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Abstract

John Searle has long argued that the philosophy of language is a branch of the philosophy of mind. In his view the capacity of speech acts to represent and relate to reality derives from more biologically basic forms of intentionality, such as perception and action, which initially evolved to relate organisms directly to their environments. Searle's naturalistic model of language, in order to be complete, requires a theory of how perception and action specifically give rise to linguistic meaning and interpretation. In this paper I argue that recent theoretical developments in cognitive linguistics and the emerging field of embodied cognition provide the needed empirical support for Searle's perception-based account of linguistic intentionality. In particular I show how the related theses of embodied simulation, perceptual symbols theory, and Arthur Glenberg's indexical hypothesis corroborate Searle's semantic naturalism. The result is a model in which body, mind, world, and language comprise integrated aspects of a dynamic whole.

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Abstract

John Searle has long argued that the philosophy of language is a branch of the philosophy of mind. In his view the capacity of speech acts to represent and relate to reality derives from more biologically basic forms of intentionality, such as perception and action, which initially evolved to relate organisms directly to their environments. Searle's naturalistic model of language, in order to be complete, requires a theory of how perception and action specifically give rise to linguistic meaning and interpretation. In this paper I argue that recent theoretical developments in cognitive linguistics and the emerging field of embodied cognition provide the needed empirical support for Searle's perception-based account of linguistic intentionality. In particular I show how the related theses of embodied simulation, perceptual symbols theory, and Arthur Glenberg's indexical hypothesis corroborate Searle's semantic naturalism. The result is a model in which body, mind, world, and language comprise integrated aspects of a dynamic whole.

John Searle has argued that the philosophy of language is a branch of the philosophy of mind (1983, vii). In Searle's view the capacity of speech acts to represent and relate to reality derives from more biologically basic forms of intentionality, such as perception and action, which initially evolved to relate organisms directly to their environments (1983, vii). Searle's naturalistic model of language, in order to be complete, should therefore include an account of how perception and action give rise to meaning and interpretation (1969, p.17). In this article I argue that the embodied simulation hypothesis, which arose from experiments in cognitive linguistics, provides such an account and thus supports Searle's conception of linguistic intentionality. The result is a model in which mind, world, and language are best considered as integrated aspects of a dynamic whole.

Intentionality-with-a-t vs. Intensionality-with-an-s

In order to begin my account it is important that I first clarify some potentially confusing terms often encountered in the philosophy of language: the distinction between Intentionality and Intensionality. Searle makes the distinction as follows: Intentionality-with-a-t is that feature of the mind whereby it is “about” “directed-at” or “of” objects or states of affairs in the world; Intentionality-with-an-s is a property of sentences whereby they fail certain tests for extensionality, such as Leibniz’s law which asserts that equals may be substituted for equals in a truth preserving manner (Searle, 1983 p. 24). Reports of intentional-with-a-t states are typically intensional-with-an-s sentences.

Examples help to illustrate this distinction: Mathematical statements are purely extensional—meaning that equals may always be substituted for equals *salva veritate* e.g., $2 + 2 = 4$ has the same truth value as $2 + 2 = 8/2$ because $8/2$ and 4 are equivalent. Reports of knowledge contexts, however, often fail such tests for extensionality, as do sentences which report intentional-with-a-t states such as beliefs and desires. Example: if we take the true sentence which reports an intentional state such as: “John knows the morning star is the planet Venus,” and substitute into it the extensionally equivalent term: “the evening star,” we end up with the false sentence: “John knows the evening star is the planet Venus,” because as it happens, John is unaware of that particular astronomical fact. In such situations as above where the substitutability of co-referring terms fails to preserve truth, we say the sentence and context are intensional (with-an-s).

Of direct import to the present conversation is the difference between what a term designates and what it means. This dichotomy has appeared in the philosophy of language under many guises, in John Stuart Mill as “connotation” and “denotation,” in Frege as: “Sinn” and “Bedeutung,” and finally in Carnap as “intension” and “extension.” The two phrases, “morning star” and “evening star” denote the same object—the planet Venus—but they do not have the same meaning. They have the same extensions but different intensions.

