03. Commonplaces in Clinical Linguistics
03.02. Linguistic semiosis: signals or symbols?

Communication, whether verbal or otherwise, consists of units of meaning that link a designating element with another designated one; this link is *semiosis* or sign process, and may have different basic features[1]. When dealing with the clinical analysis of linguistic impairment, it is essential to be clear on the nature of the linguistic semiosis, which in other words leads to addressing the nature and composition of the linguistic sign.

According to the *Course in General Linguistics* (1916), Saussure contemplates two types of entity:

- the **linguistic sign**, as psychological entity composed of concept or signified and acoustic image or signifier, and characterised by being arbitrary;
- the **symbol**, as relation of similarity (for example: balance/justice)

From the theory of signs, Charles S. PEIRCE (1931-35)[2] would later say that the **sign** is "*something that stands to somebody for something in some way or capacity*" (Collected Papers, section 228); as can be seen, the definition includes the interpreter of the sign as a component of its composition. According to the rationale of the sign relation, there are three types of semiosis:

- **indicial**: the consequence relation between sign and object;
- **iconic**: sign and object share characteristics;
- and **symbolic**: the conventional, habitual relation between sign and object.

Charles Morris (1938)[3] differentiates between two types of relation:

- The **signal** points to the world, to reality; it indicates the presence or appearance of a thing or fact (indicial or iconic); they can be interpreted by people or animals; we would add that machines can also detect and interpret signals.
- The **symbol**, however, points to psychological realities and is based on a conventional relation that is accessible to human beings (this includes verbal signifieds, which are ALWAYS abstract, that is, mental representations).

As can be seen, a system of signals lacks a psychological cause, it is reduced to a mere list of equivalences; it consists of signs with a predetermined signified, referentially homonymic and not sensitive to context (Hernández Sacristán 2005: 79)[4]. However, the natural languages system works differently, which should be taken into account in logopaedic practice.

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[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] Peirce, Charles Sanders (1931-35): *Collected Papers*, eds. By C. Hartshorne and P. Weiss.

[3] Morris, Charles (1938): Fundamentos para una teoría de los signos (Foundations for a theory of signs), Barcelona: Paidós.

[4] Hernández, Carlos (2006): *Inhibición y lenguaje (Inhibition and Language)*, Madrid: Biblioteca nueva.

But, what is this other way of working? How should linguistic semiosis be characterised?

A great many theories have been put forward to answer this question, some of which can be quoted anecdotally; Gordon Hewes[5] suggests the following summary:

- interjection or Pooh-Pooh theories;
- imitative, onomatopoeic or Bow-Wow theories;
- imitation of the sounds produced when objects are struck, or the Ding-Dong theories;
- singing while working theories, or Yo-He-Ho;
- mouth gestures or Ta-Ta theory, according to which the various areas of the mouth imitate the movements made by the hands, the arms and other parts of the body;
- theory of babbling and chance combinations, based on the acquisition of associations between the sounds made by babies babbling and elements in the outside world;
- the instinct theory, according to which language appeared at a certain moment in human cognitive evolution, and from then it has been innate in human beings;
- convention theory, which puts forward that humans deliberately agreed to create language and thus improve their social life;
- contact theory, according to which language is the inevitable result of humans' social and communication needs;
- divine or miracle theory, upholding that language is a gift from the creator;
- random mutation theory, stating that language arose as the result of a random biological process;
- gestural sign theory, according to which language started with hand and arm movements, and spoken language only appeared at a later stage.

However, beyond these more or less ingenuous theories, two broad stances can be discerned in respect of the APPEARANCE of language: nativist rather than evolution or adaptationist[6]:

- for the theory of discontinuity (Descartes, Chomsky 1959, Lenneberg 1967, Fodor, Bever and Garret 1974), the universal features of language are peculiar to the species and the structures implicit in it are specific to communication.
- however, the theory of continuity postulates a progressive evolution leading to the appearance of language. From this same standpoint, two different versions can be seen (Veyrat, 1994), one with a Darwinian basis (animals only need to develop an already present feature to approach linguistic ability) and another Huxleyan version (linguistic ability is acquired by hominids through the gradual accumulation of features not previously in existence: evolution in mosaic)[7].

