

The paradoxical hybridity of words*

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ABSTRACT

Words can be matched with the concept of sign (correspondence of a signifier to a signified) as long as they act as symbol-words endowed with some semantic self-sufficiency. But in discourse, they lose their wholeness as symbol-words and metamorphose into WORDING-SYMBOLS. They, suddenly, appear as mere signifier entities with a more or less loose allusion to their status as cultural symbols. In discourse, words are no longer signs but TOOLS covering ephemeral collections of NEUROSEMES: the link of the sign breaks as soon as discourse takes over. The referential potential is no longer the schematic meaning issued from culture, but the universe of discourse under construction. This is why any attempt to account for meaning in language must integrate the neural process of meaning creation. It is now established that meaning is not the result of language activity but the result of cognition. However, what LANGUAGE does, *via* discourse, is to make this meaning communicable. For all these reasons, the task of linguistics should be to investigate the relationship between cognition and linguistic output in order to shed light on all the cognitive traces left within the surface strings. The role of morphosyntax thus has to be re-evaluated in this light.

KEYWORDS: culture, discourse, neuroseme, symbol, transduction, word, faculty of language.

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1. Introduction

This work aims at acknowledging our debt (i) to the cognitive semantics and linguistics trend as it has evolved in the Anglo-Saxon areas over the last thirty years, and (ii) to the enunciative and operative trend as it evolved in France during the same period.¹ Surprisingly, both trends needed to distance themselves from the main streams of the time – generative grammar on the one hand and structuro-functionalism, on the other. And both ‘rebels’ gave primacy to semantics in order to account for syntax. Quite amazingly the results reached by the two sides are, *de facto*, quite close, while their methodologies and conceptual backgrounds diverge. It is only in the last ten years or so that exchanges between the two sides have increased and opened the way to real cooperation. This paper tries to witness to this desire to emancipate ourselves from narrow (illusory) theoretical boundaries. In deciding to investigate the SIGN/SYMBOL and its deployment in culture and in language we have tried to bring these two trends closer.

Linguists are quite familiar with situations of polysemy where the different senses of a word are drawn from a shared knowledge of the language. But the phenomenon of one and the same word, within a same piece of speech / context, conveying other senses than those linked to its polysemic nature, needs further explanation. Let’s examine the following recipe:

(1) Roast guinea fowl with chestnut, sage & lemon stuffing

First make the stuffing.

For the guinea fowl, wash and wipe out the inside cavity. Mix the butter with some seasoning, then push and spread some under the skin over the breasts, and rub the rest over the legs. Lay the bacon across the breasts, smoothing over, and season with some more pepper. Push the stuffing into the cavity (any extra can be rolled into balls and baked in the oven for the last 20 mins cooking time). You can cover and chill the guinea fowl now for up to 24 hours.

To roast, bring the bird out of the fridge 30 mins before. Heat oven to 200C/180C fan/gas 6. Sit the bird in a snug roasting tin with the sliced onion underneath. Roast for 15 mins, then lower the oven to 180C/160C fan/gas 4 and roast for a further 35–45 mins for a 1kg bird (or longer if bigger – use the timings for a roast chicken). Check the bird is done by piercing the inside of the thigh with a knife and making sure the juices are clear, not bloody. Lift the guinea fowl off the onions, onto a platter. Loosely cover with foil, top with a towel (to keep it warm), and rest while you make the gravy.

Serve with the guinea fowl, spooning out the stuffing as you carve, plus cranberry sauce and plenty of vegetables.

[1] Gilles Fauconnier (1985) is probably the first researcher to have unified these two schools of thought with his mental spaces hypothesis.

In this text, the word *guinea fowl* is duplicated – even in the form of synonyms or metonyms – many times while conveying different semantic constituents; and this happens within the same context. Therefore the question is: How do we account for the different uploadings of meaning constituents while we evolve within the recipe? If we consider the different mentions of the guinea fowl (without including the metonyms [cavity, skin, breasts, legs, thigh]), we will gather the following mentions: guinea fowl_1 (a dead bird ready to be cooked); guinea fowl_2 (the bird ready to be cooked, stuffed); bird_3 (the stuffed bird, chilled in a fridge); bird_4 (the stuffed bird, at ambient temperature); 1kg bird (any guinea fowl; in general); bird_5 (the stuffed bird, after one hour of roasting); guinea fowl_6 (the stuffed bird, completely cooked); guinea fowl_7 (the completely cooked stuffed bird, cut in pieces). From this example, one can, indeed, acknowledge that one and the same word is used to convey different realities in a same sentence: raw meat, stuffed raw meat, roasted meat; not to mention the possibility to evade from the local cooking scenario in order to allude to the prototype entity (1kg bird).

We are convinced that a technical solution could be addressed in order to account for such phenomena, provided we revise our dominant conception of words and their (fixed) meanings. Accepting the fact that, objectively, we all use words when we speak shouldn't prevent us from questioning their role in the production of meaning. True, when cited alone, words may appear to us as straightforward Saussurian signs unifying a signifier and a signified: this is what happens also in 'metalinguistic' situations. Viewed thus, words come as saturated entities, evoking some culturally shared knowledge. Used in discourse, however, words should be seen as potentially (and sometimes actually) in opposition to the culturally shared knowledge that underpins their use. Literary studies, discourse analysis, text grammars, pragmatics, rhetoric, and enunciative theories, among others, always encounter that paradoxical situation. It is now widely recognised that in all language exchanges that are not strictly controlled for special (e.g., technical or legal) purposes the words actually used can bear different interpretations, even contradictory ones.

- (1) This is a red light (= a principle/rule not to perform a particular action).
- (2) LOL ('laugh out loud' = writer claims something amusing in an indicated context).
- (3) It is quite hot in here, isn't it? (= indirect request for a window to be opened).

We owe it to pragmatics and cognitive semantics to have recognised its importance. While reversing generative grammar's conception of lexical insertion and semantic interpretation, these theories have put the question of

meaning at the heart of the process of linguistic communication. This breakthrough brought cognitive linguistics to envisage the pairing of a form to a meaning, what Langacker (1987) called a ‘symbolic form’, echoing, paradoxically, Saussure’s unified *signifiant* and *signifié*. Therefore, are not linguists bound to reconsider the fundamental question concerning what, precisely, is involved in this process of mapping? It is not exaggerating too much to say that in this regard linguistics stands at a crossroads and its fundamentals are indeed being reconsidered. Our conviction is that there is an epistemological problem that has its roots in the reification of the lexicon. These theoretical difficulties have, of course, been acknowledged by linguists but have for the most part been circumvented with no real perspective of overcoming the paradox.