Meaning, Inside and Out

Much of analytic philosophy has been occupied with giving an account of meaning in terms of extension i.e, as reference or truth conditions. The account I am here presenting is different in that it approaches meaning primarily as intension rather than extension. To put things simply: what a term means is its intension and what it refers to or denotes is its extension. This makes Searle’s account a primarily internalist one, which is to say that what it is that gives a symbol its meaning is chiefly something ‘in one’s head’. What exactly is in one’s head, I will soon argue, is an embodied simulation. Searle has been one of a few remaining defenders of semantic internalism.

On his account it is in virtue of internal features of an intentional or perceptual state which determine its conditions of satisfaction. The mind sets the conditions by which an intention or perception 'counts' as fulfilling its function. There are, however, many external factors involved both in Searle's 'internalism' and on an embodied cognitive account, a point which will be important later.

The external factors may be seen to come into play in Searle's assertion that the intentionality of perceptual states refers essentially to the external world e.g., part of the conditions of satisfaction of a visual experience is that the experience itself must be caused by what is seen (1983 p.49). Such contents do not achieve their conditions of satisfaction or directions of fit atomistically, but only against a background of capacities, 'know-how,' and habits as well as a network of other intentional states—beliefs, desires and assumptions about the world. How a term or symbol becomes meaningful for a particular person is an aspect of Searle's account which remains underelaborated and is where, I will argue, theories of embodied simulation provide a means for filling gaps in Searle's account.

Searle's Account of Linguistic Intentionality

Searle has expended much effort arguing that language and meaning should be seen as part of the natural physical and biological world—as natural as digestion or mitosis (Searle, 1979). He states that a large part of his philosophy is an attempt to provide a naturalistic account of how we, as a species, get from the physics of producing noises and writing to the semantics of speech acts (Searle, 1983 p. 161). For Searle the derived intentionality of marks, gestures, and noises is parasitic upon the intrinsic intentionality of the mind (1969 p.16).

Speaker meaning, according to Searle, results from the imposition of the same conditions of satisfaction of one's intentional state upon a physical action used to express that state. If I believe that it is raining, the conditions of satisfaction of that state are truth conditions, viz. that it in fact be raining. A successful assertion of that fact consists of my imposing those truth conditions upon the noises I employ to make the assertion, and is thus how I 'mean' it is raining when I say the English sentence "it is raining." Searle's theory of meaning is then closely tied to his theories of intentional action and perception (1969 p.17). The perceptual grounding of conceptual structure is also a key tenet of embodied cognitive science (Talmy, 1995). In the embodied view language comprehension is seen as a function of an embodied organism directly coupled to, and in continuous interaction with, its physical and social environment.

Semantics Embodied

The embodied simulation hypothesis (ESH) is a new scientific theory which grew out of empirical research in cognitive psychology and psycholinguistics that explored the

relations between various modalities of mental imagery and language comprehension. The work on this subject has been called by varying names by the different researchers involved. For the purposes of this exposition I will focus on three exemplars: Larry Barsalou's perceptual symbols theory, Arthur M. Glenberg's indexical hypothesis and that of cognitive linguist Benjamin Bergen, who has combined his own work with that of Barsalou, Glenberg, and others under the general rubric of the embodied simulation hypothesis. The hypothesis states:

(ESH) We understand language by simulating in our minds the types of experiences the language describes. We do so by using the same parts of our physiology which initially evolved to perceive and act in the real world (Bergen, 2012 p.13).

What this proposes, for example, is that we use our visual system not only to perceive actual objects, but also to in order to interpret sentences about visible objects and that we employ our motor system to construct motor images when we interpret verbs or sentences involving actions and movements. I take the above account to be another way of stating Searle's initial assertion that the capacity of speech acts to represent the world derives from the ability of the mind to represent and interact with its environment (1983, vii). I argue that the embodied simulation hypothesis provides an empirical means to "cash out" Searle's conception of perception and action as biologically basic forms of intentionality upon which linguistic intentionality is built.

The fundamental idea behind the theory of embodied simulation is that when we hear or read language, our brain creates a simulation of whatever is described using the same regions which would be required if we were to experience the situation in real life. This means that we use our visual system when understanding language involving visible qualities such as color, shape, and size, and that we employ our sensory motor system to understand language involving actions by simulating—creating ideas of—the perceptual experiences described. The result is that our semantic mental content is not distinct from what we feel, perceive, and know how to do but is essentially connected to such capacities (Bergen, 2012). Thought, on this account, consists of plans for action and memories of things seen, heard, smelled, or felt. Simulations are constructed from copies of actual experiences which comprise the storehouse from which language is able to evoke and combine ideas and impressions in novel ways.