[5] Hewes, Gordon (1975): *Language origins,* The Hague, Mouton.

[6] Ragir, Sonia (1992): "Adaptationist and nativist positions on language origins: a critique".

[7] Empiric research into linguistics cannot go back much more than 5000 years, therefore it has to turn to prehistory to find out more about the origins of language. The problems can be reduced to three: why, how and when. A satisfactory answer cannot be found for **why**, and theories waver between evolutionism and innatism. **How** can be answered with paleontological data providing direct and indirect information on the abilities required for language. The neurological, anatomic and physiological arguments used by Lenneberg, do not, as we shall see, individualise humans in comparison to other animals. Direct information tells us the following: a) neurological data: traces of Broca's zone in craneal cavities; Ralph Holloway found them in some fossils of Australopithecus (>Habilis> Erectus); evidence of cerebral lateralisation has also been found in H. Habilis (by the way utensils are carved, for example); and b) anatomical data: the larynx of Australopithecus is more fitted into the craneum; H. Neanderthal was

E.H. Lenneberg (1967)[8] picks up the generativist hypothesis of discontinuity, according to which language is an innate human ability. [When the human species emerged, the new phenotype was equipped with the genetic material for developing speech]. For these theories, if there were no innate mechanism, behaviour[9] would not arise until each individual's life depended upon it, therefore it would appear at different ages and at different stages in development.

Following this idea, Lenneberg attempts to demonstrate that the foundations of language are biological and not psychological and therefore that its development is possible because of humans' exclusive characteristics. The arguments he puts forward are familiar:

1. From an **anatomical** point of view, no other animal has a voice box like the human one. However, these anatomical peculiarities should not be regarded as determining factors: animals such as parrots and parakeets are able to articulate linguistic statements with a degree of perfection, and there are also cases of physiological deformities that present no real obstacle to speech; there are even cases of voice impediment in which speech is developed by other means.

   "thanks to the muscle around the lips -orbicularis oris- and in the cheeks -buccinator- they can articulate occlusive sounds such as [p] or [b] by closing the mouth completely and making a final plosive; as the incisors do not make an angle with the mouth closed, and the canines are the same length as the other teeth, the teeth make a barrier enabling fricative and affricative sounds to be made of the [f] or [θ] type; at the same time the epiglottis is much lower than in other primates and is not touching the soft palate, so the sound is not forced out of the nose, but rather can be sent through the mouth, generating buccal articulations that are much clearer than the nasal sounds made by monkeys; the larynx is much simpler and has no folds or air bags preventing exhalation" (A. López, 1989:18).

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incapable of emitting the sounds made by modern humans. Indirect information tells us about factors such as stone carving, control over fire, butchering and defence of large animals or ceremonial burials, all activities requiring cognitive ability beyond that of animal instinct.
Regarding **when**, Australopithecus (died out between 3 and 4 million years ago) would only have been able to make certain vocalisations; H. Habilis (2 million years ago, in the Lower Paleolithic) would have used some rudimentary verbal communication; H. Erectus (between 1.5 million years ago and 100,000 years ago, still in the Lower Paleolithic) would have incorporated a certain amount of vacbulary and syntax; H. Sapiens (including Neanderthal and Sapiens-Sapiens, during the Middle Paleolithic - 95,000/32,000 years - and the Higher - 40,000/10,000 years) would have been able to develop the symbolism and imaginativeness of the linguistic communication system.

[8] *Biological Foundations of Language,* N.York, 1967. Ch. 9: "El lenguaje a la luz de la evolución y de la genética" ("Language in the light of evolution and of genetics"), in Alonso-Cortés (ed.): *Lecturas de Lingüística,* Madrid: Cátedra, 1989.

