

# The holistic view in linguistics

László Kálmán

THEORETICAL LINGUISTICS PROGRAMME, ELTE, BUDAPEST

kalman@nytud.hu

## 0 Introduction

Since thousands of years, European linguistics has been based on the view that the existence and properties of larger linguistic units (words, phrases, sentences etc.) are to be accounted for in terms of the properties of their constituting parts. One could term this analytic perspective *linguistic atomism*, by the analogy of *social atomism* (cf. Johansson, 2003). This is similar to when the properties of materials are explained with the properties of the molecules constituting them, while the properties of molecules are explained in terms of the properties of atoms. I believe this atomistic view is not always successful even in the natural sciences; but in this paper I will focus on criticizing it as it appears in linguistics, and sketch an alternative view, which I will call *holistic*. That is, I use the term *holistic* not as the opposite of *modular* or *modularist*, as it is often done in so-called cognitive linguistics (cf. Josephson and Blair, 1982; Kravchenko, 2006), but as the opposite of atomism.

In the sections that follow, I will first try to show that the atomistic explanation of the existence and build-up of syntactic phrases raises serious problems. The reason why is that, if we want to explain their properties in terms of the properties of their parts, we have to posit very *ad hoc*, independently unjustifiable properties for the latter. This applies to classificatory properties like ‘morpho-syntactic category’, but also to properties like ‘incompleteness’ (as is usually assumed for explaining that a certain expression type ‘requires the presence’ of another, e.g., ‘predicate/argument structures’).

In the second section, I will show that the atomistic view is also deemed to failure in the domain of morpho-phonology. For example, the conditions of the presence of a so-called ‘linking vowel’ between stems and suffixes in Hungarian can only be described using arbitrary devices, there-

fore, in several more or less equivalent ways. Under the holistic view, on the other hand, the problems that atomists face do not even arise. Again, we find that taking into account entire patterns rather than properties attributed to parts offers a more elegant and unambiguous solution.

Throughout this paper, I will use the terms *description* and *explanation* as synonymous. I am following the general (although usually tacit) practice when doing this. In linguistics, explanation proper, i.e., causal deduction, can only rely on facts about the history of a language and/or general properties of language use. Yet it is customary to call 'explanation' any relatively concise description, which relies on relatively simple and rather general phenomena. For example, one often hears statements like 'this construct can be explained in terms of verb/object agreement'. The pedantic formulation would be something like 'this construct can be described in terms of verb/object agreement', but I will not be pedantic in what follows.

## 1 Syntactic structures

The explanation of the build-up of syntactic phrases is where atomism is most familiar and most spectacular. For thousands of years, traditional descriptions categorize word forms into morpho-syntactic categories, and try to explain their behaviour on the basis of those categories. Two provisos are in order here which, however, do not have a bearing on the atomistic character of the traditional view. First, word forms are not necessarily considered *minimal* units; they often speak of *roots*, *stems* and *affixes*, which have their categories, too. The properties of word forms, in turn, are explained with the properties of those smaller units, so traditional morphology is atomistic in the same way as traditional syntax. Second, morpho-syntactic categories alone are not responsible for the entire behaviour of word forms. There are other word properties, too, which play a role in the explanation. Those are subcategory-like, e.g., there are *transitive* and *intransitive* verbs within the category *verb*. This, however, does not make the explanation less atomistic in any way.

I will illustrate the difference between the atomistic and the holistic view using a single concrete example, the participle of Romanian verbs. This example is suitable for showing that the atomistic explanation is *ad hoc*, i.e., the categories it assumes are in fact motivated by the very structures for the explanation of which they were invented for. That is, the structures are logically primary to the properties of the parts, which is the basic assumption of holism.

## 1.1 The case of Romanian participles

Romanian participles are interesting because they have many different uses. First of all, they participate in complex verb forms as past-tense and passive forms:

- (1) a. *am văzut*  
AUX-1SG see-PART  
'I saw'
- b. *am invitat*  
AUX-1SG invite-PART  
'I invited'
- (2) a. *sînt văzut*  
be-1SG see-PART  
'I am seen'
- b. *sînt invitat*  
be-1SG invite-PART  
'I am invited'

But the participle has more interesting uses, too (the data are mostly from Soare, 2006). For example, it can play the role of a possessed noun in possessive phrases (both with a case-marked possessor or periphrastic possessive constructions), in which case the possessor corresponds to the direct object of the verb:

- (3) a. *culesul căpșunilor*  
collect-PART-DEF strawberry-GEN.PL  
'collecting strawberries'
- b. *culesul de căpșuni*  
collect-PART-DEF PREP strawberry-PL  
'collecting strawberries'

In addition, the participle can act as the head of a propositional complement with certain main verb. In such cases, it is preceded by a preposition, which can be *de* or *la*, depending on the main verb. (With *la*, it often functions as a 'free' complement; in those cases, *la* can be translated as *in order to*.)

