand goes on to be involved in different predicates. The ground can be re-evoked by gaze shift to the nondominant hand or it can serve as ground again if the dominant hand contacts it as a figure.

⁵ Bickel (2003; Stoll & Bickel, 2009) demonstrates that “referential density” (relative frequency of overt nominal expression of arguments) is sensitive to factors of both cultural tradition and information flow. These important discourse pragmatic issues have not been explored in sign languages or across a range of head- and dependent-marking spoken languages..

Similarly, several topics can be set up in different parts of signing space. For example, Johanna can be set up on the left and Balthasar on the right. For as long as these two remain participants in a signed episode, those locations are devoted to them. Objects or actions can move from one to the other. The signer can take on one of their roles by a slight body shift to the left or right, or even by a gaze shift. A return to center indicates a shift to the signer as locutor rather than “dramatist.” The space can be populated by several people and/or entities. For example, a third location can be set up as a particular university building, which can then be approached or evaluated by one of the participants or the locutor.

Dudis (2004) has described another device for reference maintenance, consisting of divisions of the signer’s body—what he calls BODY PARTITIONING. Two parts of the body can encode two participants in a situation. For example, the dominant hand can move along a particular path, using the handshape that designates an automobile. That hand can stop at a landmark that has either been established in signing space or that is designated by the nondominant hand; at that point the signer looks back over his shoulder, leaving the hands in place. Two scales exist simultaneously in this conceptual world: the person looking over his shoulder is a lifesize person corresponding to the driver, while the dominant hand remains the automobile in which the driver is located. Reference can be shifted back to the automobile by gaze shift and/or by initiation of a new motion.

There are no comparable ways in speech that a sound can persist in auditory space while other sounds are being produced. The machinery of cross-referencing, supported by an array of pronominal and inflectional devices, may be peculiar to languages using the acoustic modality. The manual modality provides affordances for a quite different set of devices for reference maintenance and shift. Again, statements of universals must be relativized to the channel of language production and reception. And note, again, that although many of sign language devices are iconic in origin, they are schematized and conventionalized; they vary from language to language; and they must be acquired like any other grammatical device in order to make production and comprehension possible.

Simultaneous morphology

Finally, we have encountered many aspects of simultaneous expression of meaning elements—divisions between the two hands or parts of the body, cooccurrence of facial and manual signs, and combination of a handshape with movement. The vocal modality also affords types of simultaneity, both in the use of tone to distinguish individual segments and morphemes, and in the use of intonation contours to distinguish speech acts or encode affective and evaluative dimensions. But the vocal modality is restricted to a single sound stream, whereas sign languages have a multiplicity of options of articulators, face, and body. The challenges to the linguist lie in ascertaining which sorts of simultaneous expression are systematic and conventional. For example, ASL facial expressions systematically mark a manual production as negated, questioned, or topicalized, and as such can be described as prosodic grammatical forms. But what about expressions that indicate emotions such as surprise or speech acts such as exhortation? In spoken languages uses of prosody, voice quality, and rate tend to be described as “paralinguistic” or “extralinguistic” or “nonlinguistic,” even though some such uses are clearly conventionalized and vary from language to language. Yet, when surprise or exhortation are phonologically encoded, as in sentence-final particles, they enter into linguistic description. Similar issues arise with regard to topic marking in speech by pause or intonation shift, the use of interrogation contours, and so forth. In both spoken and sign language linguistics we lack clear

criteria for partitioning off what counts as “linguistic,” and perhaps it’s time to move beyond “balkanization” in analyses of human communicative capacities.

Similar issues arise with regard to the scientific study of gesture, which has re-entered linguistics thanks especially to the pioneering efforts of McNeill (1992, 2000) and Kendon (2004). Gestures are co-timed with speech, and they are also part of signed communication (Emmorey 1999). Some spoken utterances are incomplete without accompanying gestures, such as spatial deictic expressions (e.g., *look at that; give me this one; I caught a fish that was so long*).

Again, with regard to both prosody and gesture, the study of sign languages focuses attention on unresolved problems in the description and analysis of spoken languages. The vast majority of spoken languages—and all sign languages—have existed as unwritten, face-to-face communication systems. Yet so much of linguistic science is biased toward written language or the reduction of unwritten languages to IPA and morphological transcription. The current lack of such standardization in representing sign languages, along with vastly improved technology for storing and analyzing both visual and acoustic patterns, opens opportunities for new directions in the study of language. The result will be a more realistic, data-based approach to language universals, and with that, a broader basis for the study of typology.

Conclusion

In sum, standard sign languages are head-marking, complex verb-framed, and topic prominent languages with polycomponential predicates distinguished by a high degree of simultaneous morphology. I have tried to show that we gain a deeper understanding of the nature of signed languages when we appropriately place them typologically in the category of head-marking languages. Consequently, many parts of accepted descriptions of sign languages, along with their applications to pedagogical materials, are in need of rethinking. At the same time, detailed study of individual sign languages, applying current typological and cognitive approaches, broadens the scope of linguistics in general. Until this work has advanced, I believe it is immature to speculate about biologically based linguistic universals—because we have as yet only a partial idea of what constitutes a possible human language. And so it is appropriate to end with the conclusion that Johanna Nichols reached in her exposition of head-marking and dependent-marking grammar:

The view of grammar presented here raises serious questions for universal grammar. I have argued that the theoretical apparatus of classical, traditional structural, and formal grammar is heavily based on dependent-marked syntax. If the hypothesis of the universally preferred nature of head-marked patterns holds true, then we will have to recognize that describing the world’s languages in standard theoretical terms is not merely Eurocentric distortion, but in fact forces the unmarked grammatical structure into a framework devised for the marked type. The fact that linguistic theory is ultimately rooted in linguistic typology shows how important it is to capture the uniqueness of individual languages in cross-linguistically and cross-theoretically meaningful terms. (Nichols 1986: 116)

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