[9] Not only language, but also sexual conduct, movement, etc. They develop long before the individual needs them for survival; they do not need the subject to make a conscious and voluntary decision; they require the appropriate biological maturity; they are not behaviours acquired through learning, instruction or practice; they develop more successfully at a particular age.

Camilo José Cela Conde: La filogénesis de los homínidos.

http://www.uib.es/servei/lhs/filogenesis_Dialogo.pdf

La evolución del conducto vocal supralaríngeo, responsable de poder articular las consonantes y vocales de nuestras lenguas, ha sido estudiada sobre todo por Laitman (1984) y Lieberman (1984, etc.). La conclusión de ambos autores apunta a un lenguaje desarrollado sólo en *Homo sapiens*, aunque los puntos de vista al respecto son cualquier cosa menos compartidos por todos los autores. Entre Holloway (1983)que, tras el examen de los endocráneos fósiles (marcas dejadas por la superficie del córtex) disponibles considera que *Homo erectus* pudo hablar y Krantz (1988), que atribuye a una última mutación de hace menos de 50.000 años el último paso necesario para hacerlo, existe una diferencia notable.

Fue Phillip Tobias el primer autor que recordó que se habla con el cerebro. Sus estudios de los endocráneos de *Australopithecus africanus* y *Homo habilis* detectaron una expansión incipiente en las áreas de Broca (prefrontal) y Wernicke (temporal) del hemisferio izquierdo del cerebro que le llevaron a sostener que esa especie fue la protagonista del inicio del lenguaje (Tobias, 1987, por ejemplo). Tobias, no obstante, ha aclarado muchas veces que el inicio no es el lenguaje del todo desarrollado.

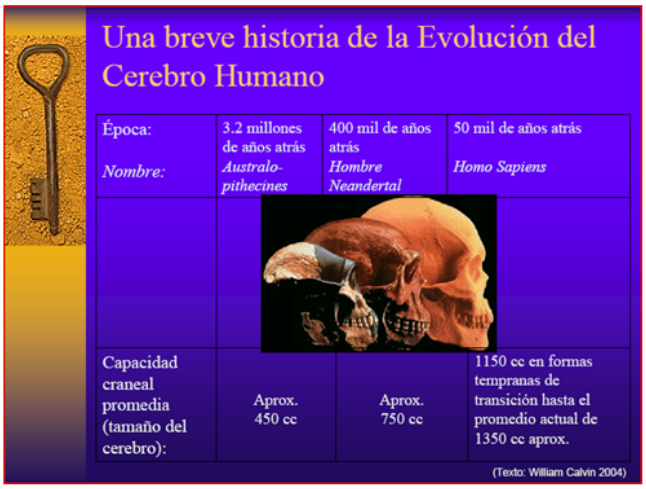
[Camilo José Cela Conde: Phylogenesis of hominids.
http://www.uib.es/servei/lhs/filogenesis_Dialogo.pdf

The evolution of supralaryngeal verbal conduct, responsible for being able to articulate the consonants and vowels of our languages, were particularly studied by Laitman (1984) and Liebman (1984), etc.). Both authors concluded that language developed only in Homo sapiens, although points of view regarding the details diverge widely. Holloway (1983), after examination of the available endocranial fossils (traces left on the surface of the cortex) considered that Homo erectus could speak, while Krantz (1988) attributed the last step required for speech to a mutation less than 50,000 years ago.

Phillip Tobias was the first author to record that speaking is done with the brain. His studies in the endocraniums of Australopithecus africanus and Homo habilis detected an incipient expansion in Broca's area (prefrontal) and Wernicke's area (temporal) of the left hemisphere of the brain, which led him to sustain that this species was the first to initiate language (e.g. Tobias, 1987). Tobias, however, has many times warned that this initiation is not of fully developed language.]