- (4) a. *am terminat de cules căpșunile*  
AUX-1SG finish-PART PREP collect-PART strawberry-PL.DEF  
'I finished collecting strawberries'

- b. *mergem la cules de căpșuni*  
 go-1PL PREP collect-PART PREP strawberry-PL  
 'We are leaving in order to collect strawberries'

Syntactic descriptions of Romanian are at a loss with the versatility of the participle. The traditional strategy is to speak of the accidental coincidence of several different categories. For example, they call it a *participle* in complex verb forms, while they claim it is a *verbal noun* in possessive constructions, and a *supine* in the prepositional use. But this practice has no independent motivation, e.g., in the morphology (these forms always coincide). It is also not satisfactory if we attribute the properties of several different categories to the participle (e.g., it is nominal, verbal, etc. at the same time), because the behaviour of the participle differs from the 'regular' members of all these categories. Let me quote a few examples to show that.

The participle has a verbal character in various respects, but it does not have the essential verbal property of taking a direct object on its own. That is only possible when it is in construction with an auxiliary or a preposition:

- (5) \* *culesul căpșuni*  
 collect-PART strawberry-PL

In those cases when the participle participates in a prepositional construction, it can take a direct object, but it rather choosy as to the character of the argument. For example, the direct object cannot be a full-fledged noun phrase:

- (6) a. \* *am renunțat la invitat pe Ion*  
 AUX-1SG call off-PART PREP invite-PART PREP John
- b. \* *am renunțat la invitat pe acest om*  
 AUX-1SG call off-PART PREP invite-PART PREP that man
- c. \* *am plecat la cules multe căpșuni*  
 AUX-1SG leave-PART PREP collect-PART many strawberry-PL
- d. \* *am plecat la cules toate căpșuni*  
 AUX-1SG leave-PART PREP collect-PART all strawberry-PL

Moreover, it is impossible, in such cases, to insert an adverbial between the participle and the direct object (although this type of word order is possible with finite verbs):

- (7) \* *am plecat la cules imediat căpșuni*  
 AUX-1SG leave-PART PREP collect-PART right away strawberry-PL

To summarize the problem: In order to explain the above array of data, we have to derive the existence of the various types of structure (and the non-existence of the bad ones) from the properties of the participle. Even though there are various possibilities of doing that in various theories (e.g., using category-switching rules, accidental coincidences and the like), but we will have no independent ground for choosing between the many equivalent solutions since, whichever solution we pick, it will be based on these very data. Moreover, theories that allow for powerful devices like category-switching, categorial polymorphism etc. usually allow for several equivalent ways of describing the facts, which is undesirable in a scientific theory.

In addition, Romanian participles (at least in some of their uses) should be attributed *ad hoc* categories that no other word type has. For example, by virtue of (6a–d), we need a type of verb which can only take *incorporated* direct object complements, and which only occurs in construction with a preposition. This is a telltale sign that structures like the one in (4a) are logically primary; traditional grammarians had to invent a category that occurs in just those constructions and ‘explain’ the existence of the construction.

As can be expected from the above, a holistic-minded description would start from the structures. It would list (i.e., posit the existence of) the few structural patterns in which the Romanian participle occurs, and would not try to ‘derive’ them from the particular features of the participle (or anything else, for that matter). The patterns in question, in our case, include complex verb forms, participle-headed possessive constructions (in which the possessor is the incorporated argument of the verb), the participle-headed prepositional construction (and which can also contain the incorporated argument of the verb), and so on.

It may seem that positing all these patterns independently of each other and of other constructions amounts to abandoning the explanation of certain linguistic relations. But that is just an illusion. The type of description relying on *ad hoc* properties to the participle is not the least more explanatory than simply listing the relevant patterns. On the other hand, if it turns out that the constructions in question are related to each other (or some other constructions) in a relevant way, then capturing those relations may simplify our description. For example, we can draw a parallelism between verbal constructions containing incorporated direct objects, i.e., we can try and conceive of them as special cases of a more general pattern. We would

not depart from the holistic view by introducing such relationships, and we also would not fall back into atomism by doing it.

