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Where Is Meaning? Mind, Matter and Meaning

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Abstract

The meaning-making phenomenon is highlighted from the points of view of rationalistic dualism, embodied paradigm and dialogism, and implications for the place of meaning in the context of mind and matter are drawn. Moreover, a research orientation for cognitive semiotics of meaning is presented.

Keywords: cognitive semiotics, philosophy of meaning, neuro-semiotics, semantics, philosophy of the voice

1. Introduction

In a communication situation, participants exchange signs and coordinate their overall behavior accordingly. It is, therefore, obvious that there is something that these signs confer, their meaning. But where exactly is this meaning to be found?

The rationalistic approach views meaning-making as a mental process that is based on the link between the individual minds of the participants and a sort of universal mind that contains eternal abstract meanings that correspond to the logical structure of linguistic expressions. This forms the basis of denotational semantics and finds its most developed form in possible world semantics.

On the contrary, embodied approaches regarding meaning are material sedimentation in the neural systems of the communication partners that results from accumulated interactions with a common environment. From this point of view, meanings emerge as orientation fixpoints in structurally coupled cognitive systems and are not pre-existing ideal entities. This offers a semiotic background for neuroscience research that aims to identify the neural signatures of cognitive processes.

Dialogism puts in the center of attention the mutual influence loop in communication acts. With this focus, meaning-making is neither the result of a mental link between individual and universal mind nor of individual activations of material neural sedimentations, but of an existential tension field between communication participants.

2. The dualistic approach

For the dualistic paradigm, communication is based on the exchange of meaning-entities between the minds of the speaker and the listener. To refer to an object the speaker verbalizes his/her actual perception of it with a linguistic expression that carries an invisible label, enabling the listener to refer to the same object.

But speaker and listener have different mental images of the same world fragment, the same object viewed from two perspectives generates different perceptions. How is it possible that the speaker transfers to the listener his/her mental image? Because there is an intermediary objective meaning-entity, the transfer of which enables the speaker and the listener to refer to the same object, although the individual perceptions of it might be different.

“Die Bedeutung eines Eigennamens ist der Gegenstand selbst, den wir damit bezeichnen; die Vorstellung, welche wir dabei haben, ist ganz subjektiv; dazwischen liegt der Sinn, der zwar nicht mehr subjektiv wie die Vorstellung, aber doch auch nicht der Gegenstand selbst ist. Folgendes Gleichnis ist vielleicht geeignet, diese Verhältnisse zu verdeutlichen. Jemand betrachtet den Mond durch ein Fernrohr. Ich vergleiche den Mond selbst mit der Bedeutung; er ist der Gegenstand der Beobachtung, die vermittelt wird durch das reelle Bild, welches vom Objektivglase im Innern des Fernrohrs entworfen wird, und durch das Netzhautbild des Betrachtenden. Jenes vergleiche ich mit dem Sinne, dieses mit der Vorstellung oder Anschauung. Das Bild im Fernrohre ist zwar nur einseitig; es ist abhängig vom Standorte; aber es ist doch objektiv, insofern es mehreren Beobachtern dienen kann.” ([1], p. 27)

“The reference of a proper name is the object itself which it denotes; the idea we have is entirely subjective; in between lies the meaning, which is no longer subjective like the idea, but is also not the object itself. The following parable is perhaps suitable to clarify these relationships. Someone is looking at the moon through a telescope. I compare the moon itself to meaning; it is the object of observation, which is mediated by the real image which is created by the objective glass inside the telescope, and by the retinal image of the observer. I compare the former with the senses, this with the idea or intuition. The image in the telescope is only one-sided; it depends on the location; but it is objective in so far as it can serve several observers.”

While Frege uses “Bedeutung” for reference and “Sinn” for meaning, Husserl in the Logical Investigations [2] uses “Bedeutung” (meaning) for the Fregean “Sinn” ([2], p. 58). The objective meaning-entity lies for Husserl in the logical content of a phenomenological act. Whereas the real content stands for the unrepeatable actual experience, the logical content captures—like a mental telescope—the abstract scheme that corresponds to the underlying propositional structure. The logical content of linguistic expressions is an instantiation of pre-existent, identical, eternal, shareable meaning-entities.