Our hypothesis is as follows: words are actually hybrid. They can (i) be identified with the Saussurian sign (signifier/signified) because as cultural artefacts (shared knowledge) they are self-sufficient symbols. But once ‘poured into discourse’ they (ii) turn into a mere signifier potential aiming at integrating discourse-bound (semantic) features. This vision seems to meet echoes from theories in neuroscience approaching language activity in terms of neural conceptualisation processes where a collection of features and characteristics from multiple regions of the brain are being linked in a unifying integrative process. Such a process has been approached with different labels in a variety of theories, e.g., convergence/divergence zones (Damasio, 1989), global work space (Baars, 1988), global neuronal workspace (Dehaene, Kersberg, & Changeux, 1998), semantic hub (Visser, Jefferies, & Lambon Ralph, 2010), among others).² Accordingly, we consider that our faculty of language (FoL) will: (i) transduce the neural conceptualisation in progress into a pre-utterance formal semantic entity; and (ii) connect to our linguistic (motor) interface to search (in our long-term memory, LTM) and retrieve the best candidate (constructions and words) to match the integrated clusters of features inherited from the transduction process in (i). Therefore, the linguistic output must reflect its underlying cognitive (neural) pre-construct before it goes through a process of transduction into words, respecting standardised linguistic norms. The imperceptible moment of the process can be witnessed (and even heard) in translation or in bilinguals switching from one language to another. In what follows we will try to discuss the issue from mainly three complementary angles: an anthropological one, a neurocognitive and first language acquisition one, and from a linguistic one

[2] Such a process has been approached with different labels in a variety of theories: CONVERGENCE/DIVERGENCE ZONES (Damasio, 1989); GLOBAL WORK SPACE (Baars, 1988); GLOBAL NEURONAL WORKSPACE (Dehaene et al., 1998); SEMANTIC HUB (Visser et al., 2010), among a few.

where the material gathered will guide us in a new approach to the notion of faculty of language to which we attribute characteristics that will shed a different light on our issue.

2. Words as a necessary illusion

We are not always aware of this dual nature of words (both symbols and signifiers); it is hidden behind our enculturation to them. They are everywhere, in our cultures, including of course our personal environments: from the books read to us as children at bedtime to the huge quantity of inscriptions, notices, labels, etc. that our everyday life confronts us with. As culture stabilises shared representations emerging from social practices, these representations are made available to all *via* cultural artefacts (or ‘devices of regulation’) such as political and cultural institutions, science, paintings, sculptures, symbols, lexicons, literature, encyclopaedias, socialised discourses (grammars, religions, laws, cults, etc.). Damasio notes:

The conscious minds of humans, armed with such complex selves and supported by even greater capabilities of memory, reasoning, and language, engender the instruments of culture and open the way into new means of homeostasis at the level of societies and culture. In an extraordinary leap, homeostasis acquires an extension into the sociocultural space. Justice systems, economic and political organisations, the arts, medicine, and technology are examples of the new devices of regulation. (Damasio, 2010, p. 30)

This shared knowledge which accumulates in our LTM is the product of the interaction of our mind with its social environment, be it physical or instructional. It is widely accepted that cultures are made of symbols, i.e., items that represent an idea or an institution, or an action, etc. Symbols are self-sufficient in their capacity to signify, to mention what they stand for. A word is a symbol that refers not to itself, but to something else. From this point of view, words can be matched with the concept of sign, since the latter appears as a signifier referring to some signified. De Saussure suggested that the relationship of the two sides of the sign is arbitrary: there is no explicit link between the form and the signified. And this adherence of the signifier and the signified explains why symbols are self-sufficient. But when it comes to the presence of the lexicon in language activity, the notion of ‘linguistic sign’, or ‘form–meaning pairing’ in cognitive grammars, cannot satisfactorily account for what really happens.

Once it is integrated into the language process, the (always fixed) SYMBOL-WORD metamorphoses into another symbol able to convey quite different

meanings.³ We will call this metamorphosing symbol a *WORDING-SYMBOL*, as it suddenly loses this link that used to unify the signifier with its signified and appears as the actualisation of discursively built meanings. In this way, it metamorphoses into abstract conceptual domains unrelated to any fixed form, although it keeps – within the social memory of the interlocutors – a loose allusion to its cultural symbol status. In a metalinguistic use of words (as is the case of a majority of tests in psycholinguistic research), we still have to do with a prototype semantic value and therefore we are dealing with culture and not with language – even if we use language to that end. Behind this paradox lies a genuine aporia, as rhetoricians might say, of words and the lexicon. Thousands of research papers or books have been published in the last fifty years on this issue, tackling the problem from various angles: acquisition, usage, figures of speech, derivations, compounding, neologism, etc. without offering a real prospect of solution. We are convinced that the complexity of these investigations could find its roots in the failure to account for the metamorphosis of words when they are moved from culture to language. This is precisely what we want to designate as a paradoxical aporia of the lexicon. Although words must, one way or another, allude to a domain for the sake of coherence, language activity needs no words – otherwise linguistic activity would be limited to a recollection of memory. Language activity relies on our capacities to map any sort of conceptualisations, free from any boundary. And when we say ‘map’, we mean the capacity of our brain to keep track of and maintain any event coming in (from the environment) in the form of maps (Damasio, 2010). We will see, in a later section, that our cognitive structures seem to enable us to collect ephemeral clusters of neurons carrying multiple addresses of semantic features, what we tentatively call *NEUROSEMES*. This will explain not only why metaphors are naturally understood by native speakers, but what makes them possible. In fact the link that unites the sign breaks as soon as discourse takes over, and metaphor is a signal of these unexpected connexions that human experience will network all over the mind. The signifier frees itself from its (schematic) signified as soon as the word leaves the sphere of culture to integrate the realm of discourse. The realm of discourse reminds us of the scanning of text by optical character recognition (OCR): the words that enter discourse will allow all sorts of manipulations of their culturally bound pre-assigned shared meaning (shared by us within our culture). From then on, the referential potential is no longer the schematic meaning issuing from culture, but the discourse universe in progress. The fact that culture permits the development of networks of frames with their scripts (see next section for developments)

[3] In order to distinguish it from polysemy or rhetorical figures, Elimam (2017) named the phenomenon *LEXICAL SEMIOMORPHOSIS*.