We deliberately and consciously employ mental simulation for tasks such as imagining an alternate furniture arrangement, remembering where we left our keys, or answering the question: "which direction do you turn your front doorknob to enter your house." We experience simulation unintentionally as well, such as when we have a song we have heard on the radio stuck in our head. The embodied simulation hypothesis proposes that these same mechanisms operate below the level of conscious awareness to enable us to understand words, sentences, and concepts. Understanding is achieved

by creating experiences which, when successful, reflect adequately the intentions of the speaker or writer (Bergen, 2012 p.13). The result is that meaning is best seen as a creative and dynamic process which is implemented by capacities which initially evolved to directly engage with the world—much as Searle speculated in the introduction to his work *Intentionality: an Essay in the Philosophy of Mind* (1983). Searle states this fundamental assertion as follows [emphasis mine]:

The capacity of speech acts to represent objects and states of affairs in the world is an extension of more biologically fundamental capacities of the mind (or brain) to relate the organism to the world by way of mental states such as belief and desire, and especially through action and perception (1983).

The ESH suggests, like Searle, that human cognitive abilities—capacities for language, thought, and reason—are built on capacities we share with other animals. It posits that the human adaptation for language was repurposed—exapted—from earlier adaptations which enabled imagery and memory, capacities themselves exapted from more fundamental capacities for perception, action, and emotion. Rather than developing new systems from scratch it appears that evolution modified existing perceptual and motor systems to perform the novel function of representation.

Perceptual Symbols

Cognitive psychologist Larry Barsalou has also argued that cognition is inherently perceptual. Barsalou introduced the concept of a perceptual symbol to contrast with the amodal conception of symbols prevalent in standard computational cognitive science (Barsalou, 1999). Amodal symbols are arbitrarily related to their referents and do not contain any specific sensory content; perceptual symbols are modal in that they retain specific information derived from the sensory modalities involved in initially acquiring the symbol.

When we perceive objects we do so through various modes such as sight, smell, sound, and touch. Barsalou argues that we do not need to posit amodal symbols and computations to mediate between language and the world (Barsalou, 1999). Modal perceptual symbols which are directly related to and derived from actual perceptions, he argues, provide a more parsimonious account of naturalistic signification (Shapiro, 2011). Barsalou argues that cognitive processes do not need to detach modal information in order to account for linguistic productivity, instead he posits perceptual symbols as reconstructions—simulations—of experienced perceptions which themselves provide the basis of cognition. Such simulations are asserted to combine features of experienced percepts combinatorially into dynamic simulated situations (Barsalou, 1999).

Barsalou states that perceptual processes which initially captured actual experiences are reactivated in order to remember and to think about similar experiences and to form beliefs about actual or possible experiences. Arthur Glenberg has arrived at similar conclusions and has extended Barsalou's theory to provide a more detailed account of how perceptual symbols participate in simulations which enable language comprehension.

Arthur Glenberg's Indexical Hypothesis

Glenberg's indexical hypothesis aims to provide an account of how linguistic symbols become meaningful for an interpreter. Glenberg's work along with that of Barsalou provided much of the groundwork for later work on embodied simulation by researchers such as Bergen. I will use the terms "simulations" and "perceptual symbols" interchangeably as Barsalou himself describes perceptual symbols as simulators which are able to construct simulations of an entity or event in its absence or of novel possible events (Barsalou, 1999 p. 596)¹. Glenberg's account of how we understand speech or writing, I argue, provides a detailed theoretical account of how Searle's conception of derived intentionality is likely achieved. Glenberg's indexical hypothesis is comprised of a three-stage process:

Words are indexed to perceptual symbols.

Affordances are derived from the simulations.

Affordances are 'meshed' to create a simulation of the situation described resulting in comprehension.

The idea of an affordance comes from Gibsonian ecological psychology. According to Gibson, organisms evolved to notice salient features of their environments; creatures are able to perceive not only objects but also what possibilities of interaction are afforded to them by objects and situations encountered, hence the term "affordance" (Shapiro, 2011 p. 100-102).

Affordances are the inherent environmental possibilities perceived as available to a particular organism. For example: a book affords climbing to a mouse, but not to a human. Affordances are properties in the environment that matter to an organism, different organisms will therefore perceive quite different affordances in their encountered environments. Grass affords nourishment to cows but not to humans, cars afford driving to many humans—but not to ants.

