

DIAGRAMMATIC AND IMAGIC HYPOICONS IN SIGNED AND VERBAL LANGUAGES¹

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Far from being a marginal phenomenon in natural languages, iconicity is widely attested in verbal languages and is a structural feature of signed languages. There is a difference, though, in the nature of iconicity in each code. Whereas almost all instances of iconicity detectable in verbal languages belong to the Peircean category of diagrammatic hypoicons, the iconicity which characterizes signed languages both at the lexical and at the discourse level may be ascribed to the category of images. The wealth of hypoicons of images in signed languages can be explained by taking into account not only the peculiar semiogenesis of these languages, but also the “substance of their expression”. Compared to the phono-acoustic modality, the visual-gestural modality filters iconicity in a less fine-grained way. In spite of this difference, signed languages are as profoundly arbitrary as verbal languages. Iconicity is in fact governed and ruled by system constraints. The iconic phenomena detected in signed languages do not contradict, therefore, the Saussurean principle of Radical Arbitrariness, largely considered as a design feature of natural language.

1. Introduction

The problem of linguistic iconicity raises the age-old question of the extent to which language is a mirror of reality and of extent to which it is able to be so. Undoubtedly, this is one of the research domains in which linguists benefit the most from the inclusion of signed languages within the scope of their studies. Signed languages are quite obviously more iconic than verbal languages. A careful comparison between signed and verbal languages does therefore guarantee, in this particular respect, a deeper understanding of the causes, mechanisms and limits of iconicity in language.

In this paper, we shall assume that the analogies and differences between the iconic phenomena of signed and verbal languages can be accounted for in a semiological perspective. Iconicity occurs, of course, in many kinds of non-linguistic signs; the iconicity in human languages, however, displays a number of peculiarities. Our claim, therefore, is that a unified theoretical account of linguistic iconicity must be achieved in order to allow for the comparison of its different manifestations in different kinds of human languages. In particular, we will show that the taxonomy of iconic signs proposed by Charles Sanders Peirce (see §2 below) may be productively applied to both signed and verbal languages. We shall then focus on the comparison between iconic phenomena in signed and verbal language structures (§3-§5). We'll argue that, although, iconicity is detectable in both codes, there is a clear difference in the way the phono-acoustic modality “filters” iconicity in verbal languages as compared to the visual-gestural modality of signed languages. In particular, we will argue that whereas the iconic phenomena detectable in verbal languages can be ascribed to the Peircean category of “diagrammatic iconicity”, when it comes to signed languages iconicity ought to be regarded in most instances as an example of what Peirce calls “imagic” iconicity.

Finally, we shall argue that in both signed and verbal languages iconic signs are compatible with the Saussurean notion of “arbitrariness” (§6-7).

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2. *A Peircean account of iconicity in verbal and signed languages*

According to Peirce² every sign is embedded in an interpretation process which he describes as follows: a *representamen*, which is to say a particular sign, will relate to a particular object, namely a *denotatum*, through the action of an *interpretant*.

The interpretation of a sign can thus be seen as a threefold process: firstly, a particular entity is selected as a sign or *representamen*. Secondly, a certain entity is selected as *object* for the sign. Thirdly, the sign is related to the relevant features of its object which allow the interpretation process to take place.

Interpretant is the name Peirce gave to the action of selecting those features of the object which lead to its schematic representation. He calls this representation *immediate object*, whereas the real denotatum is called the *dynamic object*.

Peirce distinguishes between several kinds of signs, thus designing a very complex and comprehensive taxonomy. We shall focus especially on two kinds of signs: icons (and their sub-kinds: images and diagrams) and symbols.

Icons are signs which resemble their objects “in some respects”, such as, for instance some qualitative aspect of their *immediate objects*. Thus, a naturalistic painting of a human figure is based on a selection of features which relate to that person: Peirce points out that a portrait only ever resembles its object *in some respects*.

Symbols, on the other hand, are norm-following signs which relate to their objects through some convention, or some other general rule. In a Peircean perspective, linguistic signs are primarily symbolic in nature. Nevertheless, as Peirce states, it is also possible to find a particular kind of icons among linguistic signs: ‘icons in which the likeness is aided by conventional rules’ (C.P. 2.279). In the case of linguistic iconic signs, the mediation of semantic and expressive linguistic conventions provides the link between the sign and some relevant features of the object of reference³.