prefigures what discourse will do. In fact, discourse builds its own semiotic reference points and lets them fade away as the discourse comes to an end, or stabilises them in culture. This is the case for legal, religious, and political discourses, for example. But what discourse permits also, is an emerging and active SELF. Discourse is the result of speech acts, of decisions to speak, to utter one's thoughts or representations, but also the locus of 'reported speech', i.e., other discourses – an issue about which Bakhtin and his follower, Voloshinov, have much to say to us. This subjective presence in discourse would be thwarted by symbol-words since the latter leave no room for subjectivity. In culture, symbol-words will refer to a situation, to a fixed meaning. In discourse, we will break the unifying duality of the sign to liberate the signified options, and this is due to the presence of the Subject in his or her utterance (cf. Brandt, 2013, pp. 45–112, and Elimam, 2014).⁴ Therefore, the integration of the neural process of meaning is to be taken into account in order to inform a linguistic theory inquiring about language-conveyed meaning production. It is now widely admitted that meaning is a multi-modal cognitive activity with different supporting mechanisms, among which language plays a central role. However, what language does, *via* discourse, is to make this meaning communicable – even at distance. Let's note that comprehension is a subjective activity echoing the language production of another subject; in other words, meaning always results from a subjective act, even if it is about a symbol. And this signifying process follows the main psychological guidelines of social cognition: starting from a schematic meaning, access some categorisation before making it the frame out of which one or more scripts will be activated. To discover a meaning (or to re-construct it), we need to make comparisons with what we already know in order to establish a relation with the object of knowing. This is why the categorisation process is decisive. But within discourse, the schematic meaning recedes in favour of a frame that will be moulded by the flow of the currently ongoing discourse. This will build a discursive frame with discursive scripts: a new semiotic universe is open to creativity. As we mentioned above, discourse enables us to combine selections of neurosemes and to blend them in order to create local (and ephemeral) semiotic reference points (for the notion of reference points (*points de repère*), see Culioli, 1986). From then on, it is not the symbol-words that allow a frame-like conceptualisation, but the mapping collected from cognition and embedded in wording-symbols.

Once poured into discourse, words gain a local meaning that will evolve – by means of numerous cognitive and affective operations, metaphor included – so

[4] For a recent review, Brandt (2013), more especially the first chapter 'Aspects of subjectivity in meaning construction' pp. 45–112; Elimam (2014) for the relationship between enunciation and neuroscience.

as to change their initial schematic meaning, as the flow of speech continues. If we focus in on that, we will be surprised at the non-conscious aptitude that we have to instantiate different meanings for the same word during a speech interaction. Consider the different conceptualisations that the word *language* will convey according to who is writing (and even when a person is writing), even though we have the same word with the same spelling, same pronunciation, and an illusionary meaning ‘stocked in our mental lexicon’. The same phenomenon is to be observed if we follow the values encapsulated by one and the same word inside one and the same piece of discourse – as we saw in the case of our recipe above.

In the actual use of language (i.e., discourse) words behave as ‘hinting’ or ‘prompting’ envelopes whose design is to contribute to the construction of new meanings. We don’t speak for the sake of words – except in metalinguistic situations (“How do you spell ‘car’?”) – but use words as a springboard for the building of a local discourse meaning. We don’t use words to reflect exhaustive definitions – supposing this were attainable – but to construct local significations related to the ongoing piece of discourse. What is more, we don’t use words in their (supposed) isolation; we pour them into some pieces of discourse so that they contribute to the construction of some local signification. What might sound paradoxical is the fact that humans create a lexicon to stabilise their shared representations, but when they use this very lexicon in discourse, they break it in order to pinpoint only sub-parts of its content.

For all these reasons, the task of linguistics should be to investigate the relationship between cognition and linguistic output so as to shed light on all the cognitive traces left within the surface strings. But this will impose on linguists (whatever their school of thought) a need to re-evaluate the impact of morphosyntax and the means to investigate it.

3. Conceptualisation needs culture, not words

What sort of mechanisms enable conceptualisation? This question will invite us to proceed to a distinction between the notions of CONCEPT and WORD, as linguists tend to use either or even both combined (LEXICAL CONCEPT). We suggest that their discrimination can be central, because it bears on an important methodological argument that will inevitably have some consequences on linguistic studies. Even if we accept, with many others, that words should only be seen as an invitation to grasp a notional domain, as suggested by many researchers, particularly Jackendoff (1978, 1990) with his CONCEPTUAL SEMANTICS, and Culioli (1986) with his NOTIONAL DOMAIN, we still need to question the extent to which we can take the risk to reduce concepts to words.

3.1. DISTRIBUTED COGNITION AND THE CONSTRUCTION OF MEANING

Neuroscience cannot be presented as a homogeneous school of thought. However, behind its essentially methodological and conceptual debates, there seems to be a whole body of promising perspectives that linguists could lean on. For our part, we will rely on the parallel-and-distributed cognitive paradigm (Changeux, 2004; Damasio, 1989, 2010; Gallese & Lakoff, 2005; Lakoff, 1993; McClelland & Rogers, 2003; Pulvermüller, 2013; Pulvermüller, Garagnani, & Wennekers, 2014), as it sheds light on some plausible explanation of the conceptualising dynamic. Damasio insists on the fact that it is always through our body that we recompose the world as we constantly experience it: “the critical body-mapping and image-making structures are located below the level of the cerebral cortex, in a region known as the upper brain stem” (2010, p. 26). The body, which is the interface between what is outside the Self and what is within the Self, is the product of an endless mental representation; the body as a whole is represented in our brain so that any change in its constitution (injury, etc.) is communicated to our brain for appropriate updating. Thus, the human species is endowed with a mechanism of permanent health watch (monitoring breathing, blood circulation, etc.). This underlying process of updating the relationship between our brains and the environment is what Damasio (2010) calls (biological) *DISPOSITION*. Cognition does not escape this dispositional framework, and the brain’s inner organisation of semantics is rooted in a neural background before it reflects any cultural acquisition. In short, the structures of our mind allow both the inward movement of receiving information from outside and from the body itself in order to organise them and allow their access for future recollection; this will be the permanent cognitive input part of the process. The other part, i.e., the outward part, is concerned with the assembly and expression of cognition. In the case of language-based modality of expression, the cognitive operations are transduced to allow other processes and other motor mechanisms to be called upon.

According to Pulvermüller (2013), our different sources of perception (sight, audition, touch, etc.) are part of our relationship to the world, and as such keep track of it in distinct distributed brain areas in the form of *NEURONAL ASSEMBLIES*. This has led researchers in cognitive neuroscience (in particular Changeux, 2004) to propose that we are dealing with a *NEURONAL SEMANTICS*, in the sense that networks of neurons fire when hosting on-line collected features and characteristics. These are what we call *NEUROSEMES*, combining the notion of ‘seme’ as the minimal semantic unit with neuron. This notion is useful to our explorations as it refers to that process where a particular conceptualisation results from an emerging integrative assembly of neurons. Collected from diverse and different zones

