

Faces of Contemporary Cognitivism

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Abstract

The paper focuses on a comparison of the concepts of language and language studies as presented in contemporary cognitivism and expounded by Ronald Langacker, George Lakoff and Charles Fillmore in their versions of Cognitive Grammar on the one hand and by Noam Chomsky in his Minimalism Program on the other. The theoretical concepts and hypotheses that are discussed relate to the concept of modelling and the locus of linguistic meaning, place of intentionality in the philosophy of language and linguistic theory, the nature of language and cognitive abilities as well as the proper theme of linguistic inquiry. The status of public (shared) language and the position of meaning and semantic theories in linguistic description are dealt with in the next part. Problems evolving from those diverse views on language such as verifiability on the one hand and the methodological constraint on the other conclude the discussion. Referred to are also the generative as opposed to cognitive models of language acquisition and, consequently, diverse methodologies as used by scholars of these persuasions. Conclusions show those aspects of Chomsky's generativism and Cognitive Linguistics that seem incompatible and those that can be perceived as converging.

Keywords: cognitive linguistics, generative linguistics, language acquisition, meaning representation .

Streszczenie

Oblicza współczesnego kognitywizmu

Artykuł podejmuje kwestię porównania pojęć i założeń w kognitywnych podejściach do języka we współczesnym Językoznawstwie Kognitywnym reprezentowanym w teoriach Ronalda Langackera, George'a Lakoffa Charles Fillmore'a z jednej strony a generatywnym modelem Noama Chomsky'ego, szczególnie w Programie Minimalizmu. Zagadnienie zaprezentowane odnosi się do pojęcia modelowania oraz umiejscowienia poziomu znaczenia w modelach, funkcji intencjonalności w filozofii i teorii języka, natury języka i zdolności językowych oraz prezentują odmienne interpretacje tematyki właściwej dla badań językoznawczych. Status

języka publicznego (społecznego) i pozycja znaczenia w takim uwarunkowaniu oraz problemy metodologiczne, które z tego wynikają konkludują dyskusję. Tematem dalszego opisu jest odniesienie się do implikacji dotyczących modeli akwizycji języka oraz dalszych różnic w metodologii badań. We wnioskach wskazane są obszary, w których modele generatywne Chomsky'ego oraz modele postulowane w Językoznawstwie Kognitywnym wykazują znaczne rozbieżności oraz takie, w których implikacje wynikające z nich wydają się zbieżne.

Słowa kluczowe: językoznawstwo kognitywne, generatywizm, akwizycja języka, reprezentacja znaczenia

1. History

First half of the twentieth century was the period when linguistic theory focused almost exclusively on the minimal oppositions between linguistic elements and their distribution. This structuralist approach to language excluded from its consideration the workings of the human mind. Linguistic meaning was treated as a peripheral rather than essential quality, worth little consideration in linguistic research. In the late 1950's, structuralism was replaced, what seemed to be almost overnight¹, by the Noam Chomsky's transformational generative ideas. As Ron Langacker described this situation in his address at Łódź University on 1st October 2003, when he was awarded an honorary doctorate, "an important contribution that must be attributed to generative paradigm is that it put language into the pool of mental phenomena". In the generative theory of language inspiration for language description came from strict sciences: mathematics, logic, computer science. Grammar was considered a generative syntactic device, producing recursively all and only grammatical sentences of a language. Both grammar and other components of language, truth-conditional meaning being one of these, were modular. Similarly to classical structuralist approach, meaning in early generative models was not the central part of grammar. It was considered rather an epiphenomenal linguistic conceptual level, not essential for language, understood in the narrow sense. Since its inception generative grammar has been subject to changes and new interpretations, via Aspects or Standard theory, Government and Binding theory known also as Principle and Parameters, and the most recent Minimalist Program. Since then, Chomsky's generative paradigm has been considered part of 'mainstream linguistics'. Parallel to it, different ideas of what language is have been developing. The inspiration came from William Labov's (1973) variability models on the one hand and from George Lakoff's *generative semantics* (1972), Charles Fillmore's *frame grammar* (1977) and Langacker's *space grammar* (1982) on the other. The latter has been dubbed Cognitive Linguistics.