If holistic descriptions are so much simpler and more straightforward in such cases, why is it that grammars have proceeded differently for so long? First, the predominantly atomistic spirit of natural sciences could have an influence on linguistics (although nowadays natural sciences tend to be less atomistic, too). Second, a particular age-long philosophical and linguistic tradition concerning the question how linguistic structures arise has maintained the essential atomism of linguistics. I am afraid that atomism can only be abandoned by abandoning that view as well. The tradition in question derives linguistic structures from the *incompleteness* of (some of) their elements. This will be the topic of the next subsection.

## 1.2 Do structures arise from incompleteness?

There is one distinguished property commonly attributed to various types of linguistic element which plays a special role in the explanation of complex expressions, namely, *incompleteness*. In many different aspects of grammar, the cohesion of expressions is conceived of as guaranteed by one element being incomplete in some respect, and another one filling the 'slot'. This happens at both the formal and the functional (semantic) level; as a matter of fact, it has become generally accepted since Frege (1879) that grammatical incompleteness is accompanied by semantic incompleteness, one being a consequence or manifestation of the other.

For a prototypical example of incomplete expressions, consider *argument-taking verbs*. According to the traditional view, they contain as many 'slots' as they have obligatory complements (or *arguments*): expressions containing them can only be complete if the appropriate complements are present (so each 'slot' is also marked for the character of the given argument). The slots are grammatical and semantic at the same time: verb meaning is incomplete in the same way as a verb alone is an incomplete expression.

Under this view, verb/complement structures come in two varieties: verb/argument constructs, the ones I have just mentioned, where the verb is incomplete, and verb/*adjunct* constructs, where the adjunct, as a kind of modifier, is incomplete, and the verb fills its 'slot'. Some theories even posit two different syntactic structures for the two types of complex expression, while others consider it a simple lexical distinction, but most approaches conceive of it as a binary distinction.

This almost universally accepted approach, however, is very problematic. Without going into too much detail, let me state for a start that there

is no well-established test for making an exact distinction between arguments and adjuncts. Accordingly, there are a number of cases where there is disagreement as to a complement is an argument or an adjunct (for example, the relationship and *go* and a *for*-phrase in a predicate like *go to the shop for bread* can be seen both ways). There are indications to the effect that the distinction is a gradient one, which is bad news for those who posit two different structures with no possible transitions.

Most importantly, the allegedly perfect parallelism between grammatical and semantic incompleteness is disputable and leads to very unnatural assumptions. First, it is not clear why semantic incompleteness does not lead to ungrammaticality in nominalizations and the like, where the arguments are not and often cannot be expressed. Second, it is not clear why a semantically nearly empty expression, such as a pronoun, can make an 'incomplete' expression 'complete'. Why is *I'm cutting something* any better than *I'm cutting*, since *it* says nearly nothing about 'the thing cut'? If semantic incompleteness were at the source of grammatical incompleteness, we would expect both these sentences to be (almost) equally incomplete grammatically, since their semantic content is (almost) the same. Third, verbs with 'optional arguments' seriously challenge the incompleteness-based view. For example, the direct object of *eat* is said to be an argument rather than an adjunct (and 'the thing eaten' is certainly a *sine qua non* of any 'eating' event), yet it is fully optional, so *I am eating* is a fine utterance. Such cases, which are not infrequent at all, require some extra (and *ad hoc*) mechanism (such as positing two different verbs *eat*, one obligatorily transitive, and one obligatorily intransitive, but referring to the same states of affairs).

In a recent paper (Kálmán, 2006), I have proposed an alternative approach. Why should one explain the cohesion of two elements by the incompleteness of one of them? Why could not one look at this the other way round, and explain the the intuition that certain expressions are incomplete by the strong cohesion of the elements, starting from the coherent construction that they constitute together? That is, we could take a holistic rather than atomistic approach to the phenomenon of structural cohesion. Instead of describing a complex expressions on the basis of the incompleteness of some of their constituent parts, we could start from a coherent unit, and explain what happens to its parts if we mutilate it. My conjecture is that here, too, the holistic view harmonizes better with the observed facts than the atomistic one.