where memorised features are saved, this assembly will ultimately build the conceptualisation, i.e., the representation at stake. How can this integration take place? It seems that our mind has structures enabling us to gather and allow the fusion of the targeted features in a neural working space – variously called CONVERGENCE/DIVERGENCE ZONES, GLOBAL WORK SPACE, GLOBAL NEURONAL WORKSPACE, SEMANTIC HUB, as noted earlier. In this study, we adopt the perspective of CONVERGENCE/DIVERGENCE ZONES (Damasio, 1989, p. 39; Lakoff, 1993, pp. 2–5). For linguists investigating the cognitive substrates of our representations, any substantial theory that accounts for this process of conceptual integration in its primitive format (as it were) is welcome. It seems very convenient that these integrative zones contribute to the bundling up of the selected features and characteristics (assembled following complex procedures partly presented in Damasio, 2010) to produce a coherent representation. From their characteristics (Damasio, 1989), such zones seem to be well qualified to attract the neurosemes that emerge from different modalities and contexts – hence the ‘convergence’ part of the process. But once the synthesising operation is carried out, the emitting zones repatriate the data involved – the ‘divergence’ part of the process. This step in the process is crucial, because it shows that what is handled is not words but clusters of features and characteristics. This argument is important if we consider (i) the universality of language and (ii) the translatability of local natural languages. If we conceptualised with words, our brains would be shaped only for local culture and language – any alien thought or speech would be *de facto* rejected. Such neurophysiological explanations of representations allow us to keep distant from reifying approaches. Departing from a fixed and mechanical vision we are led to propose a dynamic approach that accounts for the reality of the social production of meaning (Pulvermüller et al., 2014). In the light of these considerations, we can say that the inner mechanisms of language serve to shape the articulation of collections of neuro-semantic features, in other words, of a CONCEPTUALISATION. Further, our language device is developed *via* socialisation, and provides us with rules aiming at recognising words, decomposing them into lists of discursively relevant ‘semantic atoms’ or features, combining the listed features with other listed ones, preserving relevance and permitting inference (see Pulman, 2005, for discussion). Language allows the speaker to produce her/his utterances, making of any interaction an inter-subjective relationship. These mechanisms, or LANGUAGE OPERATIONS, must be universal, by definition. It becomes clear that the activity of constructing meaning is not merely a matter of matching ‘a ready-to-use meaning’ with a phonological or written form, but rather a mobilising of various cortical areas to pick up the relevant neurosemes that the discursive flow requires. This observation is essential because the construction of meaning consists of the emerging integrative conceptualisations

constantly renewed by the dynamics of the discursive flow. Such a process must leave a trace of its operations (neurosemes compositions and integration) in one way or another. It must be made clear that if the relevant neurosemes are (necessarily) assembled out of a myriad of cortical areas, one must not neglect the essential contribution of DISCURSIVE MEMORY – that is, working memory dealing with ongoing language production, handling anaphora, etc. – indeed, the discursive construct can, to a certain extent, diminish the burden of this assembly process. In fact, the discursive construct can become the new framework for further notional developments insofar as it remains available in working memory. These discursively shaped pre-given representations may switch off with the verbal exchange (except in written speech, of course). They can also serve to reposition the speaker according to new framing reference points (*points de repère*, in the sense of Culioli, 1986). Let us note that, for the sake of coherence, these discursive constructs are kept ‘on alert’. This will result in making them stand for the thematic and notional locations or reference points that the verbal exchange initially drew from culture – or shared knowledge. That is how discourse becomes the universe of reference – unless the speaker decides to introduce a notional location outside the immediate discursive universe or frame. Distributed semantic cognition (Rogers & McClelland, 2004) claims that meaning results from a cognitive process with neural basis. It seems, indeed, that it is the anterior temporal neocortex that ensures the cohesion of the semantic assembly. It is therefore not surprising to learn that lesions in this area signal a conceptual disintegration diagnosed as SEMANTIC DEMENTIA (Damasio, 2010); or at least the desire to communicate a representation to another person *via* the language modality. Let us note that, from a methodological point of view, we are facing two problems: (i) the mode of externalisation or communication; (ii) the neurosemantic substrate, i.e., processes of collection and assembly of neurosemantic features. The mode of transmission of meaning must not be confused with the modality of construction of meaning. To summarise, the ‘contents of thought’, or conceptualisations, are recruited in distributed and parallel sensorimotor areas before they are assembled (always partially) and externalised in linguistic ‘envelopes’ (i.e., ‘words’), and lined up according to different word orders.

One must stress the fact that our representational potential is necessarily pointed out / recruited from the cultural references that social praxis accumulates in notional domains – what Robert Lafont (1979) called the ‘logosphere’. In Culioli’s terms:

A notion can be defined as a complex bundle of structured physiocultural properties and should not be equated with lexical labels or actual items.

Notions are representations and should be treated as such; they epitomise properties (the term is used here in a very extensive and loose way) derived from interaction between persons and persons, persons and objects, biological constraints, technical activity, etc. (Culioli, 1986, p. 70).

The ‘notional domain’ appears to be technically similar to, if not the equivalent of, SEMANTIC FRAMES / SCRIPTS (Fillmore & Baker, 2011), initially introduced in artificial intelligence by Marvin Minsky, or even of MENTAL SPACES (Fauconnier, 1985). This is a *sine qua non* condition for any communicative exchange to be social, insofar as what grounds the possibility of exchange is a shared knowledge, if not a ‘shared intention’ (Tomasello, Carpenter, Call, Behne, & Moll, 2005). Following Rosch (1978) and Lakoff (1993) we consider that our conceptualisations are in fact categorisations, abstractions from experiences involving a focal PROTOTYPE, a kind of ‘social average’ held in long-term memory as shared knowledge. Thus, the encyclopaedic approach of categorisation (derived from the Aristotelian heritage) gives way to a sharing of knowledge that culture stabilises. From an anthropological point of view, it is the species capacity to name things and events – therefore to use WORDS as material supports – that allows the circulation/communication of these stabilised symbols and their availability for all members of some group. This shared knowledge develops in the form of a cultural cognitive network connecting ‘concepts’ and promoting inter-individual comprehension. In a situation of creativity it is *via* a process of matching with the available conceptual system that new connections can be interactively produced and that new inferences can arise.

This cognitive background provides food for thought to theories in semantics and more particularly to the SEMANTIC FRAME and the MENTAL SPACES approaches. From this point of view, prototypical situations constitute the system that hosts potential networks of information. This is why it should be reasonable to claim that culture itself constitutes a meta-system spreading over the network of semantic frames and interacting mental spaces. As a matter of fact, any activation of a semantic frame activates shared cultural knowledge and therefore offers a network of possible connections. Such a background can explain how inferences can be generated according to procedural mechanisms that are structured by and within these frameworks. Fauconnier (1985, 1984, 1997) proposes a very similar view, according to which frames are apprehended as MENTAL SPACES and where inferences are the product of mapping and blending between mental spaces. Discourse becomes the weaving of a neural web, a process in which emergent mental spaces complement one another and cooperate in order to bring about innovative conceptual constructions.