2. Models

To understand what precisely is the core of disagreement between Generative theory and Cognitive Linguistics, one has to look at the interpretation of the concept of model.

Generative Grammar and Cognitive Grammar involve different language theories and linguistic models. A question arises what exactly the possible relations between a model and the thing modelled can be (cf. Lewandowska-Tomaszczyk 1999 for a more detailed description).

A model, we can say after Palmer (1978), is a structural design that is supposed to reflect a *true nature of the thing modelled*. The relationship between a model and this *true nature of the thing modelled* can be referred to as *isomorphism*. Palmer identifies different types of isomorphism, or equivalence, between a representation of the thing and the thing itself. *Physical isomorphism*, he says, preserves information by virtue of representing relations that are *identical* to the relations represented, *functional isomorphisms*, on the other hand, preserve information by representing relations that have the same *algebraic* structure as the relations represented. An isomorphism between the physical and functional isomorphism on the other hand is referred to as a *natural isomorphism*.

Thus, a physical model of, say, a house, preserves the *spatial* relations of the represented object with the very same relations including, e.g. shape and size, but in smaller scale. Such models can be three-dimensional, in which case they are more isomorphic to the thing represented, or two-dimensional, drawn on a flat surface. A functional model of the same house may be represented as a definition (*a house is a building for human habitation*, etc.) or a feature matrix of the characteristic properties of the object, as in some feature-based semantic descriptions *house*, e.g.: [+ building, +habitation, +for humans, +has floor(s), ceiling, doors, windows, etc.]. Such an object can also be represented in terms of a set of (engineering) calculations, say, [length: 15 m., width: 9 m., height: 23 m.], etc., provided the features or numbers in these models are interpreted appropriately and mapped so as to preserve the physical properties represented in the object. Models of the latter type, as Palmer suggests, do *not resemble* the objects modelled but *symbolize* them.

There is naturally a limit to the degree of resemblance between the thing modelled and the model. Hutton (1993:171) gives a very appropriate quotation of Wittgenstein (1978. para. 297) to exemplify that: “Of course, if water boils in a pot, steam comes out of the pot and also pictured steam comes out of the pictured pot. But what if one insists on saying that there must also be something boiling in the picture of the pot?” Such a requirement would certainly lead

to a paradox, as the representation most isomorphic, i.e. “most true” to reality, would be precisely this very reality.

3. The locus of linguistic meaning

There is another important question in the modelling of language, which refers to the locus of linguistic meanings. The answer to this question is fairly complex. Meanings can be considered to be real objects, inherent in the extramental real objects and exist independently of the human mind as is postulated in all forms of realism, including Platonist realism. In other semantic theories they are treated as mental constructs of an experiencing human, in which case the psycho-physiological makeup of the experiencer would certainly influence the final shape of the representation.

Linguistic semantics of the cognitive type is rooted in cognitively mediated human experience. The semantic models based on the *language of thought* metaphor, viz. *mentalese* (cf. Fodor 1991), use verbally expressed semantic primitives (cf. Wierzbicka 1980 – natural language metalanguage, Jackendoff 1983 – ontological and semantic categories expressed linguistically). Other cognitively oriented linguists on the other hand take a psychological orientation: basic-level categories (Rosch 1973) and image-schematic representations are the basis of linguistic semantics and act as ‘anchoring’ devices for linguistic meanings. The researchers of the latter orientation choose some form of a graphic representation of a different format to express semantic relations (e.g. the radial set model Lakoff (1987), Brugman (1981), the image-schematic network model (Langacker 1987, 1991) or Geeraerts’s (1995) overlapping sets model).