Under the holistic perspective, the basic units of syntax are patterns of complex structures. In certain cases, when the elements of a structure are very non-autonomous (e.g., when they together constitute a more or less

idiomatic expression, like *spill the beans*), it is surely hopeless to explain the behaviour and function of the entire expression from the properties of its parts. This is less true for other constructions, but this is a gradual difference, which depends, among other factors, on the extent to which the structure is transparent (motivated), i.e., on the extent to which one can map its parts to discernible functions within the function of the entire expression. (Other factors include the frequency of the co-occurrence of the parts, or their mutual informativity, but I will not go into that concept here.) Structures in which the elements are maximally autonomous, i.e., which are fully transparent, like classical verb/adjunct constructions, are decomposable to all speakers, hence they act as if they could be composed from their parts (and, to be sure, they often are composed on the spot). But nothing forces us to consider this the model case, i.e., to explain the behaviour of all other types of structure by the analogy of these.

This type of approach has at least two major advantages, namely, with regard to the two problems that I have mentioned in connection with the incompleteness-based view. First, it does not entail binarity, i.e., it does not force us to posit just two types of structure (in two-element structures, that is: one has a slot that the other fills, or the other way round). Second, it does not entail the perfect parallelism of semantic and grammatical incompleteness. Even when a concept strongly suggests the presence of another concept (e.g., 'eating' requires there to be 'a thing eaten'), this need not be reflected by an incomplete expression (whatever the reason might be, e.g., in many cases it does not matter what the thing eaten exactly is).

It is not the case that we must consider transparent structure as exceptional and marginal. To the contrary, these are the most important ones in the sense that these are the most suitable for making up new expressions using their patterns and, when doing so, we can be almost certain that the new creations will be understood by the audience as we intend them to. The reason why is that they, too, will easily identify what kind of structure we have used as a model for our new creation. (The easier it is for them, the more *productive* the pattern we have used.) Transparent expressions are good for innovation, whereas less transparent ones are good for other purposes. But this is perfectly compatible with the view that structures, however productive they might be, are primary from the point of view of description.

What I have just explained about syntactic structures is somewhat parallel to what we know about morphological structures (i.e., word forms). There are word forms (of the *agglutinative* kind), in which the elements (the stems and the affixes) are easy to discern, and the functional/semantic contribution of those elements is more or less clear-cut. On the other hand,

it is hopeless to separate such *morphs* in other word forms (those of the *fusional* sort). For example, Latin *pulchrās* ‘beautiful (feminine, plural, accusative)’ is such a fusional word form. It is hopeless to say what signals ‘feminine’, ‘plural’ and ‘accusative’ in it (these all are expressed by *-ās*, so to say, if we insist on separating *pulchr-* as the stem). Thus, I assume that the lessons drawn from syntax can be transferred to morphology with some modifications. Accordingly, in morphology, the patterns of word forms are primary, these are best suited for describing word forms, instead of taking the morphs to be elementary, and explaining word forms as their combinations. Just like syntactic/semantic transparency, morphological/semantic transparency has lots of degrees and types, and full transparency is an extreme, though not a marginal case.

In the last section, I will try to justify the holistic view of word forms from a different perspective. I will address the issue of the relationship of morphology to phonology.

## 2 The problem of Hungarian ‘linking vowels’

Many Hungarian word forms contain a so-called *linking vowel* between stems and suffixes. A linking vowel is one that alternates with *0*, i.e., the appearance of which depends on the particular stem and/or the particular affix. Some examples:

(8)		‘stick’	‘house’	‘meat’	‘gate’	‘bring’	‘bear’	‘push’
	NOM.SG	<i>bot</i>	<i>ház</i>	<i>hús</i>	<i>kapu</i>			
	3SG					<i>hoz</i>	<i>hord</i>	<i>tol</i>
	NOM.PL	<i>botok</i>	<i>házak</i>	<i>húsök</i>	<i>kapuk</i>			
	PAST.3SG					<i>hozott</i>	<i>hordott</i>	<i>tolt</i>
	ACC.SG	<i>botot</i>	<i>házat</i>	<i>húst</i>	<i>kaput</i>			
	INF					<i>hozni</i>	<i>hordani</i>	<i>tolni</i>
	SUE	<i>boton</i>	<i>házon</i>	<i>húson</i>	<i>kapun</i>			
	1SG.DEFOBJ					<i>hozom</i>	<i>hordom</i>	<i>tolom</i>