Peirce draws a crucial distinction between two different kinds of icons which he calls hypoicons: images and diagrams⁴. Images are hypoicons which ‘partake of simple qualities’ of their object: for example, they have certain perceptual features in common with their objects. Diagrams are instead hypoicons which ‘represent the relations, mainly dyadic, or so regarded, of the parts of one thing by analogous relations in their own parts’. Diagrams, that is, are schemata of objects or events in which the relations between features of the object are represented by relations between features of the sign form. Whereas images are overtly referential in nature, diagrams are strictly devoted to the representation of different kind of abstract relations.

Our claim is that these two kinds of hypoicons are to be found in both signed and verbal languages. Nevertheless, it will be argued in the following sections that there is a substantial difference in the balance between imagic and diagrammatic iconicity in the two kinds of language.

3. *Traces of diagrammatic iconicity in verbal languages*

The role of iconicity in verbal languages has been deeply explored over the past decades by several functional linguists, who took the undeniable wealth of elements of iconicity in language

² Our account is based on the texts written by Peirce between 1902 and 1906, a particularly productive period of his research in the theory of signs (Peirce 1931-58, see also Proni 1990).

³ Peirce provides a phylogenetic explanation for the limited degree to which iconic signs are present in human languages: “In the earliest form of speech, there probably was a large element of mimicry. But in all languages known, such representations have been replaced by conventional auditory signs. These, however, are such that they can only be explained by icons.”(C. P. 2.280)

⁴ Peirce distinguishes three kinds of hypoicons: images, diagrams and metaphors but we will deal here only with the first two.

as evidence against the generativist principle of the Autonomy of Language.

The comparison between verbal and signed languages contributes to this discussion substantially by highlighting two facts. Firstly, with the exception of a few interesting instances (which we shall discuss later in this section), almost all the examples of iconicity of verbal languages described in the literature fall into the class of diagrammatic hypoicons. Secondly, the ‘banishment’ of imagic iconicity is not imposed by the intrinsic nature of language, but is to be ascribed to the nature of the phono-acoustic medium.

The analysis of verbal languages has detected traces of iconicity on three different levels: 1) in the internal structure of linguistic systems (we shall refer to this kind of iconicity as *paradigmatic iconicity*); 2) in the morphosyntactic structure of clauses (*syntagmatic iconity*); 3) in various discourse-pragmatic functional domains (*pragmatic iconicity*).

Two well-known examples of paradigmatic iconicity are the One-Form-One-Meaning Principle (Bolinger, 1977; Haiman, 1985a) and the Iconicity of Lexical Categories Principle (Hopper & Thompson, 1985)⁵. Both principles describe instances of mapping between relations. According to the One-Form-One-Meaning Principle, the relations among the forms of a linguistic system mirror the relations among the meanings of the semantic domain. The Iconicity of Lexical Categories Principle, instead, describes the relations between prototypical representatives of a lexical category as being mirrored by the relations between their formal apparatuses, which is to say that, depending on the greater or lesser degree to which an element from the former class is prototypical (a more or less prototypical verb or noun, for instance) its formal apparatus will be more or less complete⁶. In so far as both principles describe instances of mapping between relations, both should be also taken as examples of diagrammatic hypoicons.

Examples of what we have called “syntagmatic iconicity” are the naturalness proper of morphological constructions (Dressler, 1987), the isomorphism between conceptual distance and linguistic distance (Givón, 1980; Haiman, 1985a), and the “Relevance Principle” guiding the stem-inflection relations (Bybee, 1985). Let us examine these phenomena in more detail.

Dressler (1987) claims that the ideal morphological sign has to have a diagrammatic structure; its structure, that is, has to mirror the relations between its component parts. The diagrammatic relation between the components of the morphological sign on the one hand, and the relation between their *designata* on the other, entail that the value of the sign may be understood through a mere exploration of its structure. Building on Vennemann’s (1973) and Behaghel’s (1923-32) intuition, Haiman (1985a) has proved that the relation holds cross-linguistically in domains such as the expression of coordination, causation, transitivity and possession, that the closer the two elements in the described relation are,⁷ the more linguistically integrated they are.⁸ The binding hierarchy proposed by Givón (1980) goes in the same direction. Givon has shown that the reduction of a complement clause mirrors the degree to which its truth is implied by the matrix clause. A refinement of this iconic principle has been proposed by Bybee (1985), who has identified a Relevance Principle which governs stem-inflection relations, according to which ‘The more a morphological category is relevant to the

⁵ The former states that “the natural condition of language is to preserve one form for one meaning, and one meaning for one form” (Bolinger, 1977) and the latter that “the more a form refers to a discrete discourse entity or reports a discrete discourse event” - i.e. the more it fulfils the prototypical functions of, respectively, noun and verb - “the more distinct will be its linguistic form from neighbouring forms, both paradigmatically and syntagmatically” (Hopper & Thompson, 1985: 151).