Cognitive linguists of the latter persuasion argue for the dual foundation of human conceptual system involving basic categorization level and image-schematic concepts. These anchoring concepts can function as building blocks of more complex cognitive models: Idealized Cognitive Models (Fillmore 1985) and their variants. Image-schemas are maintained to be prelinguistic structures which structure both our experience of space and all our experience as well as cognition, involving concepts both of physical and natural kind, as well as those which belong to abstract domains. Thus, our cognition and abstract reasoning are taken to be rooted in our physical bodily experience. Both conceptualizations of abstract objects and also conceptualizations of phenomena which, although physically or physiologically grounded, are not accessible to direct perception (emotions, sensations), are based on directly accessible

meanings. Such meanings are *construed* via the conceptualization of the less well known objects or phenomena in terms of better known ones by *metaphoric* links.

There is an ongoing debate in cognitive science about the nature of human perception and cognition. The cognitivists who defend the *language of thought* hypothesis argue for the *symbolic representation* of such processes. Others identify various inadequacies of such an approach to capture phenomena which are, by their very nature, holistic, continuous, and context-dependent. Such researchers argue that basic cognitive processes (perception, sensorimotor coordination, etc.) are continuous, while discreteness comes into being only with higher cognitive processing including language. Discreteness is not assumed to be originally present in the system, but emerges in consequence of recurrent patterns of continuous representations and processes.

4. Emergent properties and *qualia*

It is proposed in various theories of mind (cf. Spencer-Smith (1995:122)) that properties emerge at a higher level as a result of the behaviour of lower-level constituents. In physics or chemistry combinations of the same atoms can give in consequence different material substances. Linguistic representations can also be considered not to be statically stored in the mental depository but rather emerge as a result of the iterative patterns of neural activation.

The fact that cognitive representations are *distributed* and *emergent* presupposes the idea of *representation* as a *dynamic phenomenon*, compatible with connectionist rather than symbolic accounts of language processing. The question as to whether the emerging processes are directly accessible to human consciousness cannot be dealt with here, what can be referred to however, is that there exist postulates concerning special qualities, known as *qualia*, which, as can be conjectured, enter linguistic representation via image-schematic metaphoric links. John Searle (1982:153) calls the qualia “special conscious qualities” while Daniel Dennett (1988:42) proposes that they are “the way *things seem to us*” and are “intrinsic, essentially private, and immediately apprehended in consciousness” (Dennett 1988: 47). There is also a stronger or weaker thesis of the *ineffability* of qualia (Spencer-Smith 1995:125), which maintains that “the structure but not the content of experience can be described”. The latter issue is connected with the question concerning the existence of ultimate semantic or conceptual primitives, which are to be considered grounding for all representational symbols, including language. The fact that words of language cannot be decomposed into their basic *linguistic* or *propositional* forms without risking the ‘homunculus’ interpretation or infinite regress, is well known in the philosophy of language and lexical semantics. Cognitive

Semantics (Langacker 1987, 1991) eliminates such a threat by positing visual (spatial and topological) representation of linguistic senses in place of verbal ones. One could argue though that in the case of meanings of emotions, non-propositional image-schematic representations are not representations of the feelings, sensations, dispositions, etc. *sui generis* but representations of their human conventional *conceptualizations*, metaphorical in nature, while their ‘real’ meaning is much more ineffable and quale-like. This, however, seems to be what language is all about. Sensations, abstract notions, certain states and dispositions, are indeed ineffable in linguistic terms. What is effable, however, are their conceptualizations, in terms of complex networks of image-schemas and categorization hierarchies.

5. Chomsky’s methodological realism

Frances Egan (2003:89) proposes that Chomsky is committed to what can be called ‘methodological realism’. In Egan’s interpretation that means that, according to Chomsky, scientific endeavour and theoretical understanding require the application of scientific methodology to apprehend the world. Scientific methodology is linked to the requirement that grammar should be *explicit*. Chomsky actually identifies the concept of *generative* with that of *explicit* in the sense that grammar is to generate explicitly a set of all (and only) grammatical sentences (Chomsky 1965: 4). Theoretical understanding is opposed to other kinds of understanding such as reading stories or studying shared common sense conceptual systems, which Chomsky relegates to what he calls *ethnoscience* (Chomsky 1994: 195), not part of linguistics in his sense. The full study of mind then, i.e. *intentionality* (as e.g. in Searle 1992), lies, according to Chomsky outside the proper subject of linguistic inquiry: “intentional phenomena relate to people and what they do viewed from the standpoint of human interests and unreflective thought, and thus will not (so viewed) fall within naturalistic theory, which seeks to set such factors aside” (Chomsky 1991: 208). He tries to give reasons for such a state of affairs and finds them not only in his strong theoretical preferences but also in the limitation of our “biologically determined cognitive capacities”. Chomsky dismisses also externalist semantics as part of linguistics proper as he does not subscribe to the idea of ‘shared, public language’ (cf. Egan 2003: 92). Instead, he argues (Chomsky 2000: 181) that the place for referential semantics is at the level of syntax as an interface between the language faculty and other cognitive systems.