As can be seen, in declination, it only vowel-final stems like *kapu* that are not followed by a linking vowel in the *-k* of the plural, the *-t* of the accusative or the *-n* of the superessive. The accusative is sometimes not preceded by a linking vowel (as after *hús* and many stems that end in a sonorant). After certain stems (*ház* is one of them) the linking vowel is low (*a/e*) rather than mid (*o/e/ö*). In the declination, the past tense suffix *-tt* is sometimes not preceded by a linking vowel (e.g., after the stem *tol* and many others that end in a sonorant) — it is spelled with just one *t* in those

cases, and it is also pronounced that way, because Hungarian does not tolerate geminates within consonant clusters. The suffix *-ni* of the infinitive is only preceded by a linking vowel after certain stems (mostly ending in consonant clusters or geminates, e.g., *hord*), and it is always low (*a/e*). In the case of the superessive, the quality of the linking vowel seems to be determined by the suffix, since it is always mid, even after stems like *ház*, which normally take low linking vowels when they have a choice. Similarly, the 1SG.DEFOBJ suffix *-m* is always preceded by a mid linking vowel. As a matter of course, these are just a few examples and a few regularities, the entire complex system of linking vowels is not relevant to the discussion.

Hungarian grammarians have tried to account for the data in a relatively concise way using many different theories and assumptions. They have basically exhausted all logical possibilities (note that some logical possibilities are compatible with more than one description depending on the technique used):

1. One could take the linking vowel to be part of the stem. In this case, one has to posit a consonant-final allomorph (or truncate the stem using rules) when no linking vowel appears. This makes it easy to account for lexically exceptional stems (those that are usually followed by low linking vowels, such as *ház*). On the other hand, it is very cumbersome in those cases when the linking vowel depends on the affix (as well).
2. The linking vowel could be seen as part of the suffix. In this case, we need consonant-initial allomorphs of suffixes (or truncate them using rules). As a matter of course, this raises the problem of lexically exceptional stems like *ház*, which must be assigned some abstract exception feature controlling the choice of the right suffix allomorph. On the other hand, it makes it natural that the linking vowel may depend on what the suffix is.
3. The linking vowel could be a separate morph (or a segment without the status of a morph), inserted by suffixation rules. Since linking vowels cannot be associated with a semantic/grammatical function, they cannot be considered manifestations of a morpheme, so the insertion rule must be phonological in character. But some of the rules governing the presence of a linking vowel (and its quality) do not seem phonologically motivated, and those that do are not very systematic, either. This does not exclude a (lexical) phonological treatment, but it makes it very costly.

In sum, we have three types of solution that are nearly equally costly, they all have their advantages and disadvantages and, technically speaking, each of them can be implemented in many ways that are, roughly speaking, equally cumbersome. No decisive argument has been presented in favour or against any of them so far, except that certain theories must reject one or the other because it would need tools that they disallow. I know of no treatment, however, which could present one type of explanation or another as *necessary* from the given theory's perspective. A scientific theory, though, should explain a phenomenon (if it can explain it at all) in a unique way, and that explanation should follow from the theory as a strictly necessary choice.

It is not my aim in this paper to give a detailed analysis ('solution') to the problem of linking vowels. Nevertheless, I feel obliged to at least point to a holistic perspective on the issue. Once we choose the holistic approach, we have to accept to think in terms of patterns rather than their small (let alone minimal) constituting elements. On the other hand, constructs like word forms can be recognized from the sounds they contain, so it is not forbidden to talk about their parts. But what really matters in such an analysis is how patterns composed of such parts *resemble* other patterns, and probably our brains need not decompose the patterns in order to make comparisons between them. It is not likely, for example, that we decompose images of human faces when comparing them. Of course, the parallel is not perfect, because speech is different from visual perception: we not only perceive, but also create speech signals all the time, and we do so by recombining patterns that we know from earlier experience. The type of analysis that I sketch below is reminiscent of other resemblance- (*analogy*-) based approaches like, e.g., Skousen's (1989) model.

Take, for example, nominative plural nominal forms. They obey the characteristic *-Vk* pattern, this is how all nominative plural forms end. Similarly, superessive forms always end in *-Vn* (where the vowel is never low), and so on. On the other hand, forms of the stem meaning 'house' tend to start with *ház-* — this kind of description does not take a position as to where the linking vowel belongs and how it gets into the word form (or disappears from it).

