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Psychological Reality: A Psycholinguistic Perspective

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Abstract –There is some debate over the stance of linguistics as psychology and the psychological reality of grammars. Scholars argue that linguistic structures which are rendered psychologically real are psychologically active. These are some assumptions for which there is no direct physical evidence. Chomsky is among the champions who hold that linguistic competence is a psychological reality. Some believe that the linguistic constructs that figure in the grammar are not intended to be psychologically real. However, some contend that the theory of Universal Grammar is psychologically real and the principles it incorporates are true since they are consistent with external reality. Linguists and psycholinguists who pursue the generative paradigm are in favor of the psychological reality of linguistic rules. This article makes endeavors to depict the ideas and contentions concerning the psychological reality and linguistic theories and reviews the critical stances which agree and disagree with the psychological reality in linguistics.

Keywords – Psychological Reality; Linguistics; Universal Grammar; Psycholinguistics.

1. Introduction

To commence the discussion of psychological reality, the two terms "psychological" and "reality" should be defined. The term "psychological" makes a reference to an individual's mind and how it works and the term "reality" refers to the true existence of something or something which is actually experienced [7]. Psychological reality constitutes the idea that reality is some evidence of a psychological type. Put simply, as stated by Reinhart, Reuland, and Wijnen [21], psychological reality is a claim to the truth of a theory, where truth is conformity to or correspondence with external reality. It is controversial that linguistic competence has some psychological reality. It is argued that intuitions of modern constructive mathematics play the same role in the development of competence theories as geometrical intuitions have played in the development of physical theories. Competence theories are theories of mental representations accounting for the structural relationship among percepts. Since some of distinguishable classes of percepts (e.g., grammatical sentences) can only be characterized generatively, such theories must take the form of generative descriptions and since such theories are developed from a strictly limited base of evidence, it cannot be claimed that these formal mechanisms have psychological reality. Such a claim can, however, be made for a theory which accounts for structures described by the competence theory and, in addition, accounts for a wide range of psychological evidence concerning complexity and accessibility of such structures [20].

Those who oppose Chomsky's views constantly pose such a question that "Are the rules described by a grammar psychologically real?" Chomsky states that a grammar is a scientific theory. Thus, it should be treated just like any other scientific theory. He points out that a scientific theory should be treated realistically, for the alternative of treating it instrumentally has surely been discredited. This yields a very fast argument for the psychological reality of the rules described by the grammar. There is some, though not conclusive, evidence for a grammar's truth and so there is some evidence for the reality it concerns. Accordingly, in Chomsky's view, reality is psychological [9].

2. Linguistic or Psychological Reality

There is some debate over the fact that whether linguistic reality differs from psychological reality. Dresher [11] draws a distinction between hard-liners and moderates.

The hard-liners hold that psychological reality is all there is, and since ordinary linguistics does not address it, linguistic analyses can be dismissed as the products of history, coincidence, or delusion. Along this spectrum, the moderates appear to be more sympathetic. They allege to admire the elegance, ingenuity, and sheer imagination of linguistic analyses.

In "Rules and Representations", Chomsky [5] affords an elegantly simple exposition and defense of the concept of psychological reality. Chomsky is of the contention that to say that a grammatical hypothesis is "psychologically real" is to attribute to it the same characteristic that one attributes to a physical theory by saying that it is physically real. He keeps on urging that the same scientific realism which is appropriate for physics is appropriate for psychology. For Chomsky, a hypothesis is psychologically real just in case it is psychological in its subject matter and true. In the same line, Dresher [11] assumes that "the grammars posited on the basis of linguistic evidence ought to be taken as models of the competence of native speaker/hearer, that is, as real properties of the speaker/hearer" (p. 1).

Matthews [16] sets out to defend the claim that the grammars made available by linguistic theory are psychologically real. However, he concludes that although the function specified by a grammar is intended to be psychologically real, the linguistic constructs that figure in the grammar are not intended to be psychologically real. By the linguistic constructs, it is meant those which include the rules, representations, and the computations that figure in syntactic derivations.