6. Language and proper subjects of linguistic enquiry

The conception of language that evolves from recent Chomsky's writings is not exactly the same as it was since his first works were published in 1957. Now, almost fifty years later, in his *Minimalist Program*, (1995: 139) Chomsky proposes that language should best be understood in terms of the principles and parameters model: "[a] language, then, is not a system of rules, but a set of specifications for parameters in an invariant system of principles of UG; and traditional grammatical constructions are best regarded as *taxonomic epipheomena*, collections of structures with properties resulting from the interaction of fixed principles with parameters set one or another way. There remains a derivative sense in which a language L is a "rule system" of a kind: namely, the rules of L are the principles of UG as parametrized for L." (Chomsky 1995: 139).

In view of Chomsky's judgment of the nature of semantics, his idea that natural language possibly consists of only two basic components: syntax and pragmatics, comes as no surprise. One can talk of 'semantics', he proposes, exclusively in the sense of "the study of how this instrument, whose formal structure and potentialities of expression are the subject of syntactic investigation, is actually put to use in a speech community [...]. In this view, natural language consists of internalist computations and performance systems that access them" (Chomsky 1995: 26-7). In other words, Chomsky's idea of language is that language is basically a non-semantic set of (syntactic) computations, accessed by a (pragmatic) performance system (cf. also Egan 2003: 95).

7. Language acquisition

Explaining language acquisition is always the most difficult test for theories of language and it is in this region where one can observe both different solutions but also, more recently, certain convergence between Generative and Cognitive approaches to language. The goal of most of language acquisition theories is to account for the coexistence between genetic and experiential aspects of language acquisition, between *nature* and *nurture*. Hacken (2002: 117) proposes that the coexistence of these elements "creates a tension between the goals of explanation of learnability and description of all languages. The former tends to reinforce the genetic component, but this complicates the statement of grammars for individual languages. The latter tends to weaken the genetic component, but this complicates the explanation of language acquisition". It is actually the transition from first Standard theory to Minimalist program that presents a transition from a more language-oriented concept of Language Acquisition Device

(LAD) and Universal Grammar (UG) to a wider perspective on the genetic component responsible for language acquisition.

Hacken recalls in his study (2002: 119) a distinction first proposed by Hornstein and Lightfoot (1981) between the *logical problem of language acquisition* and the *realistic problem of language acquisition*. Chomsky's theory describes the former in terms of the initial state of acquisition provided by UG and the target state in the form of a grammar of a language as internalized by its native speaker. It seems that Cognitive Grammar on the other hand has something more to offer in terms of the naturalistic learning strategy as used by the child.

In his recent studies Chomsky emphasizes a distinction between what he calls an *internalized language* (I-language) as opposed to *externalized language* (E-language). This distinction plays an important role in Chomsky's modified theory of language acquisition, as it is exactly I-language that is considered to be a mechanism which generates structural descriptions for linguistic expressions and is characterized by a grammar of a language. In an important study on Chomsky's theories, Egan (2003: 91) points out the most essential characteristic of Chomsky's interpretation of I-language. Even though an I-language is a component of the language faculty, it is – as Chomsky suggests (1992a: 213) - only by virtue of its integration into such performance systems that brain qualifies a given mechanism as a language. Some other organism might have the same I-language (brain state), but embedded in a different performance system and use it, say, for locomotion. Taking such a stand implicates, in Egan's interpretation, that an I-language is not *in its essential sense* part of the *language* faculty at all and the same mechanism in fact plays an important role in visual, auditory, etc. perception.