It seems, however, that the exact description of word forms takes more than just talking about beginnings and end of words, even in a relatively agglutinative language like Hungarian, for example because vowel harmony is also operative in this language. For example, it is not sufficient to know that word forms based on the meaning 'bridge' tend to start with *híd-*, we have to add that these word forms pattern together with words like *izom*, *csiga*, *birtok*, *bíró*, *csíra* (i.e., the subsequent vowels are

back) rather than words like *sziget*, *pille*, *minden* (where the subsequent vowels are front). Both patterns are frequent in Hungarian, and one simply has to learn that *híd* ‘bridge’ behaves like this (as opposed to, say, *szív* ‘heart’, which takes front suffixes: *hidat* ‘bridge, accusative’ vs. *szívet* ‘heart, accusative’). Again, this is a phenomenon difficult to describe from an atomistic perspective: under the atomistic view, it has to be due to some abstract, invisible feature that distinguishes the two noun stems. And, again, the atomistic view allows many equivalent solutions that we have no ground to choose from. The holistic approach, on the other hand, imposes us an explanation of the behaviour of *híd* and *szív* in terms of the different patterns they obey, and this is the single and necessary explanation within a holistic framework.

We can explain the appearance of linking vowels in the same vein, without using the concept of linking vowels at all. In this case, too, it is not sufficient to take a single paradigm into account. For example, in order to understand the word form meaning ‘house (superessive)’, we have to look at all superessive forms in addition to forms of *ház* ‘house’. Not all word forms ending in *-Vn* (with a non-low vowel) can be interpreted as superessive, only those that can be contrasted with other (non-superessive) forms that start similarly. For example, the form *házon* ‘house (superessive)’ fits the patterns of word forms starting in *ház-* (and bearing the meaning ‘house’), on the one hand, and the patterns of other superessive forms, like *falon*, *boton* etc. The reason why it takes the form *házon* rather than *\*házán* is that the latter would not fit the pattern of (is not similar to) any other superessive form. Incidentally, this explanation entails a substantive prediction, namely: if Hungarian contained superessive forms ending in *-an*, then the form *\*házán* would be at least marginally or sporadically acceptable. No such prediction is made by any possible atomistic model.

To summarize, the holistic description of word forms relies on the multi-dimensional comparison of existing forms. This may remind one of the so-called *optimality theoretic* approach, which posits a kind of *competition* between conceivable candidates. The winner of the competition is the form matching best the patterns that are functionally most adequate. In my example, *házon* would be the form that matches the best the forms bearing the functions ‘house’ and ‘superessive’. But there are major differences between optimality theory and analogical theories. First, in standard optimality theories, it is not existing patterns that decides between competing forms, but violable constraints assumed to be universals (but the relative importance of which is language specific). Second, standard optimality theories do not evaluate surface forms in terms of fitness, but relation-

ships of virtual surface forms to an abstract ‘underlying’ form. Analogical approaches, on the other hand, are not allowed to posit any kind of hypothetical ‘underlying’ forms.

Since analogical descriptions, of which holistic descriptions are an instance, rely on a repository of existing forms, it has to presuppose a relatively rich inventory of memorized forms. We do not have to decide exactly which forms we consider memorized, and which ones we explain by analogy to them: the roles can be switched. Note that facts about language acquisition strongly support the importance of the memorization of forms in morphology (cf., e.g., MacWhinney, 1975). In addition, the use of a memorized inventory explains the *frequency effects* discovered in ever growing numbers since the 1980’s (cf., e.g., Bybee and Hopper, 2001). The more frequent a pattern, the more influence it exercees, i.e., the greater the probability that a newly created, non-memorized forms will match it. The reason for this is that, once a memorized repository is considered a part of our knowledge of language, we can safely assume that — just like in the case of memory traces in general — memories differ in strength from each other. The strength of a memory trace depends on how often it has been reinforced by earlier experience. In the case of the memory of a form or a pattern, its strength depends on how often we could successfully match other forms against it.

### 3 Conclusion

I guess it would be hard to decide whether atomistic (and, in general, analytic) explanations in linguistics are predominant because of the particular traditions of European thinking (of Greek origin, mostly), or because of the success of the atomistic view in other sciences, or eventually because of the nature (or alleged nature) of human language. I do not even know where to look for an answer to this question, so I am not attempting to find it here.