Myers [17] states that linguistic structures that are psychologically real are claimed to be psychologically active, not merely descriptively convenient, even if there is no direct physical evidence for them. Concerning psychological reality, Sapir [23] alleged that phonemes are not merely notational tools for grouping physical sounds, but mental entities with causal effects on behavior. Furthermore, it is claimed that the phonemes implied by the alternations were psychologically real. However, it is remarked that claims of psychological reality remain controversial [17]. It is stated that it is unclear what sort of reality psychological reality might be. Linguists often seem to assume that linguistic structures have causal effects (e.g. on acceptability judgments) through consultation of the grammar during processing, but an alternative is that grammar is a functional description of processing itself [16]. To underpin the latter view, Neeleman and van de Koot [18] argue that real-time grammar consultation would be impossibly inefficient. As they also argue, viewing grammar as a functional description still gives it a crucial causal role, since natural selection acts at the functional level [17].

Myers [17] states that what sort of evidence would be necessary to demonstrate psychological reality is also controversial. Traditional linguistic evidence is already considered psychological. Informal judgments of sentence acceptability not only involve psychological states but have been remarked repeatedly. They are collected using methods similar to formal experiments in cognitive psychology, with stimuli (the sentences) and responses (the judgments) as well. Thus, there is no intrinsic difference between supposedly "psychological" and "non-psychological" evidence [6].

Traditional linguistic evidence, however, is limited in its ability to exclude alternative psychological hypotheses. To give an example, generative phonologists assume that lexical phonological patterns represent grammatical knowledge, but the words could instead be memorized by rote, with the patterns already present [19]. Similarly, the informal nature of traditional syntactic acceptability judgments leaves open the possibilities that the judgments are "statistical flukes, theoretically biased, or shaped primarily by general processing constraints" [24]. Therefore, for claims of psychological reality to be taken seriously, linguistic methods should be chosen for their power to narrow down the range of candidate hypotheses, a feature Ohala ([19], p. 2) calls "winnowing capacity" (cited in [17]).

3. Psychological Reality and UG Theories

It is a common belief that the theory of physics is real: that the constructs of the theory of physics bear a symmetric relation to the laws of the physical world, that indeed the physical world follows the theory of physics. Moreover, it is granted as proof that the laws of physical theory are confirmed by physical experiments that they are indeed real. Theories of Universal Grammar have been criticized on the basis that they have not been shown to be psychologically real in the sense of physical reality and that they lack both experimental proof and theoretical justification for the principles they incorporate. Theories of human Natural Language Processing have been argued to bear on psychological reality ([21], p. 4).

It is claimed that theories of UG employ the term grammatical competence to depict a system of rules which generate and relate certain mental representations, including particularly representations of form and meaning ([5], p. 90). Chomsky presents the term derivations within the generative paradigm and states that these derivations are a real property of the brain, not temporally, but as part of its structural design. Reinhart, et al. [21] state that such transparent models of parsing performance are the application of grammatical competence in real-time. To be able to make a claim on psychological reality, one must therefore assume strong transparency. They report Chomsky as pointing out that "the speaker/hearer has internalized a rule system involving the principles of

locality and opacity and that judgment and performance are guided by mental computation involving these internally-represented rules and principles" ([5], p. 130).

Following Chomsky's contention regarding psychological reality's stance, it should be mentioned that psychological reality is said to be a claim to the truth of a theory and that the truth follows or is in connection with external reality. The theory of UG is, therefore, psychologically real and the principles that it possesses are true since they are consistent with external reality [21]. Linguists and psycholinguists who work within the generative paradigm have argued for the psychological reality of linguistic rules as well. Those who accept the view of language put forth by connectionism emphasize that rule-like behavior does not logically entail the psychological reality of rule-governed behavior ([22], p. 463).

4. Psycholinguistics and Psychological Reality

Psycholinguists aim at understanding the psychological reality of the linguistic system through data acquired by using one of the experimental techniques typical of psychology, specifically behavioral experiments aimed at establishing either the reaction times or the error rates in a given task. Among these are perception experiments, which establish psychological representations on the basis of the subjects' perception of specific auditory stimuli.