Together with the interpretation of I-language as a procedure not-linguistic in nature, an important development in the interpretation of the concept of Universal Grammar can be observed. In his *Minimalism Program*, Chomsky proposes that *Universal Grammar* as the theory of human I-languages is “a system of conditions deriving from the human biological endowment that identifies the I-languages that are humanly accessible under normal conditions” (Chomsky 1995: 23). What can be logically inferred then is that UG, similarly to I-language is not essentially linguistic in nature. The same can be said of the interpretation of the computational mechanisms Chomsky posits. In the wording of Egan (2003: 98): “An interpretation of a computational system is given by an interpretation function that specifies a mapping between equivalence classes of physical states of the system and elements of some represented domain. To interpret a device as a parser is to specify a mapping between states of the device and syntactic items such as noun phrases and verb phrases; to interpret a device as

a visual system is to specify a mapping between states of the device and tokenings of visible properties such as changes of depth in the scene.”

7.1. Another sub-section

Important for our present discussion are differences in the overall orientation of Generative Grammar and Cognitive Grammar, in particular a ‘bottom-up’ orientation of CG, contrasted with a more ‘top-down’ i.e. rule-based character of GG and its relevance to language acquisition (cf. Lewandowska-Tomaszczyk 2005 for more details).

Fundamental to cognition is the ability to *compare*. Two things can be similar to each other in more than one way and we are able to identify similarities and discrepancies between them. By comparing things and their properties, we can abstract away a certain structure common to these objects. *Abstraction*, as defined by Langacker “is the emergence of a structure through reinforcement of the **commonality** inherent in multiple experiences... [There is also] a special case of abstraction, namely *schematization*, involving our capacity to operate at varying levels of “granularity’ (or “resolution”). Structures that appear very different when examined in fine-grained detail may nonetheless be quite comparable in a coarse-grained view. A *schema* is the commonality that emerges from distinct structures when one abstracts away from their points of difference by portraying them with lesser *precision and specificity*” (Langacker 2000a: 93).

Therefore, the subsuming schemas emerging from such commonalities, in particular those covering the multiplicity of things and meanings, are not ‘objective’ but rather dynamic speaker and context-dependent phenomena. The question as to whether such generalized abstract *subsuming models*, of a *schematic* nature, have psychological reality and what role they play in human cognition is a matter of further research (cf. Lakoff 1987:537). More essential in cognitive processing on the other hand, may turn out to be lower-level schemas, which do not express universal regularities, but show regularities of a limited scope. One such example of a subsuming schema are instances of polysemy and homonymy (cf. Lewandowska-Tomaszczyk 2002a). The schemas (of varying elaboration and salience) account for the relatedness of meaning between individual forms. The presence of subsuming and elaborated schematization patterns can also be noted in complementation structures (e.g. Lewandowska-Tomaszczyk 2005). The (partial) identity of nominalizations can be postulated only on a fully schematic level, however, when we look at lower level schemas, the identity disappears. Both in the case of polysemy and other cases of the relatedness of meaning, schematicity evolves as an outcome

of a usage-based process in Cognitive Grammar, contrary to Generative Grammar, where it works as a top-down process in the model.

7.2. Characteristics of language acquisition

What evolves from the foundations of Cognitive Grammar is the following picture of language acquisition in the cognitive linguistics framework (Lewandowska-Tomaszczyk 2002b for a more detailed discussion). The child is endowed with innate, genetically transmitted cognitive capacities and abilities, first of all the ability to compare and perceive similarities between things, connected with the mental capacities of analogical reasoning, drawing inferences, etc. What infants experience in the first months of their life are recurrent prelinguistic *salient sensori-motor schemata*, which function as universal, holistic, non-linguistic patterns of physical actions and objects, with their networks of *force-dynamic* models (cf. Talmy 1985). Against such holistic schemata partial properties are perceived, identified, and acquired. Immersed in a specific cultural and linguistic context, which affects the development of linguistic categories (*typological bootstrapping* cf. Bowerman 1996), the sensori-motor patterns are plotted against categories of a given language and first naming acts occur.