To be sure, owing to the mostly linear character of speech, signs follow each other in speech, so utterances have some linear articulation. Another basis for looking for analytic explanations is the way in which natural-language signs are motivated. Very few linguistic signs are iconically motivated (i.e., structurally similar to the denoted entity, except maybe some onomatopoeic expressions). Their vast majority is motivated by virtue of its composition, i.e., they can be decomposed into signs each of which can be associated with the referent of the entire expression in some way. For example, *men’s room* is not motivated in the same sense as signs indicating

men's rooms are (I am thinking of small figures representing hats, bearded heads and the like), but in the sense that both 'man' and 'room' are somehow related to men's rooms. How they exactly relate to them is fixed by language use (i.e., by the fact that *men's room* refers to men's rooms).

However, we do not have to accept this trivial observation concerning motivatedness in terms of composition as a justification for atomistic explanations. It is even less certain that such an observation justifies the constant hunt for minimal elements, a martial art cultivated by most linguists of the 20th century. As a refreshing exception, one must mention Saussure (1972 [1916]) who, in his introductory course, refused to say that complex signs are *composed* from simpler signs. Quite to the contrary, he said that certain signs can be *decomposed*, but only to the extent that some of their parts are associated (in the heads of the speakers) with parts of other signs that have a similar form and/or a similar function.

Even a linguist has difficulties imagining how one could think about functionally complex expressions without decomposing them or considering them as composed of parts. The reason for this is that complex signs exhibit partial similarities to other signs. But there are obvious cases when complexity has no formal manifestation (i.e., it is not manifested in a linear sequence). Just think about properties like grammatical gender, which in many cases are not signalled by separate morphs, but simply characterize a stem. For example, Latin *arbor* 'tree' is feminine, without any morph signalling this (even though in other cases one could accuse some segments of having this role, e.g., one can argue that the final *-a* of *puella* 'girl' has this function). It is this kind of phenomena that we must have in mind when taking a holistic stance.

To sum up, I have argued, using a superficial conceptual examination of the holistic approach and some examples, that the atomistic analysis of linguistic expression is not only dispensable, but outright useless, or even harmful. It seems to me that it does not help us understand or at least concisely describe the relevant phenomena. Even if it makes it possible to describe them in the technical sense, it does not offer a unique necessary way of doing it. Moreover, it is not at all obvious that atomistic descriptions should be any less costly than holistic ones.

## Acknowledgement

The first version of this paper was carefully read and criticized by Cecília Molnár and the participants of the Hungarian linguists' forum (<http://seas3.elte.hu/nyelvezforum>). Thanks very much.

## References

- Bybee, J. L. and Hopper, P. (eds.), 2001. *Frequency and the emergence of language structure*. John Benjamins, Amsterdam.
- Frege, G., 1879. *Begriffsschrift, eine der arithmetischen nachgebildete Formelsprache des reinen Denkens*. Halle.
- Johansson, I., 2003. 'Review of Georg Meggle, ed., *Social Facts and Collective Intentionality*. Dr. Hansel-Hohenhausen AG, 2002'. *Notre Dame Philosophical Reviews* Available as <http://ndpr.nd.edu/review.cfm?id=1224>.
- Josephson, B. D. and Blair, D. G., 1982. *A holistic approach to language*. Tech. rep., Cambridge University, Dept. of Physics, Theory of Condensed Matter Group. Available as <http://www.tcm.phy.cam.ac.uk/~bdj10/language/lang1.html>.
- Kravchenko, A., 2006. 'Cognitive linguistics, biology of cognition and biosemiotics: Bridging the gaps'. *Language sciences* **28**, 51–75.
- Kálmán, L., 2006. 'Miért nem vonzanak a régensek?' In: L. Kálmán (ed.), *KB 120: A titkos kötet*, pp. 229–246. MTA Nyelvtudományi Intézet – Tinta Könyvkiadó, Budapest.
- MacWhinney, B., 1975. 'Rules, rote, and analogy in morphological formations by Hungarian children'. *Journal of Child Language* **2**, 65–77.
- Saussure, F. d., 1972 [1916]. *Cours de linguistique générale*. Payot, Paris. Edition critique préparée par Tullio De Mauro.
- Skousen, R., 1989. *Analogical modelling of language*. Kluwer, Dordrecht.
- Soare, E., 2006. 'Morphosyntactic mismatches revisited: The case of Romanian supine'. 12th International Morphology Meeting, Budapest, May 25–28.