

# Reflections on the scholarly nature of linguistics

Tibor Kiss

## 1. The scholarly nature of linguistics

Linguists have claimed repeatedly that linguistics is a science (see Chomsky 2013: 48), and more specifically that it is a branch of biology. Biologists have, as far as I know, not endorsed this view (except for bioinformatics, which employs methods developed in computational linguistics to deal with sequences). Leaving the relationship between biology and linguistics aside, the more general question is: is it expedient for linguistics to be treated as a science, instead of . . . as what exactly?

In this paper on the occasion of the 60th birthday of my colleague and friend Gereon Müller, I shall try to address this issue from a personal and a more general perspective, but I cannot promise that I shall always be able to properly separate both perspectives. Personally, I have been confronted with the issue relatively late in my academic life, when I realized that the majority of academic staff at Ruhr-University Bochum takes seriously the architectural design of the university, which has been set up in the 1960s in brutalist concrete structures, properly named the G-, I-, M-, and N-buildings, standing for the German terms *Geisteswissenschaften* (humanities), *Ingenieurwissenschaften* (engineering), *Medizin* (medical science), and *Naturwissenschaften* (natural sciences). Of course, I had come to know the nomenclature for several years, but it never crossed my mind that at Ruhr-University you were considered a *Geisteswissenschaftler*, *Ingenieurwissenschaftler* etc. if your office was in one of the respective compounds (there are no S-buildings for *Sprachwissenschaften* (linguistics)). Many of my colleagues residing in the N-buildings even found relief in the Sapir-Whorf-Hypothesis, claiming that the English-speaking world had long drawn a necessary distinction between *science* (scientific) and the *humanities* (non-scientific).<sup>1</sup> It followed that scientists and humanists

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<sup>1</sup>A former first minister of Baden-Württemberg had similar views and suggested to rename

are not only concerned with different topics, but now being a humanist, I was surely in danger of acting outside of proper scientific methodology.<sup>2</sup> I have frequently rejoined that demarcations between scholarly disciplines are cultural products, but to no avail (ironically, the ECTS points required for a B.Sc. in biochemistry are the same as required for a B.A. in media studies).

Being a linguist, I was more than mildly puzzled. I had learned early in my studies that de Saussure had moved linguistics away from philology (similar ideas are found in Husserl's philosophy), and I always took it seriously that language – and grammar in particular – is a system with its own regularities, which is clearly apparent in issues ranging from word order (if ambiguity should be avoided and processing eased, all languages should be VSO!) to the count/mass distinction (see Kiss et al. 2021).<sup>3</sup> In addition, I had the opportunity to work in interdisciplinary research projects (generously funded by a then-giant in computer manufacturing) together with logicians, computer scientists, and linguists (all in the same building, which was not even adorned with the three letters then known to signify the presence of big blue).

Enough of these personal matters, back to the question: can linguistics be viewed as a science, or, more specifically, should the kind of linguistics undertaken between 1920 and today, which I currently see as being endangered, be viewed as a science? The date 1920 is somewhat arbitrary, and one could of course take the publication of the *Cours de Linguistique Générale* in 1916 as a starting point, but this is arbitrary as well (and why not start with the *Junggrammatiker*?). What is important is that linguistics did not emerge in isolation, but in form of a concoction that in addition to what we call

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*Geisteswissenschaften* as *Diskussionswissenschaften* ('talk studies' would perhaps be the most appropriate translation).

<sup>2</sup>Selling linguistics as scholarly conduct is also confronted with early generative linguists reflecting the then current political and cultural developments in their use of allusive linguistic terminology. Consider *which hunts*, *high nodes* and *low nodes* (from *Loch Lomond*), and a transformation named after an almost impeached US president. If at all, these titles invoke smiles on today's students' faces that careen between the condescending and the bashful. I have been so fortunate to never place myself in a situation to explain a *which hunt* to a biologist.