These approaches have brought in fresh air to semantics and have stimulated research that has showed dynamism and openness during the last twenty years or so. However, these approaches seem to end up falling back into a sort of reification of the sign, insofar as their principles are always illustrated by some LEXICAL MANIPULATION. The lexical item is conceived of as operating as a pointer to a subdivision of reality. This way of looking at the construction of meaning neglects the neurosemantic activity that functions to bring together, not lexical entities, but distributed neurosemantic features. It is almost as if the echo of the Saussurian sign (matching of a form with a meaning) returns and diverts the methodological perspective opened up by contemporary neurocognitive sciences. Although cognitive linguistics does indeed acknowledge the underspecified nature of the lexicon (or 'lexical concept'), it also tends to speak of the lexeme as a 'linguistic unit', and consequently ends up describing lexemes as a conventional 'form–meaning pairing' (Evans, 2007, p. 123). Here again we meet with an aporia, at the centre of which is the question of the status of the WORD.

3.2. THE CONCEPTUAL SEMANTICS ISSUE

From what we have seen so far it is clear why the term 'concept' can be misleading – it carries a real ambiguity: a CULTURAL SYMBOL encapsulating social praxis, on the one hand, and a linguistic unit found in discourse where it conveys only a local meaning, on the other. In the linguistics literature the term 'concept' is used to refer (i) to a 'conceptualisation construct/output' (Jackendoff), (ii) to a 'linguistic sign' (in the Saussurian understanding), and (iii) to a technical term. For these reasons it should be more opportune to use the notion of 'conceptualisation' when referring to the output of the cognition devices.

Damasio (2010) suggests that our accumulated experience takes the form of a map drawn in the mind for the purpose of an actual intention. Such multilevel and parallel 'designs' are not conscious, of course, but their intentional motives have target devices 'ready to decode them'. We claim that the faculty of language device is part of these maps. They can be activated by all sorts of sensory receptors, and by empathy, memorisation, strategy, etc. We have shapes, colours, movements, faces, humans, tools, animals, etc. These cortical regions present a sort of map made of parallel grids, some of which specialise in retrieving memories of events, actions, and objects. The semantics of cortical 'representations' resembles a messy dissemination of features collected from many regions. The collection of these features respond to a protocol that aims at producing bunches of axons whose function is to communicate with different areas of the cortex. This retrieval process responds necessarily to a series of encoding/decoding actions until the target conceptualisation is fulfilled.

Let us note, however, that a representational construct is the result of a GROUNDED cognitive event (Barsalou, 2008, 2010) where a blending of different types of feature is composed under the back-grounded awareness/evaluation of the self and its biography (see also Edelman, Damasio, Dennett, Dehaene, Naccache, Jackendoff, among other theorists of consciousness). As such it belongs to the neuronal activity sphere. To become ‘communicable’, this piece of cognition needs to be transduced and shaped into the materials offered by the particular means of communication we choose. When this form is ‘language’, then the ‘natural’ means to convey it will rely on some substance: a standard prosodic cluster of sounds. Thus, at one end of the process we have motivated and grounded nervous activity; at the other end we have the emission of prosodic clusters of sounds. For the latter to be representative of the neuronal event that enabled them, they have to get through a series of (parallel) processes conducted by a highly specialised device, namely, the faculty of language.

3.3. FROM BODY LANGUAGE USAGE TO SYMBOLIC USAGE

The first language acquisition processes are based both on the internalisation of our experience of/in the world and our exposure to, and immersion in, culturally bound social relationships. The literature on this subject has reached wide consensus on observations relating to (i) developmental periodisations and (ii) the main steps of language acquisition. In parallel, some decisive and distinctive views have been suggested by some authors among whom we will mention Tomasello (2003). For our part, we would like to draw attention to a few peculiarities that have not much caught the attention of researchers – in particular the period called ‘holophrastic’, when the infant’s speech is reduced to ‘one-word’ sentences. In fact, more attentive observation will reveal that the infants’ first expressions must be taken not as attempts to learn words, but as attempts to produce utterances – as Tomasello (2003) has shown. Thus behind the phonetic entity that is uttered, the infant is engaging in a more complex conceptualisation process. Nevertheless, while such a process may be cognitively quite substantial, its output form is obviously still unachieved. This seemingly paradoxical situation calls for further clarification.

During the first weeks of life a baby is stimulated by the increasing awareness of her own body. The discoveries made are quite self-instructive and structuring; and the movements of her arms and legs tend to become regular and communicative. The body is thus developing a real syntax in that the baby foresees the results of her body’s movements and expects success. In the case of failure, other parts of the body take over: voice, mouth, welling up of eyes, etc. It is this part of the baby’s early development that prepares the ground for what Tomasello calls “reading the adult’s

intention”, “sharing understandings”, building “shared attentional frames”, etc. This period in the development generates a constructive stimulation between the body and the increasing cognitive abilities. Such a two-way configuration COGNITION ↔ BODY MOVEMENT prefigures the similar configuration COGNITION ↔ ARTICULATED LANGUAGE. Body language does, in a way, compensate for the absence of vocalised language but also provides its foundations, in such a way that vocalised language, and later a fully linguistic version, retains bodily traces. This period is essential in the process of socialisation: the more they socialise, the less they use body ‘syntax’ in using a vocalised symbolic syntax.

This being said, let us return to the ‘one-word’ sentence. When baby points her index finger and utters something like /memema/, she is enacting many possible scripts: *asking for something to eat or drink*; *wondering where is the object that used to be at the place pointed at*; *comparing the object to something already seen*; *remembering that this object is dad’s*; etc. The movements executed by the body signify some core cognitive relations such as [‘self’ and ‘other’]; [‘here’ / ‘not here’]; [‘now’ / ‘not now’]; [‘new’ / ‘not new’]; etc. These and similar dichotomies are related to notions that grammarians name ‘category of “person”’, ‘deixis’, ‘cataphoric’/‘anaphoric’, and so forth. They are plausibly also related to the notions of ‘toposthesia’ and ‘chronosthesia’ (‘space and time travel’) empirically investigated by neuroscientists (e.g., Ciaramelli Rosenbaum Solcz, Levine, & Moscovitch, 2010; Gauthier & van Wassenhove, 2016). These notions have also been incorporated in the linguistic model known as Deictic Space Theory (DST; Chilton, 2014), which proposes that these early embodied cognitive and communicational operations are reflected in full-blown human language.⁵ The acquisition of language is thus a process during which the neurally accumulated experience starts to emerge under outer forms. The body movements are the first externalisations of this competence; the utterance of intentional sounds tends to replace this competence. In both cases there must be a correspondence between the conceptual construct and the externalised form. This correspondence, which is a *sine qua non* condition for the emergence of meaning, is anchored in the cognitive devices and is activated in order to acquire coherence.