⁶ According to Hopper and Thompson, in fact, prototypical verbs and nouns display all the morphological and syntactic properties of verbs and nouns respectively. This does not hold for less prototypical nouns and verbs which lose part of their formal properties in discourse.

⁷ i.e. the more semantic features, properties, or parts they have in common, the more they will affect each other, be factually inseparable, be perceived as a unit, whether inseparable or not.

⁸ i.e. the lesser is the number of morpheme and word boundaries lying between the two units.

verb [...], the greater is the morpho-phonological fusion of that category with the stem' (Bybee, 1985: 11)⁹. Thus, syntagmatic iconicity too is diagrammatic. The relations among the parts of a linguistic sign, in fact, always mirror relations among their *designata*. This holds for the components of natural morphological constructions; for the two terms in a relation of coordination, complementation, causativity, transitivity, and possession; and finally it holds for the relation of stem-inflection.

Iconicity is also a feature of the way a number of discourse-pragmatic functions are reflected in language. Givón (1991, 1984 (2001)) has studied the principles of iconic coding which guide the structuring of pre-grammatical systems such as pidgin communication; the same principles are also a feature of grammaticalized languages, although at that point they are integrated to a greater extent with the more symbolic machinery. Some of these principles focus on the fact that linguistic relations tend not only to reflect relations between entities or events within reality (as we have seen above), but also they reflect relations among the speaker's communicative intentions. For example, the relation between information that is more or less important may be mirrored by the amount of linguistic material employed in their encoding (Quantitative Rule)¹⁰, or by the position it occupies in the string (Sequence Rule)¹¹. Once again we are faced with iconicity of the diagrammatic kind.

All the instances of iconicity examined in this review are thus diagrammatic. At this point, the question arises whether there is any imagic iconicity in natural languages, or whether the intrinsic nature of linguistic signs prevents them from partaking of the simple qualities of their *designata*.

Indeed, imagic hypoicons have been detected in natural languages in spite of their being relatively rare. Ever since De Saussure, onomatopoeia has been widely acknowledged as representing one such category. Other examples are the ideophones of many African and Asian languages (Kita, 1997), sound-symbolism (Frei, 1970), the evocative 'vocal gestures' occurring in expressive usages of languages (Fónagy, 1983). In all these cases the iconic sign does not simply establish a correspondence between relations, but it recalls its denotatum in some respects.

We propose that the correspondence between the order of constituents in a sentence and the order of the events or entities they depict, which are, however, frequently ascribed to the category of diagrams, be understood as a further class of images in verbal languages. An example of this kind of iconic sign is Caesar's well known utterance *veni, vidi, vici*, which, as Simone (1995a) pointed out, mirrors in its structure the *ordo naturalis* of the three events, thus enabling the listener to reconstruct the order of the events through a simple inspection of the structure of the utterance. We believe that these constructions lie at the boundary between diagrams and images: as diagrams they represent the sequential relationship between the events in their structure; as images, they actually exploit a qualitative feature of the acoustic signifier, namely its temporal linearity. Thus the temporal sequence of the events is mapped onto the temporal acoustic medium point by point. Indeed the focus of these constructions seems to lie more in the representation of the temporal sequence of events, as a global semantic unit, than in the relations between the single components. This does not hold true for the other diagrammatic relations we have reviewed above. The difference between them is what makes us inclined to re-categorize this kind of iconic signs as more image-like.

⁹ The relevance principle, supported by robust cross-linguistic evidence, explains the universal tendency of verbal inflectional categories to be hierarchically ranked along the same path: stem < aspect < tense < mood < person.

¹⁰ Givón's 'Quantitative Rules' state that: 'predictable -or already activated - information will be left unexpressed' and that 'unimportant or irrelevant information will be left unexpressed' (Givón, 1984(2001): 35).

¹¹ Givón's Sequence Rules state that 'more important or more urgent information tends to be placed first in the string' and that 'less accessible or less predictable information tends to be placed first in the string' (Givón, 1995: 55).

Imagic iconicity, thus, is not excluded from natural languages; on the contrary, as the next section will show, it plays a considerable role in characterizing another kind of natural language, namely signed languages. Simply, diagrammatic iconicity is far more pervasive in verbal languages than imagic iconicity. We shall propose an explanation for such a tendency in section 4.