<sup>3</sup>The difference between the system of grammar and the conceptual structure of the world is present in many areas. Many of these cannot be illustrated as easily as the count/mass distinction. This has the consequence that linguists quite often are not heard with their concerns, which can be witnessed in the recent debate on 'gendering' in Germany. Highly pertinent expositions like Trutkowski & Weiß (2023) are only known to specialists (= linguists) as the complex issues cannot easily be broken down to widen their reception without hampering their scholarly merits.

linguistics contained disciplines (or proto-disciplines) from anthropology, archeology to formal logic, formal language theory, the theory of programming languages, and computer science. Various giants are associated with this brew, such as Bloomfield, Church, Gödel, Harris, Turing, to name but a few.<sup>4</sup> After World War II, the brew cooled down and produced new disciplines, but there was still lively interaction and no real necessity to set up borders. As an illustration, consider the early formal works by Noam Chomsky and Marcel Schützenberger, and Richard Montague's fundamental insight that *compositionality* should not be limited to formal languages, but works with the grammar of natural languages as well. Interestingly, the term *natural language* is a matter of debate. Non-linguists often see language as a cultural object, effected by humans and open to human influence. Linguists have reason to assume that language should be viewed as a natural object, or at least should also be viewed as a natural object. It is clear since Jakobson, Fant & Halle's (1952) *Preliminaries to Speech Analysis*, if not earlier, that phonology is concerned with natural objects. The subtitle of the essay explicitly addresses natural objects at the foundation of the analysis: *The Distinctive Features and their Correlates*.

Chomsky's early idea that languages are sets of sentences derived from a grammar allowed linguistics to treat sentences as natural objects as well. Thus, Chomsky provided a bridge to a scholarly endeavor that already related conventional terms to natural, physical correlates.

Phonology of course has the advantage of its dizygotic twin *phonetics*, so a clear relationship between *physical* objects and a nomenclature of phonemes could be determined, establishing phonology at least in the realm of science. Similar claims about syntax are perceived with doubt, or even discontent because syntax contrasts with phonology as conceived by Jakobson, Fant & Halle in that it was not able to break away from conventionalism (Sasse 2015). Unfortunately, a discussion of the role of conventionalism is lacking from linguistic methodology, so generative linguistics is attacked as being founded on conventions but reacts with ignorance and apparently only implicitly tries to adapt to the problem.

Current linguistics, and syntax theory in particular, has also loosened its ties to

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<sup>4</sup>I recommend reading Hofstadter (1979), which also provides the best introduction to the cognitive implications of recursion to date.

the concoction it came from. So, the general program of lifting linguistics from the humanities, or specifically philology, suffers from three problems: a connection to biology is programmatic at best (and ignored as a fancy by most linguists), the issue of conventionalism is not approached with the necessary sobriety, and finally, the connection to formal approaches has been given up. Altogether, this has left current linguistics with facing the fate of being repatriated to philology again.

Belonging to the group of linguists who see no real connection of linguistics with biology, I shall concentrate on conventionalism here, which is discussed in section 2. In my view, the problem of conventionalism is an undercurrent at best in current (and past) linguistic theorizing, and theoretical linguistics would benefit from explicitly addressing conventionalism (it cannot do away with it because we need names to term things, and nobody objects against calling the *Higgs boson* exactly this).

## 2. The Name of the Rose

Jakobson, Fant & Halle (1952) starts with a remarkable programmatic statement about features and names for features (called *terms*):

*“[I]t is not important whether the term refers primarily to the physical or the perceptual level, as long as the feature is definable on both levels. In cases, where no generally accepted term was available, we have used names for certain distinctive features which may later be supplanted by more suitable ones. Nevertheless, a discussion of the features themselves seems to us more pertinent than an argument over their labels.”*

(Jakobson, Fant & Halle 1952: v)

In this short paragraph, we can identify three important statements:

1. Phonological features can be mapped to a physical or perceptual level, i.e. there are – as the subtitle says – physical or perceptual correlates to these linguistic features.
2. The names chosen for the features are arbitrary and subject to improvement, but this will not affect the physical/perceptual correlates (it is

kind of clear that addition is not affected if we switch from Arabic to Roman number signs).