If words contribute to discursive significations, they nonetheless also respond to the cultural function of keeping track of culture, any human culture. That’s what dictionaries are there for. Thus, we can acknowledge that dictionaries help us conceptualise a semantic frame that discourse will fine-tune to reach some effective meaning. Indeed, the practical function of words is to allow us, in production, to reach some (non-linguistic) neuro-semantic

[5] DST also postulates a third dimension that represents real–unreal distinctions.

clusters out of which we extract and integrate the ongoing conceptualisation. We don't use them as 'substitutes for the world', we use them to shape up and to share with others, via discourse, continually renewed representations of the world. What language as a special device allows, is precisely to enable these operations of using words both to hint at culturally shared knowledge and to allow the apprehension of semantic connections that lead beyond what a dictionary might preserve. This realm is part of our conceptualisation devices and it enables the selection of intended features in accordance with contextual relevance. During this representational process the selected features are thus combined with other features in order to produce a new/emerging conceptualisation. Because of physical limitations and constraints (breathing, memorizing, etc.), such conceptualisations end up in the form of more or less long bits of speech, when they reach the uttered stage of the process.

The bundles of representational features (selected neuron clusters) are transferred into a sphere where they can be converted (or 'transduced') into a physical entity that must necessarily keep track of the whole process. As we have already mentioned, human beings are born with precisely such a device able to fulfil such a task: the faculty of language. Such an organ or device is a necessity since representations are of a different nature. As a matter of fact, we, as humans, need to collect from the cognitive instances the data that will be transformed into a linguistic format in order to be communicated. This step of the process appears as the necessary upstream phase of the activation of 'language', although ongoing discourses can motivate and influence the representations.

4. The language transduction process

4.1. THE FACULTY OF LANGUAGE (FoL) REVISITED

Starting from the fact that speaking responds to a drive that is interpreted, by the alter-ego, as the speaker's intention, one may wonder what this latter concept refers to: (i) an abstraction that only the context is able to shed light on, or (ii) a cognitive event that can objectify within the modality of its manifestation. From our point of view, we will defend the second option, recalling that the mind's cognition devices use an inner format, including exporting instructions (mapping of features and their blends, the speaker's perspective markers, etc.), when they communicate data to the FoL (for a discussion of this, see Elimam, 2013). All evidence points towards seeing the FoL as a built-in cognitive device acting as a specialised interface for verbal communication.⁶ The FoL has the following characteristics: it is an interface that activates as soon as language is

[6] This may recall 'language knowledge' or 'competence' in Chomskyan linguistics.

the selected medium of communication; otherwise, it switches to a ready-to-use mode.

1. It is connected to conscious activity in order to act as the natural interface between local idioms and cognition devices.
2. It is not accessible to consciousness.
3. It has no conceptualisation abilities.
4. It can decode neural conceptual constructs (inherited from cognition devices) and encode them into a format to which the specialised phonological transmitters⁷ of the local language can react, and *vice-versa*.
5. Its exchange format to/from local languages is universal enough to enable its output to be shaped into any natural local language. This format includes hierarchised mapped semantic features and blending operations meant to be transduced onto phonemic constructs acceptable to the target language. The FoL processes the conceptualisation construct so as to determine:
 - (i) how to comply with the pragmatic strategy;
 - (ii) selection of the targeted language;
 - (iii) the hierarchy of the content;
 - (iv) the format of the whole according to the linguistic norms of the targeted language.

4.2. LANGUAGE PROCEDURES AND COGNITIVE OPERATIONS

Cognition doesn't stock 'words', but colonies of neurons conveying cognitive characteristics. Neuroscience has established that our relation to the 'outside' world is codified internally in the form of clusters of characteristics and features distributed in different regions of the brain. This is what gives our conceptualisation potential its socio-cultural sources (earlier experiences of the world). The human FoL mobilises a series of mechanisms whose aim is to assemble/disassemble clusters of neurosemes gathered according to a pragmatic perspective or a speaker's point of view. It is important to underline this, as it sheds light on what makes our species an innovative and creative one.

Let us call an intention (to communicate) our decision to express an idea or a thought. The intention to communicate will use our conceptualisation devices to construct a (mental) image, i.e., an assembly of hierarchised neurosemes

[7] These specialised transmitters are phonological units with an operative potential (usually morphemes or affixes or tones).

presented as a neuronal cluster, and to pass it over to FoL as an instruction. This step activates FoL and enables the latter (roughly) to:

1. Reorganise the neural assembly instructions according to a linear pre-language order (hierarchised mappings of neurosemes, the speaker's point of view / pragmatic perspective).
2. Use cognitive schemas to transduce the construct into a logical/proposition-like format. Using classic predicate logic until a more appropriate formalism is devised, we can say that the resulting construct must at least include the following: **Prgm(Cpt)**. Here **Cpt** contains the selected conceptual package and **Prgm** the point of view of the speaker and its impact on both the conceptualisation and the listener. Let us call this type of formatting 'pre-linguistic schemata scripts' (derived from socially shared prototypic frames), since they prepare the output for INTER- or INTRA-linguistic paraphrasing. By pre-linguistic, we mean not yet formulated according to the rules of any natural language. The conceptualised entity is still in the process of transduction where its semantic-like composition is still wordless. Because it is still wordless, this step is essential (i) to cross-language translations and (ii) to metalinguistic comment/analysis: it is a step that aims at structuring the script's potential events (actions, agents, circumstantial elements such as time, hierarchy marker) according to recursive rules such as:

Cpt → Script(Event, Script)
 Event → Predicate((agent_i, agent_{ii}, agent_{iii}), circumstants, hierarchy marker, Event)
 Event → *speakers's assertion(type, scope(Event))*

3. Switch on the output language and activate its motor potential (i.e., long-term memory access, mobilisation of the vocal organs, body language, etc.).
4. Retrieve and select from long-term memory the linguistic means (words, constructions, prosodic markers, etc.) of the output language in order to 'word out' the conceptualisation. This is when the retained semantic features (wording-symbols) need to be matched with the language tools at the speaker's disposal (symbol-words), in order to comply with the linguistic norm or shared linguistic knowledge. Attention must be drawn here to the fact that the morphosyntactic output strings will allow the most relevant words and constructions to be selected, while embedding the upstream operations traces

within the morphosyntactic components of the surface structures. These upstream operations must be both compatible with the local linguistic design and also able to activate the natural phonological captors and/or transmitters.

5. Utter it according to local phonetic standards and prosody.

At the other end, the interlocutor will:

1. hear the string of voiced words uttered in (5) and (using her/his natural tendency to communicate);
2. parse it (i.e., let the natural phonological captors and/or transmitters react), and, transform the resulting parsed unit into a cluster of neurosemes;
3. shape the end result into the inner formats of ideas or thoughts: a mental image.

