

05. Linguistic analysis of impairment data

05.01. Data collection and adapting to the linguistic corpus. Aspects of linguistic analysis: forms, functions and meanings.

One of the frequent topics in the wide-ranging literature on language is its comparison with other animal communication systems. The discussion on the semiosis of natural languages mentioned Hockett and Altman's classic studies, in which they semiotically compared natural languages with other languages.

This section addresses the specific description of linguistic units, dealing with their typical aspects: forms, functions and meanings.

[This section is based on

- A. López (1977): "Del signo", Elementos de semántica dinámica" (About the sign, elements of dynamic semantics), Pórtico: Zaragoza.
- E. Serra and M. Pruñonosa (2006): "Las formas del lenguaje" (The forms of language), in A. López and B. Gallardo: Conocimiento y Lenguaje (Knowledge and language), Valencia: PUV.
- A. López (1989): Fundamentos de lingüística perceptiva (Fundamentals of perceptive linguistics), Madrid: Gredos.]

In a word such as "gato" (cat), for example, we have:

- a noun
- a sequence of phonemes /g-'a-t-o/

- a meaning: the object "gato"



, or the animal "gato"



These are the three main aspects that will enable a description to be made of the various linguistic disciplines. Firstly, FUNCTION, also known as PARTIAL SIGNIFIER, is necessarily associated with a meaning and cannot be conceived without it. Secondly, FORM, which is the COMPLETE SIGNIFIER, consists of pure signals that lack any meaning. Lastly, MEANING is the inseparable association of signifier/signified.

The three aspects named above are different. Form and meaning bear a certain relation to reality, to the world, whilst function arises from the relation between the other two aspects.

Signifiers are physical realities (they can be recorded, for example) that exist outside linguistics. Meaning can also be placed in external reality, separate from language. But function is internal to language. In a sentence such as

"Los alumnos de segundo se quedaron en el aula" (the secondary school students remained in the classroom),

"los alumnos" is the subject. To express this we combine acts of form with acts of meaning. We say it is the subject because it agrees with the verb (plural); the verb signifies action, situation or passion, and its changes affect another word which is the subject. We start with a verb ("se quedaron"), that MEANS something, and its FORMAL changes ("se quedó" instead of "se quedaron"), explain the function of another unit ("los alumnos" loses its agreement if the verb is used in the singular). We cannot speak of functions without taking forms and

signifieds into account; neither can we talk about speeds, but rather spaces covered in a certain time.

Thus, any natural language is specified by three aspects: two real, form and meaning, and a third outside the real world, which is internal to language. The aspects of a sign are the factors without which it cannot be defined, and whose variations entail variations in the sign.

The confluence of these three elements, then, determines the appearance of the ASYMMETRIC SIGN. Since Saussure, structural linguistics has defended (with some more or less occasional arguments¹), the concept of a symmetric linguistic sign, formed by signifier and signified as the two sides of a sheet of paper.

Although not abandoning this binary approach, minimal grammar proposes (A. López, 1974: *Elementos de semántica dinámica (Elements of dynamic semantics)*, Pórtico, Zaragoza) a sign that is asymmetric in nature:

SIGNIFIER

 SIGNIFIER / SIGNIFIED

To justify this asymmetry, A.López's argument is based on two ideas:

- the double articulation of language put forward by Martinet, and
- the necessary relationship between signifier and signified put forward by Benveniste.

For Martinet (1968, *Elementos de lingüística general*, (Elements of general linguistics), Gredos), language is organised into two articulations, with the first articulation units² formed by meaning and sound ("casa"), and second articulation units, which are merely formal and not meaningful (/k-á-s-a/). However, E. Benveniste (1966: "Nature du signe linguistique" (The nature of the linguistic sign), *Problèmes de linguistique générale*, Paris, Gallimard) argues that the relation linking signifier and signified is not an arbitrary one³ as Saussure saw it, but necessary.