3. The identification of the physical/perceptual correlates is more important than assigning appropriate names to the features.

Taken together, these statements place phonology in the domain of the sciences, with the physical/perceptual properties as the natural objects, about which phonology will reason. If one wants to apply these statements to syntax, the question appears which objects should be considered the natural correlates of syntactic categories, a question which has been evaded more often than not. Syntactic categories apparently seem to lack a *prima facie* physical correlate, and critics of the generative enterprise often point out (see Sasse 2015 for a recent attack) that current syntactic categories (or word classes) are conventions that have come to us via *Platon*, the Stoics, the Alexandrian grammarians (*Dionysius Thrax*), and Roman grammarians (*Priscian*). Regarding the status of syntactic categories in generative grammar, Sasse (2015: 159) states that “*arbitrary category symbols ... taken over from traditional grammar without any closer examination, were regarded as innate substantive universals*”. While I would not endorse the jump from *arbitrary category symbols* to *innate substantive universals*, I see some truth in employing conventions without explicitly addressing them as such (as did Jakobson et al. 1952). A cursory look into generative works reveals to me that a certain unease about the relationship between the terms and the correlates can be extracted, but in most cases, the discussion is not explicit, or outright subconscious.

Interestingly, it takes some 20 pages into *Syntactic Structures* (Chomsky 1957) before syntactic categories enter the scene – the one syntactic category Sasse cannot argue against: *S*, but then *NP* and *VP* quickly follow. But as if Chomsky bows to their possibly ancient origins, he introduces angular categories such as *T* (for determiners) and *C* (for inflection), possibly as to reflect that “*the features themselves [seem] ... more pertinent than an argument over their labels*” (Jakobson et al. 1952: v). Chomsky’s next move in this direction is found in *Aspects of the Theory of Syntax* (Chomsky 1965), where he provides a definition of the (equally conventional) grammatical relations *subject* and

*object* in terms of their syntactic configuration.<sup>5</sup> Later developments in the Minimalist Program, *Bare Phrase Structure* in particular (Chomsky 1995), can be seen as further attempts to eliminate reference to conventional categories.<sup>6</sup>

One of the most remarkable attempts to deal with conventional categories is found in Jackendoff (1977). It is remarkable not only because it addresses the category problem head-on, but also because it appears to me to be all but forgotten. Jackendoff (1977: 31, emphasis mine) states:

*“The choice among **competing systems of distinctive features** should be made on the basis of how easy it is to state actual rules of the language in terms of the **proposed systems**. One presumes that rules are more likely to generalize to ‘natural classes’ ... This criterion is essentially the same as the one used in justifying phonological feature systems ...”*

Jackendoff does not only counter Sasse *avant la lettre* by pointing out that the linguist has to choose or even invent different category systems, but also draws a direct connection to the methodology introduced by Jakobson et al. Jackendoff (1977: 31ff.) continues to develop a feature system for English, one property of which is whether syntactic entities select subjects or not, but not without spoiling what he has just built up by stating that

*“it is worth pointing out that in French ... nouns cannot take NP subjects ... Nevertheless, we assume that French ... and English nouns have the same syntactic features, and that it is only the way these features appear in the grammar that differs from one language to another.”*

(Jackendoff 1977: 32)

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<sup>5</sup>Of course, Chomsky replaces one convention by using another, since grammatical relations are defined by the position of *NPs* in syntactic structure. The point is, however, that conventional categories are identified and subjected to elimination.

<sup>6</sup>While Chomsky’s attempts to confront conventionalism appear ineffective, we can at least identify such attempts. Other grammatical frameworks have succumbed to conventionalism without realizing their downfall.