4. *Imagic iconicity as a structural device in signed languages*

It is widely acknowledged that the grammatical structures of signed languages contain examples of diagrammatic iconicity. It is not uncommon, for instance, to find noun-verbs pairs which are characterized by regular affixation processes; the combination of movement affixes and the stem handshape marks the distinction between such noun-verb pairs (Supalla and Newport 1978). Other regular stem-inflection relations concerning verb modality (Wilcox and Wilcox 1995), verb aspectual system (Klima and Bellugi 1979) and certain regular features in the organization of the lexicon (Boyes Braem 1981) are also to be understood as instances of diagrammatic relations.

In all these cases, though, imagic hypoiconicity co-exists with diagrammatic hypoiconicity. As Wilcox (2004) has argued, with many of the above examples the visible features of a sign may be easily traced back to some schematic representation of a prototypical denotatum. For example, the iterative aspect is marked by circular movements; these movements clearly represent a prototypical instance of the superordinate category of “iterative actions”.

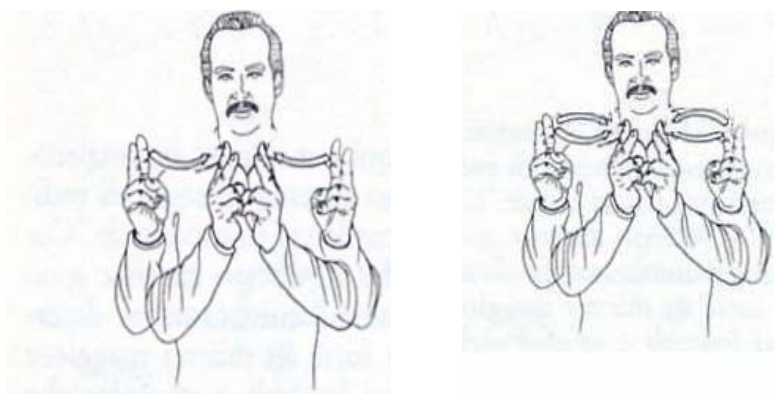


Figure 1. The two signs TO MEET and TO MEET-REPETEADLY

Therefore, although we do find examples of diagrammatic iconicity in signed languages, their pervasively iconic nature (Boyes-Braem, 1981, Pizzuto & Volterra, 2000, Wilcox 2004, Wilcox and Wilcox 1995, Cuxac, 2000) has to be ascribed to the category of images. Two different examples will be useful to illustrate this important point: the first one pertains to the level of lexical organization and the second one pertains to the level of discourse.

As Penny Boyes-Braem firstly made clear (1981), signed lexemes are often made up of formal features which are visually motivated and are thereby iconic. Their visual motivation is not idiosyncratic; it derives from regularities at the level of the form of formational parameters. Handshape forms, for example, often relate to features of a sign’s meaning via reference to some particular visual form. Thus, in the LIS lexicon, the B handshape relates to meanings which imply reference to a flat surface (as in the signs TABLE, FLOOR, CARPET; cf. figure 2.): a specific visual feature of the hand (namely that of being physically spread) has been mapped onto a specific feature of the meaning of the signs. Other handshapes relate to other semantic features: 5 handshapes in which the hand is open and spread out relate to flat, non-compact, flexible surfaces (as in the LIS signs DRESS, BUTTERFLY, WATER; cf. figure 3); G handshapes relate to compact, long, monilinear objects, etc.

It is worth noting that groups of lexemes with common formational parameters form

comparable paradigms to the paradigms of verbal language lexemes which share a common derivative stem. Nevertheless, each of these signs is iconic and visually motivated: iconicity, thus, coexists with the autonomous regularities of the lexical system.



Figure 2. The signs TABLE, FLOOR, CARPET



Figure 3. The signs DRESS, BUTTERFLY, WATER

It must be noted that when signs have a common handshape, they do often also share some feature of meaning; however their global meanings differ greatly from one another and are not predictable from the handshape itself. This confirms Peirce's notion that symbolic iconic signs do abstract certain schematic features of their dynamic objects in an ordered and conventionalised manner.

Besides, the semantic spectrum of the visually motivated handshapes in these lexical paradigms is rather wide. This feature allows for a balance between visual motivation and the systematic semantic oppositions of the lexicon, which also turns out to be an important feature of our second class of examples, namely that of imagic iconicity in discourse.