“Es gibt also unzählige Bedeutungen, die im gewöhnlichen relativen Sinne des Wortes bloß mögliche Bedeutungen sind, während sie niemals zum Ausdruck kommen und vermöge der Schranken menschlicher Erkenntniskräfte niemals zum Ausdruck kommen können.” ([2], p. 110)

“There are thus innumerable meanings which, in the ordinary relative sense of the word, are merely possible meanings, while they are never expressed and, by virtue of the limits of human cognitive faculties, can never be expressed.”

These meanings exist “before” they are instantiated in linguistic expressions in a third domain beyond *res cogitans* and *res extensa*, they cannot be grasped with the senses, but at the same time, they do not need to be carried by consciousness, as described by Frege for the thoughts associated with meanings.

“Die Gedanken sind weder Dinge der Außenwelt noch Vorstellungen. Ein drittes Reich muß anerkannt werden. Was zu diesem gehört, stimmt mit den Vorstellungen darin überein, daß es nicht mit den Sinnen wahrgenommen werden kann, mit den Dingen aber darin, daß es keines Trägers bedarf, zu dessen Bewußtseinsinhalte es gehört.” ([3], p. 43)

“Thoughts are neither things of the outside world nor ideas. A third empire must be recognized. What belongs to this has in common with ideas that it cannot be perceived with the senses, and with things that there is no need for a consciousness to which it belongs.”

These eternal meanings might not exist in God’s mind ([2], p. 106), but are, nevertheless, universal truths that wait to be discovered like undiscovered planets ([3], p. 44). Of course, the prototype of these meanings is the mathematical truths; they are evident for all minds and can be accessed through abstraction. These inhabitants of the meaning domain are “allgemeine Gegenstände” (universal objects) that are instantiated in actual expressions.

“Die Bedeutung verhält sich also zu den jeweiligen Akten des Bedeutens ... wie etwa die Röte in specie zu den hier liegenden Papierstreifen, die alle diese selbe Röte “haben”.” ([2], p. 106)

“The meaning is related to the respective acts of meaning-giving ... as the redness in specie to the paper strips lying here, which all have “this same redness”.”

Communication is, therefore, possible, because a meaning-entity, which actualizes an instantiation of an eternal, universal, in the third domain pre-existing ideal meaning, is exchanged between the participants, enabling them to refer to the same objects and facts in the world.

However, in contrast to mathematical truths, linguistic expressions are context-sensitive; the meaning of indexicals can only be determined according to an actual situation. Meaning is anchored in the horizon of the phenomenological act, leading to a possible world semantics point of view, where meaning becomes a function from a possible to world to the corresponding extension.

The phenomenological horizon (*inner* as a further specification of the object in the focus of attention and *outer* as a gradually enlarging consideration of the context) completed with potential logically compatible perceptions describes a possible world [4]; an object seen from various perspectives leads to many different related perceptions with the same intentional content. But it is also possible to create alternative worlds, where the object is characterized by other features and contexts. The meaning of this object is then not a unique ideal entity, but a function from possible worlds to this object [5]. Thus, a relativization of truth takes place, because facts can be true in some worlds and false in others, whereas context-free truths, such as the mathematical ones, are true in all worlds, l-truth in the language of Carnap.

The meaning of an expression is now an invisible operation that associates with each actual or potential situation a logical content that corresponds to the extracted propositional structure. Either in the form of ideal, eternal entities or as functions from a domain of possible worlds to a codomain of logical descriptions, the dualistic approach presupposes something like a universal mind, where all these contents float. Humans can communicate because, by having individual access to this universal mind, they can identify identical transferable meanings.

Within this framework, paralinguistic signs and soliloquy do not have a meaning (as also Husserl is pointing out in the *Logical Investigations*), because these signs do not contribute to the logical content and during soliloquy, there is no transfer.

3. The embodied approach

If the grasping of meaning presupposes propositional analysis, then infants would not be able to communicate. Humans are not born as isolated individuals that need to develop intelligent faculties before they can communicate. Instead, newborns are engaged in preverbal proto-conversations with the mother [6]. This dyadic interaction evolves through gaze following to secondary intersubjectivity that involves a mother-baby-object triadic relation [7]. Meaning exchange must be grounded, therefore, in preconceptual bodily anchored mechanisms. This has indeed been demonstrated with the discovery of mirror neurons.