Jackendoff (1977: 45ff.) also contains a discussion of the category *complementizer*.<sup>7</sup> We should remind ourselves that this category's name is pure convention: it names what is the complement of *S* under *S'*. But we are aware that the category *complementizer* received a different interpretation since Fukui (1986) and Chomsky (1986), namely as a functional category. The question is: does the non-rechristening of the category (we do not count the abbreviation from *Comp* to *C* as rechristening) reflect its conventional status, or did nobody care about the issue?

### 3. Quo vadis?

It appears that conventionalism remains a challenge for theoretical linguistics. But conventionalism is the expression of an essential feature of research in theoretical linguistics: theoretical linguists believe in the existence of linguistic entities and thus search for a parsimonious description of these entities. As long as the existence of the entities is not under debate, there is no real problem with using conventional labels (as Jakobson, Fant & Halle (1952) have already pointed out).<sup>8</sup>

Support for a clear distinction between the labels and the objects described comes from an unlikely ally. Recent work in analyzing the attention layers of large language models (known from *ChatGPT*), particularly by Hewett & Manning (2019) and Manning et al. (2020), shows that syntactic relationships

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<sup>7</sup>It also reflects the then state of the art in providing a discussion of relative clauses that starts with the statement that the analysis “*is concerned only secondarily with the internal structure of relative clauses*” (Jackendoff 1977: 169) only to never take up the internal structure of relative clauses again.

<sup>8</sup>The perennial conflation of phenomena with their analyses cannot be ignored here. Most linguists can name a few *control* verbs, as well as a few *raising* verbs without ever realizing that they have used a particular analysis of the verbs to provide a category for them. This is not only disadvantageous, since we are unable to discern control verbs from experiencer-object verbs, conative verbs, and what have you, it is detrimental when linguists try to reach out to the public and communicate their (clearly significant) results. Amazingly, the conflation of phenomena and analyses does not only show up where one would assume them (in the works of those who assume that any analysis differing from their own can only be a notational variant), but also in the works of the contenders. And one of the solutions to this problem appears to be to rename the phenomenon without making sure that the new name is co-extensional with the old one (as e.g. if a linguist tries to rename control verbs into subject drop verbs, but ignores the crucial distinction between *control* and *raising* verbs).

such as head-complement, subject-verb agreement, and coreference can be extracted from intermediate attention levels of transformer models such as *BERT* (Vaswani et al. 2017).

What is more, they are able to show that transformers are able to learn tree structures from their tasks. Without going into detail, it is important to understand that the task itself (such as predicting the next word) is supervised, but the learning of tree structures is not, which means in particular that syntactic categories are not fed to such systems. Similarly, equivalence classes corresponding to parts of speech (POS) can be induced without any knowledge of their corresponding labels.

Perhaps the prior discussion only serves as an indication where linguistics is falling short of its efforts to lift itself from the humanities (and I do not imply in any way that this lift should lead linguistics to engineering). But this does not mean that the effort is in vain. Given this, it is somewhat surprising to observe that theoretical linguistics has begun to succumb to postmodern theorizing in recent years. We should be aware that *Theory* (that being the *name* of postmodernism's successor), and literary studies as its little sister argue for the opposite methodology: anti-essentialism supports endless chains of terminological imbroglia. This is the opposite of the relationship between terminology and described entities in linguistic discourse, and it is also characterized as being cynical in critical reflection (see Pluckrose & Lindsay 2020). Developing a complex terminology, linguistics has failed to enter communication with the public, and has given room to other scholars who concern themselves with language (without knowing much of linguistics), but linguistic reasoning allows a critical assessment of popular themes without resorting to unreflecting, yet popular jargon, as is amply demonstrated in works like Haider (2023) and Trutkowski & Weiß (2023). We should not abandon our knowledge of language in the moment in which ChatGPT can be shown to have learned the structures that we have proposed. It is not the perihelion of Mercury, but it is a start.

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