Alongside lexical 'frozen iconicity' it is also possible to find instances in discourse of what has been called 'dynamic iconicity' (Russo 2004), particularly in the use of so-called "classifier forms" or polymorphemic productive forms (cf. Schembri 2003, Brennan 2001, Cuxac 2000). Signed language classifiers are free or bound morphemes which lack a fully specified lexical meaning; they are used to refer to one or another member out of a class of entities which share the same form. These forms have often been compared to the classifiers of some verbal languages (see Aikhenvald 2003, among others)¹². For our purposes, it is important to highlight

¹² In particular, signed language classifiers are not redundant, as many kinds of verbal language classifiers are. They have multiple lexico-grammatical functions (e.g., they have verbal functions as well as locative-adverbial meanings,

that in discourse classifiers display a particular kind of *dynamic imagic iconicity*. The visual features of these forms, and especially the handshapes, can be related to a particular semantic feature of a *denotatum* in many different ways. We have already noted that in the lexicon the semantic spectrum of a particular handshape may cover different meanings. The semantic spectrum of certain handshapes can be further extended in discourse and acquire particular meanings. An example from a signed narrative will help illustrate this point:



Figure 4. FALLING-LEAF-(FROM-BRANCH)

In the first part of the sequence above (fig. 4) Giuseppe Giuranna, a Sicilian LIS signer describes a leaf falling from a tree. The signer doesn't produce the citational form of the LIS sign LEAF, but he employs a so-called "classifier", the 5 handshape classifier, the form of which is reminiscent of the flat flexible form of a leaf.

It should be noted that the iconic relationship between the 5 handshape classifier and the semantic features of the referent is not in itself sufficient to distinguish between a leaf and many other objects that can be semantically characterized as [+flexible] and [+flat] (other objects fit the description of a flat flexible surface, such as 'pieces of paper' or 'flags', etc.). The audience is able to relate the use of a handshape to the appropriate referent through the indications given by the context and the co-occurrence of handshape, movement, orientation, and the place of articulation. A very general semantic feature (such as [+flat]) may or may not be in itself sufficient to establish which referent the signer is addressing. When it is not sufficient, the co-occurrence of the other parameters will reinforce the relation.

The similarity between the 5 handshape and the "leaf" referent, therefore, has to be reinforced by the additional features of the movement and locus of the handshape: indeed, in the utterance signed above the "slow weaving downward directed movement" of the handshape is also iconically related to the semantic representation of a 'falling leaf'; this further element significantly contributes to understanding the relationship between the sign and its meaning. In addition, the left hand assumes a G handshape, a classifier generally used to address long and thin objects: in this context the referent can be identified as the branch of the tree from which the leaf is falling.

We have also noted (cfr. Russo 2004) that a slight modification of the context of utterance and of the co-occurring parameters can radically change the referential meaning of the handshape.

In the following utterance (fig. 5), drawn from the same sequence of signs mentioned above, the signer introduces a new referent whilst maintaining the same handshape classifier.



Figure 5. The

signer exploits a 5 classifier to represent a NEWSPAPER on the ground

While his right hand is moving, the left hand suddenly assumes and retains throughout a B handshape, which first specifies the ground on which the leaf falls, and then the part of the newspaper which remains in place while a page turns over. Later on, the signer changes location and movement in the production of the sign, and the change helps reinterpret the 5 handshape classifier as representing “a newspaper page in the act of turning”. It may be argued, thus, that the simultaneous presence of visually motivated parameters, as established in the discourse sequence, is a major tool to communicate and to interpret the meaning of the utterance.

We also suggest that the previously available linguistic and situational context of utterance provides additional information which helps identify the referent of the sign¹³. These mappings of semantic features onto expressive forms are rather frequent in signed discourse: it can be argued that *when the signer is not relying on the standard lexicon*, “imagic iconicity” is a necessary resource for a full understanding of the utterance. The underspecified meaning of the regular morpho-phonological units are defined at discourse level *exclusively via iconic interpretation*. Thus iconicity cannot just be regarded as an accidental feature of signs; we must acknowledge that it is a proper structural device.

It is important to underline that this kind of *dynamic* imagic iconicity coexists with the formal constraints of the grammatical levels: the entire sequence we have analysed is actually “well formed” on the grounds of the morphophonological and morphosyntactic constraints which govern parameter selection, of the semantics of classifier handshapes and movements, the alternation of left and right hands, and the non manual markers.