2. **Neurological** conditioning factors appear to be the most important. The human brain is much larger and heavier[10] and has deeper folds than the primate brain. But this does not justify linguistic ability; although it may serve to explain greater development of a common ability (López García 1989). It cannot be said that the various neurological functions (nutrition, language, movement) are assigned to specific areas of the brain, but that cells and nerve connections across the whole brain interact at the same time; therefore cranium and brain size is not as relevant as was once thought (not in absolute terms), since it tells nothing about what areas of the brain have grown in relation to the neural connections required for each function.

Diapositiva de Tracey Tokuhama-Espinosa
http://www.educacionparatodos.com/pdf/11.pdf



3. In addition to anatomic and neurological conditioning factors, **physiological** peculiarities also make language possible. The duration of the exhalation when speaking is the most distinctive feature; when not speaking, this duration is not too different from that of inhalation, but when speaking, the difference between the two is considerable. However, this is only a process of adaptation.

Lenneberg opts for the specificity of human language, as the alleged explanations do not justify the phenomenon of speech, only the process that humans have developed in order to adapt to language. It therefore seems appropriate to adopt the generativist theory of innateness.

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Along with the attempts to find biological foundations for language (correlating with innateness approaches), other lines of argument can be sought out. Juan Carlos Moreno (1991)[11] cites three exclusive features of human language:

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[10] "In just a short space of time of 2-3 million years, the human brain has gained weight from 500 grams to 1,400 grams, an increase of almost one kilo of brain. (...) The study of fossil remains today enables us to show that, from man's ancestors, the Australopithecines (Afarensis, average brain volume 400 cc; and Africanus 460 cc), the brain increased by about 250-350 cc in Homo Habilis (700-750 cc average brain volume). In Homo Erectus, brain volume reached 900 cc and progressed from there in Homo Sapiens, reaching 1,400 cc". Phillip V. Tobias (1971): *The Brain in Hominid Evolution*, N.Y.-London: Columbia Univ. Press, 1971.

[11] Moreno Cabrera, J.C. (1991): Manual Universitario de Lingüística General (University Handbook of General Linguistics), Madrid: Síntesis.

Economy: from which three features are derived:
- duality
- interchangeability
- and efficiency

Symbolism: upon which other characteristics depend:
- semanticity
- specialisation
- arbitrariness
- reflexiveness
- prevarication
- and displacement

Creativity: involving
- compositionality
- and recurrence

from Juan Carlos Moreno (1991):
"Human languages obey three imperatives. *Economy* is caused by humans' physical and psychological limitations. we can only efficiently make and differentiate between a limited number of sounds and our short and long term memory capacity is limited, as is our ability to process information. Secondly, human language is an eminently *creative* ability; we are capable of emitting and understanding completely new expressions because our linguistic knowledge enables us to apply general patterns to specific cases. Thirdly, language is eminently *symbolic* as it refers to a reality that is different to itself.

Modern semiotic approaches to this question refer back to Hockett and Altman's descriptions (1968)[12], the starting point for which were what Hockett termed "Rasgos de diseño del lenguaje" (Traces of the design of language). These authors dispense with the biological approaches and, from a semiotic perspective, draw up an inventory of features that characterise human language and that of other animals (bees' dance, spiny fish sexual behaviour, seagull chick feeding).
In their comparative study, Hockett and Altman conclude that what characterises human language is the simultaneity of three features: duality, reflexiveness and prevarication

As López García states (1989)[13], **duality** corresponds to the double articulation of language, as highlighted by Martinet (1949) and other linguistic traditions. For Martinet (1968)[14], language is organised into two articulations, with the first articulation units formed by meaning and sound ("casa"), and the second articulation units, which are merely formal and not meaningful (/k-á-s-a/). These monemes can also combine with each other to produce other more complex units that have both form and meaning:

"*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 and Pérez 1987)[15]

[12] Hockett, Charles and Altman Stuart A. (1968): "A note on design features", in T. A. Sebeok (ed.): *Animal communication*, Bloomington: Ed. Indiana University Press; 61-72.
[13] López García, Ángel (1989): *Psicolingüística (Psycholinguistics)*, Madrid, Síntesis.
[14] Martinet, André: 1968, *Elementos de lingüística general (Elements of general linguistics)*, Madrid: Gredos.
[15] Pruñonosa, Manuel and Pérez Saldanya, Manel (1987): *Elements per a una sintaxi liminar del català (Elements for a liminar syntax of Catalan)*, Valencia.