As we have pointed out above, our creativity potential is supported by the inner organisation of our FoL operating system, which (i) assembles/disassembles clusters of *NEURO-SEMANTIC* features bundled up in accordance with a pragmatic perspective or a speaker's point of view, and (ii) transduces these neural assemblies into uttered (or written) words and prosody. But what makes communication possible is probably the hidden part of our story: the phonology-borne traces of the inner codifications. Our discourse, which is made of a combination of words (plus the prosody that comes with them), is invested with discrete traces of the upstream language parsing and computing. Each occurrence of one word in a discourse will have stored local codification 'inside' it – apart from its phonetic, syntactic, and semantic characteristics. Although the point may be somewhat unfamiliar, we defend the idea that morphosyntax is made up of linguistic means/tools containing phonemes whose peculiarity is to keep track of the transduction process – as happens with the phoneme 'do' in English where /d/ keeps trace of a conceptual mapping, in addition to the fact that it acts as an auxiliary. The dynamic part of our native tongues lies in this peculiarity – and probably this will explain why only natural languages can be reproduced by 'nativeness'.⁸ Language planning, when it comes to designing substitutes for existing linguistic means, generally produces unsociable ephemeral constructs (cf. Rubin, 1971). Esperanto experienced such a disappointment because the data proposed is pseudo-linguistic: it doesn't carry in it the possibility to capture and/or transmit inner codification making it feasible (for human brains) to reach parsed and computed meaning. These neuronal foundations are a pre-wired,

[8] Though history witnesses to 'civilisational' languages like Latin or Greek and classical Arabic that are not the mother tongue of any speaker.

therefore a universal characteristic: this is why meaning can be shared by a community of speakers. This point applies to all artificial languages but also to corpus planned languages when language nativeness is forced back into the picture.

As proposed above, FoL deals, in parallel, with the unravelling of the neuronal package it receives and its proposition-like formatting. Recall that at this moment of the process there are still no words and no morphemes in play. The ‘what is to be said’ or ‘intended utterance’ is re-composed in a formal semantic formulation before the result is subjected to the local language wording-out operations. There are thus two phases: a formal semantic phase, which we call ‘language operations’ and a wording-out phase, which we call ‘linguistic operations’. The language operations prepare the conceptualisation to be uttered either in one language (in one or more formulations) or in different languages (also in one or more formulations). And this possibility is offered to us because the language operations have paved the way.

4.3. THE LANGUAGE OPERATING PHASE

To recapitulate, the main steps will: (i) unravel the neuronal package; (ii) identify the pragmatic intentions and their scope; (iii) circumscribe the conceptualisation and identify its composition; and (iv) use some sort of cognitive schemata to filter out the linearisation of this preparation (pre-linguistic). The result may be represented as follows: *Prgm*(*Cpt*), where *Cpt* contains the retained conceptual packaging and *Prgm* the point of view of the speaker and its impact on both the conceptualisation and the listener.

During their unravelling, the conceptual packages are moulded in some narrative schemata that derive from socially shared prototypical framing predispositions. We always tend to categorise our conceptualisation of things and events before we submit them to our internal experience – or schemas – for matching purposes. This can be considered as a starting reference point, where the script’s potential events (actions, agents, circumstantial elements, hierarchy marker) are set following recursive rules such as:

Cpt → Script(Event, Script)

Event → predicate((agent_i, agent_{ii}, agent_{iii}), circumstants, hierarchy marker, Event)

Prgm → Speaker’s assertion(type, scope(Event))

This sort of meta-narrative format will be taken up by the glottomotor apparatus, i.e., roughly the motor part of the process of uttering, in order to give the output a phonological substance and a morphology. This will be achieved during the process that we have called the ‘wording out’ of the narrative schemata.

In fact the narrative schemata come with semantic potentialities arranged according to the intentionality and assertive stance of the speaker, Prgm(Cpt). Therefore, the schemata act as a mould hosting semantic features and characteristics in its functional slots (agents, circumstantial elements, hierarchy markers). Suppose the intended conceptualisation is the assertion that “iron has the property of rusting”. The pre-language formalism should look like:

Prgm(Cpt) → assertion_{neutral, event} (property(*rust*_{partial features, iron}_{partial characteristics}))

In plain language, our formalised instruction from FoL to glottomotor apparatus should read:

The assertion is neutral (not subjectively loaded) and its scope covers the whole proposition. Deriving from the semantic frame ‘characterisation of metals’, the script deals with the impact of humidity and oxygen on ‘iron’. Therefore, only the chemical features of ‘iron’ related to its oxidation are retained. As for the impact of humidity, only the superficial aspects of ‘rust’ are retained.

This wordless instruction (we are still in a pre-linguistic phase of the process) is now ready to be poured into the mould of any natural human language, the stage at which it is worded, phrased, and cast into grammatical constructions, etc. Let us note that only from here on could we integrate the parallel hypothesis defended by Jackendoff (2007).

The property EVENT is a predicate highlighting the natural characteristics of an object. Therefore, the predicate signals the partial characteristics of the object that the utterance is dealing with. The ‘rust’ reaction is an oxidation provoked by the contact of iron with air and humidity; as such it denotes a natural characteristic where the point of view of the speaker has no impact; neither will circumstantial elements of time, for instance. Therefore, the neutral assertion will result in the validation of the predicative relation whenever one utters this proposition; this will be rendered by the present tense marker since the validity of this assertion is re-conducted at each of its occurrences: the present of uttering. In other words, beside signalling a present of uttering, the marker (‘s’) is also a phoneme hosting a neuro-semantic operation assembling characteristics of the predicate with its naturally compatible arguments. Such an approach may sound unfamiliar, but without rejecting the notion of tense, it adds an invisible characteristic of our natural capacity to infer meaning out of neuronal signals. This ‘present’ tense maker is to be paralleled with ‘will’ in terms of language operations. In English, the statement can be rendered in various ways:

- (1) Iron rusts
- (2) Iron will rust

- (3) Iron has the property (the ability, etc.) of rusting / to rust
- (4) Rust appears on iron
- (5) Rust oxydates iron ...

... and more paraphrases within the same language.