The iconic imagic phenomena described above are largely attested both in sign language lexicon and discourse. Pietrandrea (2002) has calculated that 50% of the occurrences of handshapes and 67% of the occurrences of body locations are iconically motivated (based on a corpus of 1944 standard signs drawn from the LIS dictionaries). In a comparative analysis of dynamic iconic structures in three LIS discourse registers (Conferences, Narratives and Poetry), Russo (2004) has calculated that: a) iconic features are a fundamental trait of the citational lexemes which occur in all three language registers (poetry being the most iconic register); b) the analysis of non-citational forms in the signed utterances brings out an additional layer of iconic features. The three registers differ as to the occurrence of discourse iconic features. Although the poetic and narrative registers are more pervasively characterized by *dynamic* iconic imagic structures (Narratives: 43%, Poetry: 53,4%), a remarkable percentage of these structures (13 %) also shows up in the more formal and technical register of Conferences.

To sum up, “imagic” iconicity is a widespread structural semiotic device of signed

¹³ As, in our example, the signer is talking about trees before introducing the sign FALLING-LEAF, this information increases the understanding of the iconic relation between the classifier handshape and the leaf (the contextual information “+ related to trees,” is actually added to the semantic features “+ flat”, “+flexible” reinforcing the iconic relation between “a leaf” and the particular articulatory unit we are examining).

languages integrated with the formal regularities of the language system both at the lexical and at the textual level.

5. *Why imagic iconicity prevails in signed languages*

Cuxac (2000, Cuxac and Sallandre, this volume) has argued that the great incidence of image hypoicons in signed languages is related to the peculiar semiogenesis of these languages (Cuxac, 2000), which induces the community of speakers to rely on a massive iconization of experience to guarantee the mutual comprehension through a code which is continuously renewed with each generation.

We fully agree with this approach, but we are still interested in understanding the mechanisms through which imagic iconicity finds its place in signed languages. This could help us understand the reason why, as the first part of the present work shows, there is a different balance between imagic and diagrammatic iconicity in verbal and signed languages.

Our claim is that the peculiar nature of the articulators and the medium employed in signed languages play an important role in preserving imagic iconicity.

As argued by Boyes-Braem (1981), in signed languages the hands are used with a linguistic purpose. The hands are employed in daily life in many tasks, such as pointing, manipulating objects, counting, and, in certain cultures, (the Italian, for example) representing objects. It makes economic sense that signed languages should make efficient use of this pre-codification of the hands in the creation of signs.

Boyes-Braem's argument can be easily extended to explain the linguistic use of the body. The speaker's body is always present in signed languages discourse. Again, it makes economic sense to exploit this presence to express meanings that are related to parts of the body.

Besides, as Wilcox (1999) has noted, just as the words of verbal languages are made up of sounds, signs consist of hand movements, which are both actual objects in the world as well as representations of objects in the world. Unlike sounds, hand movements are visible objects *in* the world and they are visible objects *about* the world. As visible objects, hand movements exploit the world's four dimensions (Hockett, 1978). The fact that visible gestures share the same substance of the physical world (at least that part of the world most frequently referred to in language, i.e. visible entities) somehow explains why gestures represent it in a more detailed and "qualitative" fashion, as Peirce would put it, than sounds do. Gestures do not entail the switch from a visual world to an acoustic representation of it: there is no need to adjust a four-dimensional world to the monolinearity of the acoustic channel (Hockett, 1978). Therefore gestural representations partake of the physical qualities of the world to a greater extent than acoustic representations do. They are, in other words, more suited to becoming imagic hypoicons.

That the nature of the medium has to do with the incidence of images in signed languages is highlighted by the fact that most instances of image hypoicons in verbal languages are either representations of sounds through an acoustic medium - e.g. onomatopoeia, ideophones, and less directly, phono-symbolism - or representations of temporal sequences of events in a temporal medium - e.g. the correspondence between the order of the constituents in a sentence and the order of the events or entities they depict. This proves that when there is no synaesthetic switch, imagic iconicity arises more readily.

If we look at it the other way around, a large number of instances of imagic hypoiconicity in signed language discourse seem to exploit the simultaneous combinatory properties of signs and their visuo-spatial features. Indeed, as we shall see in §7, the possibility of assigning a particular semantic value to each formational parameter is frequently exploited in signed utterances by means of the spatial/simultaneous nature of their medium.

6. *Radical arbitrariness in signed languages*

In spite of the pervasive presence of imagic iconicity, a principle of radical arbitrariness is

preserved in signed languages. Firstly, in a large part of signed language lexicon (i.e. the part that Cuxac (2000) defines “standard lexicon”), the iconicity is “phonemized”. That is, the depiction of referents can only be conveyed by the few formational parameters the language allows. Every sign language, as well as every verbal language, selects its “phonological” patterns arbitrarily. So, for example, the handshape used in the ASL sign for BATHROOM) - figure 6- is not part of the formational parameter inventory of LIS.