This means that, on the one hand there are linguistic units devoid of meaning, composed only of formal elements of the second articulation. We will call these COMPLETE SIGNIFIERS (pure signals, pure forms). On the other hand, the necessary relation between

¹ Thus, for example, OGDEN and RICHARDS (*The meaning of meaning*) propose a ternary approach using the concept ("table"), the referent (the object 'table') and the symbol (the sequence /table/). ULLMAN, in his work *Semantica*, criticises this position and proposes a return to the Saussurian view that opposes a Signifier and a Signified in a reciprocal and reversible relationship. From a psychologist's standpoint, BLOOMFIELD says that the sign is born out of the association of a stimulus (the thing) of a reaction (the sound) in the case of the speaker, and the inverse in the listener. Other proposals, such as that of HEGER, substitute Ogden's triangle with a Trapeze (phonic substance-moneme-signified-sememe-concept-thing).

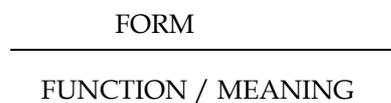
² "This double articulation enables us to distinguish linguistic units with phonic form and meaning (monemes) and linguistic units with only phonic form, which can differentiate signifieds but have no meaning relative to the phonic form (phonemes)" (Pruñonosa-Pérez Saldanya, 1987, *Elements per a una sintaxi liminar del català*, Valencia).

³ "Attempting to clarify the concept of arbitrariness of the linguistic sign, he was of the view that the relation between non-motivation and non-necessity that Saussure defends for the signifier and the signified is erroneous. According to Benveniste, this arbitrariness should be situated between the sign and the referent and not between the components of the sign, since it is impossible for these components to exist independently of each other: for the concept to exist, it must be 'limited' by the phonic image, and this, if it represents a sign, it is because it is linked to the concept". (1987: 22)

signifier and signified leads us to consider the possibility of a PARTIAL SIGNIFIER, as we cannot think a concept without giving it a name, that is, a physical base (sound, writing). We have the following situation:



Which leads to the previous diagram on the aspects of a Natural Language:



When analysing speech samples (whether of speakers with impairment or not) this sign structure should be taken into account.

Obviously, the possibility of isolating the strictly formal elements (sounds/letters) explains why there are disorders that exclusively affect phonation or reading and writing. However, linguistic impairment is three-dimensional in nature, it affects the links between *forms* and *functions/signifieds*.

As discussed in the section on Language and Speech, this difference in aspects is also at the base of the disciplinary compartmentalisation of Linguistics.

Let us briefly see how we relate aspects of the linguistic sign to the disciplines that study them. The literature contains a number of statements on language, such as:

- *labial plosives in Spanish are neutralised in the implosive position*
- *incorporating languages are described as such because in them, objects (and some types of subject) can appear as verbal morphemes*
- *in Guarani, marks are not added to nominal syntagmas, instead they appear in verbs as referential affixes*
- *the relative negation is an adverb that affects a nominal or verbal syntagma and serves to negate a previously affirmed predicate*

Are all these statements using form, function and signified in the same way? Let us review the aspects identified above.

If we only speak of FORMS we can see how a particular sequence sounds, for example [pán]. There is a discipline that has little to do with linguistics and is almost physiological, that studies sounds: **phonetics, devoted to the more external aspects of language**. In parallel, if we consider the meaning of "pan", we will be making an almost anthropological observation that places us in the realm of **lexicology**.