In other words, infants' frequent encounters with a symbolic structure of identical phonological and semantic poles lead to its cognitive *entrenchment* and *schematization*. The structure achieves a *unit status* and develops into a linguistic *prototype*. Prototypes act as a conventional standard in the grammar of a language (Langacker 1992). These in turn undergo *polysemization* by incorporating into the same category, for instance, into the category of FLOWER, different kinds of flower or, into the category TABLE – three-leg-, two-leg-, one-leg-, or even legless tables. What can be observed here is the process of category extension to other, less salient category exemplars in terms of *partial schematization*, which is an instance of the child's ability to compare and *think creatively*. In partial schematization the standard and target phonological poles are identical, but the semantic poles (partly) differ. When fully entrenched, the targets achieve a unit status and enter the conventional grammar pool as a new standard. Together, they create a network of interrelated senses to be accessed whenever needed, which can be considered the *meaning of a word, phrase or utterance*.

By the processes of *embodiment* and *metaphorization*, encounters with new, yet unsanctioned targets, lead to transcending the boundaries of one category in a series of further *polysemic-metaphoric* steps, which create still larger networks of senses, which can (but do not have to) be subsumed by an even more schematic structure. Parameters of language acquisition would then involve *inborn cognitive capacities and abilities*, development of usage-based

prelinguistic schemata leading to complex networks of *force-dynamic* model, constrained by *typological* and *cultural bootstrapping*. The frequency of exposure to language data leads to *entrenchment - schematization* of those language chunks, which acquire *unit status* and the development of a conventional *linguistic prototype* (cf. Langacker 1991 for similar parameters). What a child creatively performs is *polysemization* of meanings, or, in other words, *partial schematization* in the creative processes of *embodiment and metaphorization*. In this way, a *schematic network of interrelated nodes (senses)* is being developed and entrenched as part of a child's linguistic system. Schematization and partial schematization are phenomena that take part in language acquisition.

In Generative Grammar emphasis is on general principles, so the model clearly represents a “top-down” device. Language Acquisition Device in Generative Grammar is then a mechanism comprising universal rules/principles of UG, i.e. all universal schematization patterns. Language acquisition is thus mainly a parameter setting with the child discovering, so to say, a grammar of a language. In the light of such a description, Cognitive Grammar manifests a “bottom-up” orientation (cf. Langacker 2000a: 92), where all the processes leading to schematization are presupposed by *usage*².

8. Conclusions

The two main paradigms in modern linguistics present a number of essential differences. The division originates from different philosophies of mind underlying generative linguistics and cognitive linguistics. Chomsky, faithful to Cartesian duality, makes a basic distinction between the body and the mind, so his language model, strongly intra- and interlinguistically modular, is not (meant to be) in fact the basis of a *psychologically real* model of a language user. Cognitivists, on the other hand, see mind and body as a unity, and workings of the mind as reflected in physiological cortex activities. It comes as no surprise then that their definitions of language and the identification of a proper subject of linguistic enquiry are not the same. In GG the basic assumption is the primacy of syntax, while in CG syntax has a symbolic role, while it is meanings, understood as conceptualizations, that are the driving force of language processes. GG and CG differently account for language acquisition phenomena, GG – in a more top-down fashion, while CG – in a usage-based bottom up way. And yet, what can be observed in both generativist and cognitivist theories is a growing role of the lexicon, understood broadly not as an aggregate of individual one-word forms but as carefully structured multi-word units organized in larger chunks and incorporating a continuum of constructions.