¹ An excellent summary and overview of the interaction between embodied cognition and cognitive linguistics is to be found in Shapiro, Lawrence A. *Embodied Cognition*. New York: Routledge, 2011.

The theory of affordances compliments Searle's conception of perception as: "an intentional and causal transaction with the world" (Searle, 1983 p.49). According to embodied interpretations of Gibsonian ecological psychology, affordances are perceived directly (Chermero, 2011 p. 98-99). Searle has long been a staunch defender of direct perception, in his view we perceive objects directly—unchaperoned by visual representations i.e., we do not see visual experiences we have them, what we see are objects. Though Searle does not use the language of affordances, I argue that his account nonetheless includes them as aspects of total situations, aspects which are perceived directly, Searle writes:

It is part of the content of my visual experience when I look at a whole house that I expect the rest of the house to be there if, for example, I enter the house or go around to the back (1983, p. 55 [emphasis mine]).

This is simply another way of stating that part of what one perceives in a situation are the affordances provided therein i.e., that one could go around to the back of the house or enter into it. Searle goes on to assert that these features of situations are perceived directly: "just as we can literally see objects [...] so we can literally see aspects of objects" (Searle, 1983 p.52 [emphasis mine]). Some of these aspects, as I have shown in the earlier quote, are none other than the affordances provided by the object or situation perceived.

Perceptual symbols and affordances combined with indexing via embodied simulation are argued to provide a means for grounding amodal symbols—such as noises or marks on paper—with modal representations derived directly from our embodied experience.

Lawrence Shapiro, a philosopher who has written widely on embodied cognition, provides an example of how such a process is purportedly enacted: to understand, for example, the sentence: "Hang the coat on the vacuum cleaner," involves reconstituting via simulation our original visual and other modal experiences of vacuum cleaners and coats. We then derive from those simulations the relevant affordances in order to discern whether vacuum cleaners afford "being hung on" and whether coats afford "hangability" (Shapiro, 2011 p. 100-102). The third part of linguistic understanding involves 'meshing' the affordances of coats with those of vacuum cleaners to come to an understanding of the relevant possibilities—an upright vacuum cleaner could easily afford coat-hanging, a canister vacuum cleaner perhaps not.

I argue that the above hypotheses taken together provide a robust answer to Searle's question of "how the mind imposes intentionality upon entities which are not intrinsically intentional" (1983, p. 167). Understanding occurs by way of the direct perception of affordances for action which are simulated based on the situations the language describes. Sentences, in the form of words and marks, are not themselves intrinsically intentional, but consist merely of physical tokens. The understanding of a

sentence derives from simulating a possible set of actions or experiences which derive from the affordances belonging to the referents of the sentence (Shapiro, 2011 p. 102).

Conclusion

I have endeavored to show how John Searle's account of linguistic intentionality dovetails with recent theories in cognitive linguistics to comprise a robust and empirically supported theory of naturalized semantics. Searle's own account, however, focused primarily on how speakers impose intentionality upon actions. The question of how interpreters derive meaning from writing and speech—and thus the question of meaning simpliciter i.e., significance—he left largely unexplained. Embodied simulation provides a means of filling this lacuna in Searle's account.

I argue that the theories of embodied simulation, affordances, and perceptual symbols corroborate Searle's claim that the capacity of speech acts to represent and relate to reality derives from the intentionality of perception and action. Importantly, the theories I have outlined above suggest an empirically supported account of how such a derivation is achieved.

When we perceive and interact with words and objects we do so through various modes such as sight, smell, sound, and touch. This creates perceptual symbols which are directly related to, and derived from, actual perceptions and retain specific information derived from the sensory modalities involved in initially acquiring the symbol. We then activate our sensory and motor systems which initially captured actual experiences in order to remember and to think about similar experiences and to form beliefs about possible experiences. Words are indexed to perceptual symbols from which affordances are derived and meshed to create embodied simulations. Language comprehension is thus a function of imagining—albeit often below the level of conscious awareness—an appropriate experience of the situation described.

If the account I have here provided above is correct, it provides a detailed, biologically based answer to Searle's question of how we as a species get from the physics of noises, marks, and actions to the intentionality and semantics of speech acts (Searle 1983, p. 161).

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