If we observe examples of minimum pairs, such as "masa", "mata", "mala", etc., we can see that there is a change of signified that is related to a formal, phonic change. The relation can occur in many ways. For example, a small formal change ("masa"/"pasa") (meaning bread/raisin) can give rise to a major change in meaning, whilst in the opposite case, a considerable formal change can be due to semantic variations ("vidrio"/"cristal") (both meaning glass). In the first case we are highlighting form, and the signified serves as an explanatory background to base our argument on; in the second case, we highlight the issues to do with meaning and the formal aspects become the background to the argument. This leads to two new disciplines: **phonology, which deals with the function of form, measured by changes in meaning, and semantics, that deals with the meanings of one word in relation to others.**

For example, the phonemes /ʃ/, a voiceless palatal fricative, and /s/, a voiceless alveolar fricative, are not two different phonemes in Spanish (it is not a RELEVANT difference), but they are in Catalan, because the formal change involved (alveolar-palatal) is accompanied by a change in meaning (for example in "casa"/"caixa", [ˈkaza - ˈkaʃa]). By going further into this type of observation, we can establish different types of relation between the phonological units:

1. there is an inclusive relation between a phoneme and the archiphoneme that neutralises it. This occurs in Spanish, for example, in the occlusive and nasal in the implosive position; when a nasal appears in this position, it does not matter if it is an alveolar /n/, bilabial /m/ , palatal /ɲ / phoneme, or even the velar [ŋ] and dental [ɳ] allophones, as there is a neutralisation represented graphically by /N/. Thus, the archiphoneme /N/ can include any of the following phonetic productions:

alveolar	"con un ademán", /koN uN ade'maN/, [konunaðe'man];
labial	"con viento fresco", /koN ˈbjeNto ˈfɾesko/, [komˈbjeŋtoˈfresko];
velar	"la gran galería", /la gRaN gale'ria/, [la'granɣale'ria] "conjunto", /koNˈxuNto/, [koŋˈxuŋto];
dental	"la espantó tanto", /la espaNtó táNto/, [la espaŋˈtoˈtaŋto]
palatal	"con llave", /koN ˈkaβe/, [koŋˈkaβe]
2. there are also relations of equivalency between a phoneme and its allophones. Allophones are the actions produced by each phoneme in the chain of speech, but they do not respond to a relevant distinction in that language. Following the example of the nasals, there can be dental [ɳ] or velar [ŋ] variants of nasal alveolar consonants, which are equivalent phonologically (not phonetically) speaking.
3. Lastly, there are relations of opposition between different phonemes.

According to López García (1989: 53) "*phonology is a discipline that deals with two variables, the complete signifier and the partial signifier, both of which oppose the signifier-signified that helps to differentiate between them - cf. the phoneme as a minimum set of phonic features (complete signifier, SteT) that are linguistically relevant (partial signifier, SteP) for differentiating signifieds (Ste-Sdo) - so that SteT and SteP function as closed (descriptum) and the Ste-Sdo, which is the blurred aspect, as open (descriptor)*".

The same relationships can be found in the area of **semantics**.

A unit such as "asiento" (seat) includes units such as "silla" (chair) or "taburete" (stool). In certain contexts, equivalency can be found to exist between two units such as "casa" and "domicilio", and semantic oppositions can be set up between any two units deconstructed into semes (semes are like the distinctive features of phonemes; like /b/ is defined as /consonant, occlusive,

bilabial, voiced/, the lexeme "taburete" (stool) is defined by the semes /para sentarse, sobre el suelo, para una persona/ (/to sit on, on the floor, for one person/), the lexeme "silla" (chair) incorporates the seme /con respaldo/ ¹(/with backrest/), and this takes us to "butaca" (armchair), that is also /con brazos/ (/with arms/), etc.)².

Semantics discusses the signifier-signified and the partial signifier (SteP), that oppose the complete signifier (SteT) that distinguishes them. Thus (López 1989: 53) structuralism has defined the sememe as a set of linguistically relevant (partial signifiers) semic features (signifier-signified) connected by a phonic form (complete signifier) that individualises and distinguishes it.

In the classification we have drawn up, it can be seen that:

- phonetics and lexicology are only semi-linguistics as they deal with two aspects, form and signified, related to the extra-linguistics world.
- phonology deals with the FUNCTION OF FORMS MEASURED BY THE SIGNIFIED, and
- semantics deals with the FUNCTION OF SIGNIFIEDS MEASURED BY FORMS.