In psycholinguistics, those people who work within the Chomskyan tradition follow a theory-driven approach which seeks evidence of the psychological reality of Chomsky's constructs. However, they encounter some predicament when they make endeavors to tap into competence rather than rely on performance data. A solution adopted by many researchers in this field is to ask subjects to make grammaticality judgments. They might, for example, be asked to decide if a sentence such as "Who did you introduce the man you got the present from to?" is grammatically acceptable [13].

Another complexity is that Chomsky's grammar is specifically a model of language. Chomsky has much to say concerning the human being's mind; but he does not allege that phrase structure and movement rules represent the actual process which takes place within the mind of the user as he/she constructs a sentence. Hence, there is debate as to whether these generative rules are psychologically real. Early research in syntactic parsing made attempts to illuminate the fact that the complexity of a transformational rule did, indeed, impact upon the listener's ability to process a sentence. However, the hypothesis was not underpinned [13].

Chapman and Routledge [3] state that "there can be no doubt that the relationship between a name and its referent has more psychological reality for language users than that pertaining between any other linguistic signs and their referents" (p. 144). It has been explicitly assumed that linguistic competence should have psychological reality, meaning that it should be reflected in performance [8]. Halle [14], for example, states that it is difficult for speakers to memorize the stress contours of each word separately, but find it easy to compute the stress contours by means of rules. Hence, stress need not be part of each individual lexical item, but can be computed by stress rules which are psychologically real within the brain of the speakers.

5. Critical Views to Psychological Reality

Devitt [9] holds that a language consists of the outputs of a linguistic competence, symbols which are governed by a system of linguistic structure-rules. That is the reality of a language. Chomsky takes the structuralists as implicitly concerned with the psychological reality of language and hence not really nominalist at all ([4], 30-6). From the generative perspective, the Bloomfieldian approach is often somewhat superficial and instrumentalist; it is concerned with describing regularities in the corpus of observed utterances rather than with the language's underlying generalizations. The generative focus on the psychological reality of language is observed as the way to avoid this instrumentalism and be a realist about linguistic theory. Devitt claims that it is hard to find evidence for a psychological assumption that will do the trick [9]. Elsewhere, he states that linguistics has something invaluable to study apart from psychological reality of speakers: it can study a linguistic reality. This reality is in fact being studied by linguists in grammar construction. The study of this linguistic reality has a certain priority over the study of psychological reality ([9], p. 23).

Devitt [9] believes in being realist in linguistics as in other sciences. However, one can be realist in linguistics without taking the grammar to be true of psychological reality, but rather taking it to be true of linguistic reality. He states that if the grammar is true then it is true of psychological reality since that is what the grammar is about.

The view that a grammar has any more to do with psychological reality than the amount allowed by the minimal claim requires a powerful psychological assumption about competence, if not Chomsky's assumption then one of similar strength. Without such an assumption, the grammar simply concerns a language system. This system is the output of something psychological but it remains to be argued that it is itself psychological ([9], p. 20).

6. Conclusion

Generally viewing the case, there is not a commonsensical understanding of the concept of psychological reality as it (psychological reality) has been dealt with in the realm of linguistics, psychology, and

psycholinguistics. For instance, Dupoux [12] makes attempts to test the psychological reality of the representational constructs postulated by the new theories of mind. In contrast, Brown [2] discusses the psychological reality of rule construction in language acquisition which is a mentalistic view, and Bergen [1] deals with the psychological reality of speech sounds. In analyzing errors, fossilization is discussed in terms of its psychological reality [10]. Marcus, Pinker, Ullman, Hollander, Rosen, and Xu, [15] focus on psychological reality of, for example, the "-ed" suffixation rule. Since the notion of psychological reality is abstract and there is not sufficient evidence to support such a contention, scholars are in sharp disagreement with each other regarding the acceptance of psychological reality of linguistic competence. Those who work within Chomskyan linguistic paradigm have their own views and capitalize on the hypothetical existence of such ideas. For instance, it is claimed that the derivations within the generative paradigm are a real property of the brain, not temporally, but as part of its structural design. Along the same line, it is also pointed out that advocates of rule-and-representation theories like the dual-mechanism model mainly argue for the psychological reality of rules, which manipulate symbols, in addition to an associative memory [25].

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Vitae

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