“Mirror neurons are premotor neurons that fire both when an action is executed and when it is observed being performed by someone else.” ([8], p. 521)

For Merleau-Ponty, who first introduced the corporeal embedding in the world as the basis for meaning-making, the meaning of an object is not an ideal entity but the residuum of experiences from interacting with this object in situations; it is its *style*.

“C’est donc cette compréhension origininaire du monde qu’il faut éclaircir... Elle est comparable à celle d’un individu que je reconnais dans une évidence irrécusable avant d’avoir réussi à donner la formule de son caractère, parce qu’il conserve le même style dans tous ses propos et dans toute sa conduite, même s’il change de milieu ou d’idées.” ([9], p. 395)

“So, it is this original understanding from the world that we need to clarify... It is comparable to that of an individual whom I recognize in irrefutable evidence before having succeeded in giving the formula of his character, because he retains the same style in all his words and in all his conduct, even if he changes his background or his ideas.”

This residuum of experiences is materialized as sedimentation of interactions in brain networks. A concept is a dynamically distributed system in the brain [10]. It is an assembly of neurons that contain a recording of schematic aspects (extracted by selective attention) of a brain state associated with a perception [11]. Meaning is created as a result of the whole organism interacting with the environment. For example, activations in brain structures and sensorimotor systems are inter-coupled [12]. It is also not localizable in a specific brain area, because the binding of multimodal semantic features relies on long-range connections; it is binding by synchrony [13].

Moreover, as the evolution of intersubjectivity in infants demonstrates [14], reference to objects emerges from intersubjectivity and it is not the result of the meaning exchange between isolated individuals. Humans are born into intersubjectivity.

“J’éprouve mon corps comme puissance de certaines conduites et d’un certain monde, je ne suis donné à moi-même que comme une certaine prise sur le monde; or, c’est justement mon corps qui perçoit le corps d’autrui et il y trouve comme un prolongement miraculeux de ses propres intentions, une manière familière de

traiter le monde; désormais, comme les parties de mon corps forment ensemble un système, le corps d'autrui et le mien sont un seul tout, l'envers et l'endroit d'un seul phénomène et l'existence anonyme dont mon corps est à chaque moment la trace habite désormais ces deux corps à la fois.” ([9], pp. 423–424)

“I experience my body as the power of certain behaviors and a certain world, I am only given to myself as a certain hold on the world; it is precisely my body which perceives the body of others and discovers a miraculous extension of its own intentions, a familiar way of dealing with the world; as the parts of my body together form a system, the body of others and mine are a single whole, two sides of a single phenomenon and the anonymous existence of which my body is at every moment the trace, inhabits both bodies at the same time.”

Meaning emerges from internalization [15] of social interactions and not—as in the dualistic scenario—social interaction emerges from the meaning exchange between individuals. The alter ego stands for another point of view of the ego. Embodied interactions from cognitive systems with similar capabilities with an environment with the same affordances result in comparable sedimentations. A universal Leib penetrates ego and alters ego.

“La chair n'est pas matière, n'est pas esprit, n'est pas substance. Il faudrait, pour la désigner, le vieux terme d'“élément”... c'est-à-dire une chose générale à mi-chemin de l'individu spatio-temporel et de l'idée ... La chair est en ce sens un élément de l'Être.” ([16], p. 181)

“The flesh is not matter, is not spirit, is not substance. To designate it, we would need the old term “element”... that is to say, a general thing halfway between the spatio-temporal individual and the idea... The flesh is in this sense an element of Being.”

The topology of a chair is not homogenous. Regions with high density, resulting from often interactions with joint attention, form intersubjective concepts that emerge as common orientation dimensions. Concepts are not eternal entities in an ideal third domain but emerge from intersubjective communication and are materializations of recurrent patterns. Such materializations stored in long-term memory create the categorial framework that enables social interaction. But it is also possible that intermediate forms, such as *ad hoc* categories [17], exist.