Reflexivity is the foundation of grammar; human language is the only one that can talk about itself (which is related to humans' unique self-perceptive ability), that is, it is the only language that includes a metalanguage.
Lastly, **prevarication** is the possibility of voluntarily formulating untrue statements, that is, of dissociating between a given signifier and its signified in the system; all figurative forms are to be found here, whether they are lexicalised or not (irony, metaphor, hyperbole, etc.).

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The three properties are related. Firstly, duality is the foundation of reflexivity: a grammatical metalanguage cannot exist without the double articulation of language. It should be remembered that the metalinguistic sign is that which has another sign as its signified:

$$\frac{\text{SIGNIFIER}}{\text{SIGNIFIER / SIGNIFIER-SIGNIFIED}}$$

"For a sign to speak of itself it must be able to dissociate itself in some way, so that one of the parts tells us about the other. Chemical or mathematical signs are completely inseparable: Na :: sodium, or ∫ :: integration, are not really signs, as they do not have a signifier and signified, they are symbols associated with a sign-signified: Na without sodium does not mean anything, but /or/ in natural language exists independently of "disjunction". (...) language can act metalinguistically on itself because its signs are semiotics of semiotics, signs whose signified is also a sign:

/kása/ SIGNIFIER

/kása/ + "casa" SIGNIFIED

signifier+signified

However, the previous diagram does not stop there: if the signifier /kása/ refers to the sign /kása/+"casa" there is no doubt that the signifier /kása/ of this sign-signified will in turn refer to another sign /kása/+"casa" and so on to infinity" [A. López García (1977): "Del signo", in Semántica dinámica, p. 16].

That is, that the possibility of conceiving the signifier as something independent of the signified (TOTAL SIGNIFIER of the numerator) is what enables it to be associated with a non-"primary" signified, and this in turn enables a metalinguistic reflexion to take place.

Reflexivity is also what supports prevarication. If the metalinguistic sign allows a signified to refer to elements other than its referent (for example, if "water" as signified referred to H2O; or if "corto" referred to /kórto/ and not to something 'corto' or short) signifiers can be used in the same was without referring to their "own" signified.

$$\frac{\text{SIGNIFIER}}{\text{SIGNIFIER/SIGNIFIED}}$$

In summary, there are three semiotic modes in natural languages, according to the sign unit referring to:

- REFERENT: habitual language use
- OTHER SIGNIFIER: metalinguistic use
- OTHER SIGNIFIED: prevaricative use.

If a speculative metaphor is accepted, it can be said that

- the habitual use of language involves a form-meaning, for which the mirror only shows a formal image.
- metalinguistic use can be likened to a game of mirrors, in which, instead of reflecting reality (form+signified) a mirror reflects another image reflected in another mirror.
- prevaricative use can be likened to a distorting mirror, which gives a deformed image of the form-signifier reflected (similar to the mirrors in a fairground "hall of mirrors" or the distorting mirrors of Valle-Inclàn's "Callejón del gato").

This triple characterisation of language may serve to break the anti-evolutionism/evolutionism debate. The basic semiological foundation of human language is precisely REFLEXIVITY, a property that, as has been shown, comes from DUALITY and supports PREVARICATION. Ultimately, this reflexivity is the manifestation of a fundamental property of thought, that is, one's own conscience (self-perception) and the group conscience that appears in human societies.