4.4. THE LINGUISTIC OPERATIONS (OR GLOTTOMOTOR) PHASE

Let us now comment on these output strings and see how 'external syntax' has been mapped onto the 'internal syntax'. The formal semantic structure of the utterance is already conceptualised; what is missing is the wording-out according to local language rules. This can very clearly be dealt with by the parallel approach outlined above. In 'iron rusts', the glottomotor apparatus has done the following:

- (i) searched the mental dictionary for the word best suited to render the features characterising the physical contact of iron with air and humidity. The only satisfactory item available was 'iron', which comes with a list of morpho-phonological features (noun, \pm determination, etc.);
- (ii) searched the mental dictionary for the word best suited to render the features characterizing the chemical reaction impacting iron in contact with air and humidity. The only satisfactory item available was 'rust', which comes with a list of morpho-phonological features (verb, predication support, etc.);
- (iii) searched the mental dictionary for the assertion marker for neutrality;
- (iv) searched the mental dictionary for the construction that fits the property 'event' and is able to host the relation between the features retained in the 'iron' labelling and the characteristics of '(to) rust': object as a noun, verb with actualisation markers;
- (v) searched the mental dictionary for the verbal actualisation marker(s) signalling a compatibility of the predicate with the argument and obtains an 's' suffixing operation. As we see, syntax is made of local linguistic means arranged according to local linguistic constructions with morphological realisation rules. These activations of the glottomotor apparatus make sense only if they are mapped onto the instructions made available by the FoL. These instructions are signals proper to the language operations (FoL) format of Prgm(Cpt) and they must be mapped onto the morphological items of the output string. Therefore, the grammatical words or morphemes of a natural language must have the characteristic of incorporating language operations. If they don't, they won't enable the glottomotor apparatus to treat them. Therefore, in production, whatever comes out of the FoL must be signalled, one way or another, in the output string for traceability. In comprehension,

it is the reverse route that must be traced: the morphological string bears signals that are perceived and recognised as such by the FoL in order for the latter to transduce the phonological string onto a neuronal structure and process. It is the latter that enables the cognitive apparatus to extract a conceptualisation, i.e., ‘meaning’. It is worth noting that this approach may converge with that of Hagoort and van Berkum (2007), where language comprehension incorporates information coming from multi-cognitive domains in a ‘single unification space’.

Following an intention to communicate a message, the speaker uses her cognitive apparatus to conceptualise a message under a neuronal format (a contingent package of electro-chemical connections). The speaker’s FoL will (unconsciously) allow this neural unit to be transduced in a socially valid ready-to-read format (phonetic, gestural, or orthographic). When the listener picks up the phonetic output, she in turn will unconsciously mobilise her own FoL in order to transduce it into conceptual structure, itself a neural package. Therefore, the transduction via one’s FoL is an obligatory phase for the use of language for communication.

At this stage of our presentation, it is worth noting that one of the main characteristics of humans is their ability to name persons, things, and events. This naming faculty has to do with the maintenance and the evolution of a symbolic realm proper to human culture in general. Accordingly, we may consider all elements that compose this semiotic environment to be cultural artefacts, including of course words. What is so special about words is the quality they have of bearing some neural signature within them; this is precisely why they play a part in the linguistic operations phase of the language activation process. But not all words in a culture are endowed with this double nature of being both a cultural symbol and a host for neural signalling. The absence of such neural signalling capacities is, however, characteristic of technical jargons, abbreviations, numbers, acronyms, proper names, etc. The status of mathematical symbols or any formal language system can be inserted within a piece of discourse, but their behaviour will be different. And this accounts for the different distribution of words in final strings of languages – because they are interpreted as symbols and not as a signifier tool (permitting metaphors, and all the figures of style that literature has formalised). But our creativity can overcome this boundary-like condition when we divert the symbol-word and make it a wording-symbol. (For instance, I could talk of a person involved in mathematics saying “The equation is having lunch with hyperbole”.) This is why, if words are symbols, they are cultural ones; as soon as language calls on them, they get rid of their SIGNIFIED to appear as a mere SIGNIFIER conveying only the meaning

arranged in the local discourse. Therefore words in discourse will act as containers linked to a semantic frame and scripts, but containing only the on-line features at each occurrence. Consequently, the same word will behave differently whether it is used as a cultural symbol or as a linguistic tool.

Indeed, the mobilisation of the sign by discourse causes its metamorphosis, since it loses its SIGNIFIED in favour of an open SIGNIFIER. This (ephemeral) other nature of the word-symbol reveals itself a valuable technical key (whose impact is still to be measured) to human creativity and imagination as manifested *via* language. Two situations occur:

- (i) If we point to symbolic and conventional objects and events, our LTM mobilises a direct sensory motor reaction. In this case (probably the most common one): We name an 'A' (i.e., use a 'word'); we show a 'B', we hear a 'C', we see a 'D', we feel an 'F', etc.
- (ii) But if the content must result from a subjective (and more or less innovative) blending, an interaction between LTM and cognitive devices (including the Faculty of Language) is needed.

This line of thought has brought us to take full account of our neural processes of conceptualisation and integrate them into our projected processes of language activity. This is where the FoL reveals itself as an indispensable device, since it (i) transduces the neural conceptualisation in progress into a formal semantic entity, and (ii) activates our linguistic (motor) interface to search and retrieve (in our LTM) the best constructions and words to match the collection of features inherited from the transduction process of FoL. The final step, the wording-out step, will result from all these upstream operations and will have to embed the transduction movements within morphology. It is up to linguistics to unveil, with another type of observation of word orders, these traces in order to account for the whole process.

The splitting of the sign (a phrase that may resonate among disciples of the French psychoanalyst Jacques Lacan) and the emancipation of its signifier reveals itself as a characteristic of our species, enabling us to be continuously creative by mobilizing ephemeral mapping/blending of features collected from different cortical zones, before they are worded out in local languages.

5. Conclusion

As we reach the concluding part, we must admit that bringing together our two trends took us some months to fine-tune our respective terminology and focus our attention on delimiting our object of investigation, although all the exchanges between us awakened many issues that await future collaboration.

For the time being, we have tried to tackle the WORDS issue from the point of view of their hybrid nature. In distinguishing their status as a cultural symbol or sign on the one hand, and as a tool for wording-out some conceptualisation on the other, we have the feeling that our cooperation brings some fresh air and new openings to this somewhat confusing issue in linguistic studies. In addition, we also expect that this will have a constructive echo in the practices of neuroscience, where, not infrequently, experiments conducted with words are attributed to ‘language’ when it is mere symbols that are being dealt with.

Our species seems to be naturally endowed with cognitive structures allowing us to be continuously creative in mobilising ephemeral mapping/blending of pre-linguistic conceptualisations. One must add to this the variety of environmental situations impacting meaning. But one way or another, there would be one ‘single unification space’ (Hagoort & van Berkum, 2007) where the conceptualisation is gathered and interpreted. Our main argument, then, is to underline the fact that linguistic meaning does not result only from a syntactic mechanism combining semantic particles; rather, it must express the conceptualising process (neural signalling). If conceptualising was made of always-already available form–meaning pairings, we would be like robots; we wouldn’t express any emotions; we wouldn’t be able to innovate, to invent, to lie The fact is that the end of the process appears indeed as a form–meaning pairing, but this is only a resulting effect of a complex upward process. For this reason, we express our hope for an enlargement of the methodologies of our investigations, in order to better understand the object that linguists have in their sights. Indeed, we should be able to track down the transduction signals invested in the linguistic output (words, construction, prosody). A whole research programme ahead, we acknowledge.

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