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Why neurolinguistics needs first-person methods

Hubert Kowalewski

Maria Curie-Skłodowska University in Lublin, Instytut Anglistyki UMCS, pl. Marii Curie-Skłodowskiej 4a, 20-031, Lublin, Poland

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ABSTRACT

Even though many studies in linguistics rely heavily on introspective insights, it is sometimes claimed that such first-person methods lack what Bert Peeters calls "neuro-cognitive depth" and, more generally, that they are inherently unscientific. While Peeters admits that introspection is a valuable source of data, he also suggests that the real measure a linguistic theory is the extent to which the data inform or are compatible with neurological theories. However, there are at least two serious challenges that every neurological theory of mental phenomena will inevitably face: the so-called hard problem of consciousness as defined by David Chalmers and the multiple realizability thesis proposed originally by Hilary Putnam.

I will argue that unless the hard problem of consciousness and the multiple realizability thesis are confronted and dealt with (at least provisionally), every neurolinguistic theory of this sort is bound to be incomplete and impoverished. In other words, unless the two challenges are overcome, third-person methods will have to be supplemented by first-person methods in order to provide a complete picture of a linguistic phenomenon under investigation. A case study examined in the article is a research program developed by George Lakoff as the Neural Theory of Metaphor, which I consider a paradigmatic attempt to relate the data from introspection to neuroscientific findings.

1. Introduction

The attitude towards broadly understood first-person methods in modern linguistics is somewhat ambivalent. On the one hand, many types of linguistic research make extensive use of speakers' intuitions, introspections, and phenomenological insights. This sort of first-person data is elicited both from "naive" consultants with no scientific expertise and personal agendas related to the outcome of the research, as well as from trained linguists unavoidably committed to and inclined towards specific theories. Undoubtedly, first-person methods are essential for modern linguistics and it is hard to imagine how many important theories, like various flavors of Chomsky's Generative Grammar (e.g. Chomsky, 1965), Langacker's Cognitive Grammar (e.g. Langacker, 1987), Lakoff and Johnson's Conceptual Metaphor Theory (e.g. Lakoff and Johnson, 1980), Wierzbicka's Natural Semantic Metalanguage (e.g. Wierzbicka, 1996), and Sperber and Wilson's Relevance Theory (Sperber and Wilson, 1996) could have been developed without them. On the other hand, first-person methods are frequently accused of being intrinsically unreliable, biased, subjective, and unscientific. Historically, the

E-mail address: hubert.kowalewski@umcs.pl.

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most vocal critics of first-person methods in linguistics were American structuralists from the first half of the 20th century, like William F. Twaddell attacking "mentalism"[1] in the following passage on "a mental definition of the phoneme":

> Such a definition is invalid because (1) we have no right to guess about the linguistic workings of an inaccessible "mind", and (2) we can secure no advantage from such guesses. The linguistic processes of the "mind" as such are quite simply unobservable; and introspection about linguistic processes is notoriously a fire in a wooden stove. Our only information about the "mind" is derived from the behavior of the individual whom it inhabits. To interpret that behavior in terms of "mind" is to commit the logical fallacy of "explaining" a fact of unknown cause by giving that unknown cause a name, and then citing the name x as the cause of the fact. "Mind" is indeed a summation of such x's, unknown causes of human behavior. (Twaddell, 1958 [1935], 57)

The Chomskyan cognitive turn of the 1950s and the 1960s might have swept Twaddell-style behaviorism out of modern linguistics, but worries about the low scientific standard of first-person methods die hard and their critics may come from rather unexpected places. For example, the cognitive linguist Bert Peeters, working within a paradigm traditionally friendly to many sorts of introspective research, believes that

> [the] relative lack of "neurocognitive depth" in Cognitive Linguistics, on the one hand, and the scarcity of coverage of Cognitive Linguistics in broadly based introductions to cognitive science, on the other hand, provide powerful arguments for a soul-searching exercise. The time has come to take stock, not only of the achievements, but also of the possible vulnerability of Cognitive Linguistics. I consider the scarcity of neurocognitive research within Cognitive Linguistics to be its Achilles' heel (in the sense that Cognitive Linguistics has not yet engaged in it with sufficient visibility). (Peeters, 2001, 102)

Peeters is of course far more open to "mentalism" than Twaddell: while the latter wished to eliminate all talk about the conceptual from linguistic discourse, the former merely wishes to anchor the science about the conceptual in the science about the neurological. Yet both Peeters and Twaddell see first-person methods as too limited for reliable and robust scientific research in one way or another.

While after the Chomskyan cognitive turn Twaddell's militant anti-mentalism may seem somewhat quaint, Peeters's call for more neurolinguistics resonates well within the community of cognitive linguists. It would be hard to find a cognitive linguist who would explicitly declare that she has no interest in providing more "neurocognitive depth" to her introspective insights. Many of us would like to see what "mental spaces," "conceptual domains," and "cross-domain mappings" are in terms of electro-chemical activation of neural networks. At first blush, the appeal to neurolinguistics seems not only methodologically attractive, but essential for securing high scientific standards in linguistics. There are two options open for enthusiasts of neurolinguistics. The first option is to try to reduce all "mentalist" elements in linguistics to neurology. Here, "concepts," "cognitive domains," "mental spaces," "image schemas," and suchlike terms from the mentalist vocabulary should be replaced with "patterns of neural activation," "firings of synapses," "neural networks," and (perhaps) "computational roles performed by neural networks." Consequently, first-person methods should have no place in truly scientific linguistics; all research should be conducted by means of third-person methods. The second option is to complement first-person methods with third-person methods (and vice versa). "Concepts," "cognitive domains," "mental spaces," etc. should be treated as legitimate elements of scientific linguistics, but linguists should also try to reveal the neurological reality behind these notions. Consequently, first-person and third-person methods should be used together in order to provide a full picture of phenomena under investigation. As evident from the title of the article, I advocate the second option, where first-person and third person methods complement each other. I am very skeptical about the first option, since it does not appear that modern neuroscience can successfully account for first-person data in terms of third-person data, and quite possibly it will never be able to do so.

There are at least two major challenges to any attempt at reducing the first-person data about the mind to third-person data about the brain. The "easy" challenge (discussed in Section 2) comes from the so-called multiple realizability of mental states. This challenge is "easy," because it can be successfully overcome, at least in principle. Given sufficiently advanced equipment and research procedures, as well as new theoretical developments, after several decades of brilliant neurolinguistics all difficulties resulting from this challenge may be eliminated. The easy challenge does not appear to be fatal for mental-to-neural reduction of linguistic theories. The "hard" challenge (discussed in Section 3) is related to the so-called hard problem of consciousness and it is "hard," because it may be impossible to overcome not only in practice, but also in principle. The challenges (especially the hard challenge) threaten *any* theory of language which advocates mental-to-neural reduction of linguistic phenomena, which has serious methodological consequences discussed in greater detail in Section 4.

[1] I will occasionally use scare quotes around the words "mentalism" or "mentalist" to signal my ambivalent attitude to old-fashioned introspection as a tool of linguistic research. On the one had, I do not consider these terms particularly ominous and the negative connotations with which American structuralists imbued them should be exorcized in the long run. On the other hand, I do not wish to advocate carefree and unconstrained introspection as a valid method of scientific research. Thus, while the word "mentalism" should find its way into the methodological vocabulary of modern linguistics, I grant that happy-go-lucky introspection does not live up to scientific standards.