In these two disciplines are contained within the domain of INTERNAL linguistics, and therefore we must turn to FUNCTION, the internal aspect of language. What remains now is to study the area that deals with **FORMS AND SIGNIFIEDS MEASURED BY FUNCTION. This is morphology.**

Let us take a look at the typical morphological categories and ask, for example, does the plural exist?, why?

Some views would say YES because it stands in opposition to the singular, which makes reference to the unit; but there are general references in the singular ("jauría" - pack, "multitud" - multitude, "enjambre" - swarm).

On the other hand, words such as "pantalones" (trousers), "gafas" (glasses), etc. at first seem to show a plural morpheme, although they refer to one unit. This criterion is not always valid, however.

Some words ending in -s ("lunes" - Monday) can be plural or singular, according to their relation with other elements in the chain.

The /-s/ is given the status of MORPHEME when its appearance/suppression is accompanied by variations in meaning (signified) that can be measured by changes in function. A word is in the plural because it has a form and a meaning (signified), but it is not operative until it has a particular function.

A good example of this can be found in the endings of Latin cases. Faced with a form such as "domini", what morphological category can be identified: genitive singular, nominative plural or dative singular? In order to be able to answer this question, we need to know the possible signified of "domini" in a wider sense, and when its probable signified is known, we can find its morphological case.

Morphology, then, deals with the association of forms and meanings measured by function.

¹ Dummy.

² A further parallelism can be set up between phonology and semantics that goes beyond the behaviour of its units. We refer to the fact that linguistic realities are not equivalent to the realities of our referential world. For example, "asiento" (seat) will be that which we decide to name thus, even if there are things that can be used as such but are not included in this category ("suelo" - ground, "cajón" - box). A similar thing happens in phonetics and phonology: grouping sounds in phonemes ignores the realities of the articulatory system, and obeys the language's internal reasoning. In other words, phonetics dispenses with phonology.

Morphology also plays a particularly important role in language (López, 1989: 54) that justifies its internal division into three areas:

- alternating morphology: this is the part of morphology most closely connected with phonological elements and deals particularly with the phonological variety of morphemes (allomorphs): *-s, -es* for the plural, *eléctriKo/electriθidad*, etc.
- flexive morphology: this is the main type of morphology, in which formal and semantic changes reveal a functional change, that is, grammatical (*cantar, cantaba, cantarían, cantaste*).
- derivative morphology: It is part of morphology that deals with semantic values and basically addresses word formation problems: *canción, cantante, cantable, cantar, canturrear, etc.*

A review of traditional linguistic disciplines shows that our classification does not take syntax into account. What does syntax address? A syntactic element *par excellence* could be the notion of SUBJECT. Some definition of the subject are³:

1. logical subject: according to Aristotelian tradition, the subject carries out the action:
Juan rompió los cristales (Juan broke the windows)
2. grammatical subject: the one that agrees with the verb:
Los atletas extranjeros llegaron antes (the foreign athletes arrived beforehand)
3. psychological subject: what is being spoken about, and that appears first in the utterance (corresponding to the notion of THEME or TOPIC, in opposition to RHEME or COMMENT):
Mañana hace tres años que se casó (tomorrow it will be three years since he/she got married)
4. pragmatic or emphatic subject: element of the utterance receiving the intonation emphasis:
He dicho que vendremos MAÑANA (I've said we'll come TOMORROW)

If we take the three first definitions, it is not difficult to establish correspondences with the three aspects of language identified above: the logical subject is defined by the meaning of the sentence; the grammatical subject deals with functional criteria; in the psychological subject it is the form that predominates. We can see, then, that the definition of a syntactic unit puts the three aspects of language into play; it studies all three at the same time.

³ .-E.L.KEENAN, 1976: "Towards a universal definition of subject", en C.N.Li, ed, *Subject and Topic*, N. York, Academic Press (pp. 303-333).