The sedimented experience from interacting with a certain sort of objects constitutes a simulator. When perceiving or imagining an object, a distributed pattern becomes activated across relevant brain areas, and it is this distributed neural network that simulates the relevant concept [18]. Understanding is based on simulation [19].

“Simulation semantics is based on a simple observation of Feldman's: if you cannot imagine someone picking up a glass, you can't understand the meaning of “Someone picked up a glass.” ... meaning is mental simulation — that is, the activation of the neurons needed to imagine perceiving or performing an action. Thus, all mental simulation is embodied.” ([20], p. 19)

Neuroscience experiments demonstrated indeed a similarity between neural activations related to an experience and its recall. MRI-based analysis of neural activity during movie-viewing and spoken-recall identified pattern similarity in a large set of brain regions [21].

In contrast to the dualistic approach, paralinguistics signs form inseparable parts of meaning, since they are captured in combination with other multimodal elements that are sedimented in the concept simulators. Linguistic utterances can be seen as phonetic gestures that emerged in evolutionary steps from facial and manual gestures [22].

Construction linguistics views syntactic structures not as a result of *a priori* hardwired rules, as it is the case with generative grammar, but emerging from generalizations of similar usage patterns. There is also no hard division between syntax and semantics; surface structures are also carriers of meaning. Moreover, several regular patterns without correspondence to fixed syntactic categories can play a role in the construction of more complex syntactic structures [23]. The logical structure that can be extracted from linguistic expressions is not pre-existent; it emerges rather through the grouping of units that serve the same communicative function from recurrent usage in situations [24].

4. The dialogic approach

Communication is more than individual activation of the brain networks of the participants; it creates a dynamic seamless integration of speaker and listener. Any utterance in a dialog is completed, when it is “understood” by the listener; every comprehension entails a responsiveness attitude, and every utterance anticipates an answer [25].

A tension field penetrates communication partners. There is a continuous loop between the expectations as well as between the expectations about the expectations of the speaker and the listener that shapes communication and enables the prediction of classes of behavior [26]. The neural signature of this loop lies in the interaction between posterior and anterior brain networks [27].

Neural activations in speaker and listener are correlated. To capture this interdependency, the method of hyperscanning has been developed, whereby neural activations of communicating partners are recorded simultaneously. Hyperscanning experiments provide evidence that behavioral synchrony and turn-taking are accompanied by brain oscillatory couplings [28].

Meaning is, therefore, not only determined by the activation of the speaker’s and listener’s simulators, but also created and modified through the situative coupling in a communication act. Verbal exchange and the resulting synchronized activations in the brains of speaker and listener cannot be reconstructed by integrating the isolated individual activations [29]. There is something more: mutual tuning creates a field that co-determines meaning. This includes both the loop of expectations and extralinguistic dimensions of the experienced situation.

Volosinov [30] gives an example of two men, who are in a context of a lingering winter and the start of a new snowfall. One of them says “well” and the other does not answer. The meaning of “well” in this dialog, followed by the silence, is an “agreement” between the participants that they were tired from a long winter and disappointed that the spring did not start. Silence is not devoid of meaning; it is a dialogic move.

“Hence the movement from silence to speech is not a movement from nothing to something, from non-meaning to meaning. The silence that precedes and surrounds speech is not a void, but a silence with a promise of speech, a silence pregnant with meaning, like a pause in a conversation, or the gap between each ring of the telephone.” ([31], p. 51)

The carrier of meaning is the voice.

“A voice carries the speaking subject out of himself, decentering and orienting him toward the other(s) (both face to face, and general social others), supporting and leading the contact. What a voice carries and expresses at the same time is that the utterance is as well “mine” as “other’s.” ([32], p. 45)

The voice is also bodily anchored and resonates in the listener, leading to activations in core mentalizing brain areas showing strong functional connectivity with mirror neurons [33].