Figure 6. The ASL sign for BATHROOM

Secondly, the selection of the aspects of articulators and referents to be considered as relevant at the linguistic level is arbitrary.



Figure 7. The signs STONE, CAR, PRISONER

Figure 7 shows three signs articulated with the same handshape, the A handshape. This handshape is iconic in all the three signs. Indeed, in the first sign (STONE), the A handshape conveys the meaning *roundness* (of a stone). In the second sign (CAR), the A handshape conveys the meaning *grasping a thick object* (for example a steering wheel). In the third sign (PRISONER), it conveys the meaning of *closed hands* (like those of a prisoner in chains). It is easy to notice that in spite of the fact that all these usages of the A handshape are iconically motivated, different aspects of this handshape are selected as linguistically relevant in the three signs. In the first sign, it is the form of the handshape to have been selected, in the second sign, it is its grasping function; in the third sign the handshape is selected in its physical salience of closed hand. The same holds for each iconic usage of handshapes and locations (see Pietrandrea, 2002). Thus, given a formational parameter, it is not possible to predict its meaning because it is not possible to predict which aspect will be selected as relevant for linguistic purposes.

In the same way, it is not possible to predict which sign will be used to express a given referent (Klima and Bellugi, 1979), because it is not possible to predict which aspects of the referent will be selected for linguistic purposes. As shown by Caselli et al. (1994), both the ASL

and the LIS sign for sheet (figure 8) are iconic. Nevertheless they are radically different. In the ASL sign, in fact, it is the flatness of the object that has been selected as salient, whereas in LIS sign it is the form of the hand grasping the object that has been selected.

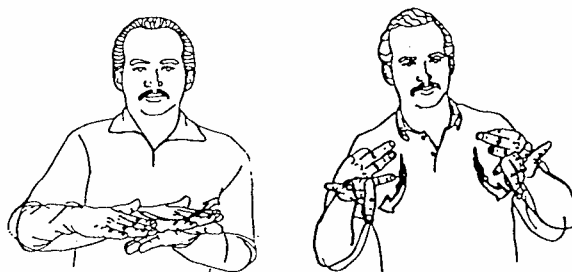


Figure 8. The ASL and the LIS signs for SHEET

Finally, all quantitative analyses highlight the fact that a consistent part of signed language systems is totally arbitrary. The analysis of the standard sign corpus, for example, shows that 50% of the occurrences of handshapes and 33% of the occurrences of locations have no evident motivation. The analysis conducted on discursive iconicity shows that opaque forms widely occur in lectures and narratives (respectively 52,6% and 35,7%) and to a lesser extent in poetry (23% of signs). Arbitrariness, thus, seems to co-exist at different levels with imagic iconicity in signed languages.

7. *The coexistence of iconicity and radical arbitrariness*

How can highly iconic language phenomena coexist with the formal and structural needs of a linguistic system? We claim that the iconic phenomena in signed languages, as well as those in verbal languages, are not just an incidental feature of the surface form of signs. Indeed the coexistence of iconicity and arbitrariness must lie at the heart of the complex interplay between the formal requirements of the linguistic system and the pragmatic constraints which guide the interpretation of a linguistic utterance. On the one hand, each particular linguistic unit responds to certain formal requirements at the phonological, morphological and syntactic level (rules for the combination of single units in a meaningful proposition included). On the other hand, textual and situational context always add additional information to the interpretation of the linguistic units

Ferdinand De Saussure argued in his posthumously published *Course de Linguistique général* (1967[1922]) and in his notes on the theory of signs (De Saussure 2002), which have been recently made available, that a language system must guarantee a balance between the formal requirements of the language system (i.e. the formation rules and the semantic regularities, De Saussure used to refer to with the name of *langue*) and the residual space assigned to the freedom of interpretation of an utterance in a particular context (*parole*).