Constructions can be attributed a certain autonomy in what developed as constructionist models of language (Goldberg 1995). In these models constructions are organized into mental networks of grammatical knowledge and an equal weight is attributed to syntax and meanings. In Chomsky's recent theory language is understood as inherently not rule-based. GG in the Minimalist Program adopts a more lexicalist perspective with lexically defined parameters. In the CG perspective, smaller and larger meaning - structure chunks are first developed and acquired, then used and re-used in the continuous process of on-line meaning emergence. The position of rules in language should certainly be further explored. For the time being, what we have at our disposal is a variety of approaches – from explicit rule-based theories to those that discredit rules altogether (cf. Rob Freeman cogling list). Freeman in fact suggests that “we don't know of any evidence rules are stored”. In his discussion reference is made to papers by William O'Grady (2001, 2003), who argues that such generalizations (rules) may be stored within the processor itself. The answer to the question, i.e. whether rules rather than meanings are epiphenomenal vis-a-vis language and grammar or whether it is meanings/conceptualizations that are an epiphenomenal product of language processing, cannot be unambiguously answered at the present state of knowledge. This should certainly be a matter of further intensive exploration.

9. Problems

The problem that can be observed with respect to the linguistic theory of Generative Grammar is that some of Chomsky's mentalist postulates are difficult to verify (some critics would say they are basically unverifiable). On the other hand, criticism against a number of the solutions proposed in Cognitive Linguistics is related to its weak (some critics would say practically non-existent) methodological constraint³. And yet in some areas what is observed in the two paradigms are signs of convergence. Universal Grammar and I-language are to underlie both linguistic and other cognitive faculties. In CG cognitive faculties including language are assumed to share a common basis. Therefore not only language faculty but other faculties as well, such as vision in particular, seem of natural interest to linguists. Needless to say, both the areas of convergence as well as the radically different accounts of linguistic phenomena in these theories should be the subject of further intense scrutiny and examination.

Acknowledgements

The text was first published in 2006 in *At the Crossroads of Linguistic Sciences* edited by Piotr Chruszczewski, *Język a komunikacja* 10. Kraków: Tertium; 203-218.

Notes

¹ In an important, polemical paper on the status and history of transformational generative grammar, E. F. K. Koerner quotes detailed historiographic evidence concerning the rise of TGG. As Koerner postulates Chomsky's model did not in fact develop overnight – instead, it took Chomsky about a decade or more to incorporate ideas that were either explicitly proposed by other scholars before (Zellig Harris 1957, Charles F. Hockett 1954) or stemmed from Chomsky's mathematical background and were developed in his first theoretical statement on language in *Aspects*. Furthermore, Koerner proposes that "what is frequently described as a 'revolution' in linguistics, upon closer inspection of the evidence, looks much more like a natural outgrowth, an 'evolution', of theoretical discussions and methodological commitments characteristic of the period immediately following the end of World War II."

² Cf. Langacker (2002a:92– 93): "For one thing, it [CG] recognizes that linguistic patterns occupy the entire spectrum ranging from the wholly idiosyncratic to the maximally general. In a complete account of language structure, fully general rules stand out as being atypical rather than paradigmatic. Another facet of CG's bottom-up orientation is the claim that "rules" can only arise as schematizations of overtly occurring expressions. However far this abstraction may proceed, the schemas that emerge spring from the soil of actual usage. Finally, there is reason to believe that lower-level schemas, expressing regularities of only limited scope, may on balance be more essential to language structure than high-level schemas representing the broadest generalizations."

³ Seuren (2004: 73–4) puts forward more serious criticism against cognitive and construction models: "Their aim is to bring language and cognition together again. But in trying to do so they take the a priori position that language is not or hardly 'modular', i.e. there are no specific psychological functions for the acquisition and use of language[...] it is characterized by an extreme naiveté regarding the logical and philosophical foundations of semantics and even more so regarding questions of cognitive modeling." It is interesting then, in light of the above criticism, that both Chomsky's and Langacker's models show certain convergence exactly in the direction Seuren so strongly criticises. Moreover, even a brief glance at the publications written by linguists of cognitive provenance can give an idea as to the strong empirical, experimental and cognitive psychological commitment of their authors, based on linguistic and psycholinguistic evidence. On the other hand, neither modularity nor the common cognitive basis can be treated as axioms. One has to look for further evidence to prove or disprove such claims.

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