In every dialog, there are not only the voices of the communicating partners but also the silent voices from others not present, such as

“... absent friends, deceased or departed parents, associates from work, sleeping children, and the ghosts and echoes of other conversations past and imagined. Even these voices are the product of yet others, the whole polyphony linking the past to the present to the future, and the culture to the individual in a kaleidoscope of what Bakhtin called “unfinalisable” dialogue.” ([34], p. 776)

These imagined interactions form an inner dialog with others, leading to a dialogic self [35]. In contrast to the rationalistic self, the dialogic self can change its stance among different and even antagonizing voices creating dialogical relations between them. Meaning always includes an intrinsic relation to auto-noesis [36], meaning is meaning for me. Soliloquy plays—in contrast to the dualistic approach—a significant role in the formation of meaning. Linguistic social exchanges are transformed into an internalized “conversation” with the self [37]. Both inner and overt speeches activate similar brain areas. Neuroscience experiments have shown that inner speech is a simulation of speech, including motor planning, but excluding motor execution [38]. The dialogic self creates an autobiographic narrative in dialog with significant others [39].

Meaning is constituted and reconstituted from the resonance of the outer and inner voices of the participants and includes a verbal, a situational and an auto-noetic dimension. In the example from Volosinov above, the meaning of “well” in the specific communication act emerges as a Gestalt that balances the mutually experienced situation with the auto-noetic voices of the two men; it exists, as such, in *two* brains and it is not a superposition of two individual meanings. Interbrain synchronization goes beyond entrainment to the audio envelope and involves direct mutual interaction between the brains of the speaker and listener [40]. This joint experience is then recorded individually as a neural sedimentation.

Recurrent dialogic encounters with significant others result to an entanglement of the voices of the participants, unfolding a dialogic space of open-ended dialogs that codetermine meaning and the autobiographic narrative. The participating voices complement each other, and this complementarity creates meaning from situated experiences for the dialogic self.

Auto-noetic exploration of the dialogic space determines and redetermines a *positioning*, an existential point of view that enables the interpretation of lived experiences and their coordination with an evolving autobiographic plot. Positioning creates a semiotic niche for autobiographic narratives and as such for Dasein: “a reader of its own existence” [41].

In every utterance several voices are floating, some are speaking for one positioning, some for another and some for two or more positioning. Voices are fluctuating along two dimensions: (1) overlapping or conflicting semiotic positions and

(2) intensity. The degree of conformity or conflict to a certain semiotic position creates a conformity horizon, while the intensity of a voice an intensity horizon. Dominant voices possess a high degree of conformity and intensity and suppress less audible voices but suppressed voices can come back and challenge dominant ones.

Meaning from a dialogic point of view emerges as a Gestalt that balances the positioning with the positioning of the other through interbrain synchronization, leading to an interpretation of the experienced situation and to an evolution of the dialogic space, which in turn leads to an evolution of positioning. Meaning is, therefore, both actively co-constituted during communication and always intrinsically coupled to existential positioning of the dialogic self. Starting from an analysis of communication acts as experienced, dialogism dives deeper into the meaning-making phenomenon.

5. Conclusion: the cognitive semiotics of meaning

For the dualistic paradigm, meaning exists in an eternal mental domain, to which communication participants have access through their individual minds. For the embodied approach, meaning is a dynamic system in the matter of an individual brain network. For the dialogic approach, meaning emerges from interbrain synchronization. The place of meaning is neither in mental domain nor solely in neural materialization, but rather in the mutual influence between two or more cognitive systems creating an existential space of ongoing dialogs between voices that carry a positioning perspective.

This space can be viewed as an assemblage of voices in the sense of Deleuze and Guattari [42]. Assemblages bind together parts in a way that the whole creates emergent properties, while the parts sustain their autonomy; they are not fused in a single structure and can participate in the formation of other assemblages. Assemblages are also “concrete”, their parts are not placeholders for others with the same structural value, they *are* the assemblage [43]. New voices can enter the dialogic space and remote ones can fall into oblivion.

The topology of assemblages is nomadic, and it is created dynamically in a self-organizing manner and captures the current positioning. Assemblages oscillate between territorialization and deterritorialization. Positioning-compatible experiences reinforce the intensity of the voice of the current positioning, while non-compatible ones question it and trigger a perturbation that can lead to a new positioning.

The challenge and the opportunity of cognitive semiotics is to describe the genealogy of meaning from the complexification of these semiotic processes.

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