De Saussure's point was that both the autonomous regularities of a language system and its freedom to vary along the diachronic dimension could be explained by a unique principle: the Radical Arbitrariness of the linguistic sign (De Saussure 1967[1922]:104-113, De Saussure 2002: 28-29). On the one hand, if understood as radically arbitrary, linguistic systems may display formal regularities both at the expressive-phonological level (the *signifiants*) and at the semantic level (the *signifiés*) without being determined by external reality. On the other hand, radical arbitrariness is crucially related to the underspecification of linguistic units, which must be regarded as one of their design features (De Mauro, 1991). Because they are underspecified, linguistic units can be interpreted in context and can change meaning and form along the diachronic dimension: this is a precondition for the semantic openness of natural languages and

in general for linguistic variation. We may say, in fact, using De Saussure's terminology, that language systems are open to those changes which arise from the variability of individual linguistic utterances (*parole*), but they are also always determined by previous arbitrary regularities concerning their *signifiants* and *signifiés* (*langue*). The Saussurean principle of Radical Arbitrariness has often been understood as stating that the linguistic signs must not be iconic, i. e., that they cannot display perceptual features of their referents (see Givón 2002). We claim instead that this principle basically states that languages obey systematic formal constraints which are autonomous, i.e. arbitrary, to the extent that they fulfil two distinct requirements: (a) they are not predictable on the grounds of external reality and (b) they do not exhaustively determine utterance meaning, allowing pragmatic interpretation and, consequently, semantic variability¹⁴ (see also Russo 2004, ch. 6).

Iconic features can thus characterize linguistic signs to the extent that they do not contrast with these two requirements. This entails that iconic constraints on linguistic systems may also be admitted, to the extent that they do not contrast with the regularities that can be consistently detected in the language system at different levels. Furthermore, iconicity can characterize linguistic signs at the level of pragmatic interpretation. Being underspecified, linguistic units do not afford a complete and exhaustive interpretation of an utterance and need some pragmatic prop for the interpretation to take place.

This is consistent with our analysis of dynamic iconic structures in signed texts¹⁵. As shown above, discursive iconicity acts as a pragmatic prop to ease the understanding of signed utterances. Diagrammatic and imagic hypoiconicity, in general, are useful hints to the interpretation of the linguistic sequence. In signed languages the balance between formal regularities and openness to pragmatic interpretation is obtained not only in the standard-lexicon but also, as shown by Cuxac and Sallandre (this volume) in the so-called "structures de Grande Iconicité", i.e., the highly iconic structures which characterize signed discursive units (Cuxac, 2000), such as, for example, Role Taking Devices (Wilbur 1987, Ajello 1997, Pizzuto, Giuranna e Gambino 1990, Engberg Pedersen 1989).

In Role Taking, posture, facial expressions and eye movements all contribute in determining an iconic relation between the signer and the character he is embodying. While these structures display a high degree of imagic iconicity, they are also constrained by regular patterns governing the selection of the articulatory forms, the relation between the selected forms, the features of meaning, the timing of the signs and their co-occurrence with other kinds of sign (Pizzuto, Giuranna e Gambino 1990, Cuxac 2000). As noted above, the same point can be made in relation to so called classifiers. In spite of the fact that signed language classifiers are best characterized as forms that can be productively combined in discourse for a range of lexico-grammatical functions, they do obey a great deal of formal constraints. Furthermore, while the single classifier may be regarded as semantically underspecified when out of context, iconicity adds a semantic determination to its contextual occurrence in a systematic way.

Iconicity is thus a major structural resource of signed languages permeating every level of the language system and acting as a major pragmatic constraint in utterance interpretation.

We may conclude our analysis by saying that, while verbal and signed languages are both characterized by iconic features at every level of their structure, signed languages seem to exploit imagic hypoiconic devices to a greater extent. This is probably due to the semiogenetic conditions of these communicative devices and to the particular features of the linguistic community they are used by. In addition, a major structural drive to maintaining highly iconic imagic forms in sign language systems seems to derive from their visuo-gestural modality and from the multi-linear combinatorial features of sign components.

¹⁴ In addition the formal requirements of the linguistic system also leave space for the variation of the form of the linguistic units, but we are not dealing with this point here.

¹⁵ The point is tenable also for the iconicity of verbal texts as in the case of the Givón's Quantitative and Sequence rules mentioned before in paragraph 2.

By contrast, verbal languages mostly exploit linear combinatorial devices¹⁶. This may have contributed to the submergence of part of the imagic hypoiconic features of verbal signs and to the prevalently diagrammatic character of their iconicity.

Iconicity and arbitrariness, thus, coexist in verbal and signed languages although they take on different forms and reach a different balance in the structures of the linguistic system.

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¹⁶ Indeed multilinear features seem to be prevalently exploited, in verbal languages, at the level of subphonemic units and at the level of the suprasegmental traits, including the co-occurrence of meaningful gestures.

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