Language Under Discussion http://www.ludjournal.org ISSN: 2329-583x

Is linguistic structure an illusion?

Paul Rastall[a]

[a] South Kelsey, Lincolnshire, UK, paul.rastall@googlemail.com.

Paper received: 30 August 2016
DOI: 10.31885/lud.4.1.232 *Published online: 7 December 2016*

Abstract. The article notes some valuable contributions in Sydney Lamb's article, "Linguistic structure: A plausible theory" and welcomes his raising some key issues, but points out some epistemological and ontological difficulties. It is suggested that linguistic structure involves explanatory constructs in conceptual frameworks which address only a limited number of aspects of linguistic phenomena. The apparent order of linguistic structure arises from the human tendency to systematise and classify. When the complexity of multiple interacting factors as well as the diversity of linguistic associations are taken into account, the orderliness of linguistic structure is illusory, and a more dynamic multifactorial account of language is needed.

Keywords: applicability, empirical validity, ontological commitment, analogy, anomaly, linguistic associations, dynamism

1.0 Introduction

In his recent contribution to *Language under Discussion*, Sidney Lamb (2016) proposes that 'linguistic structure' is a 'plausible hypothesis'. He does not define the term 'structure', but seems to mean that any linguistic organisation or 'relational network' is a 'structure'. Again, he appears to be both defending the idea of linguistic structure as 'plausible' (in the first part of the paper) and specifically proposing his stratificational view of linguistic structure as plausible, although the bulk of the paper is devoted to the latter. The second part of the question clearly depends on more general attitudes to the first.

I think Lamb has made some valuable points in the course of his paper. In particular, he is right (in my view) to emphasise that linguistic theories and analyses must be consistent with the findings of other sciences—neuroscience being one of them (although I think linguistics, and neuroscience too, must look in several directions: towards experimental psychology, sociology, ordinary language philosophy, and anthropology as well, for

Language Under Discussion, Vol. 4, Issue 1 (June 2016), pp. 51–72
Published by the Language Under Discussion Society

example). 'Consistency' is not the same as 'being identical with' any particular scientific view, although Lamb's hypothesised systems and entities are clearly intended to coincide with neurological ones. Lamb is right to note the separate contributions of linguistics and neuroscience with a view to their ultimate synthesis. He rightly emphasises too the need for a dynamic view of language in the context of the flexibility and plasticity of the human brain, although I think he underestimates the numerous disposing and interacting factors in verbal communication. His position is clearly 'monist' (i.e. it rejects a 'mind-body' dualism in line with most modern thinking in philosophy and neuroscience), advocating an 'internal system' (p. 2) activating all brain and physical mechanisms. His account of the 'strengthening of connections through repeated use' (p. 26) is clearly consistent with the ideas of 'positive feedback' in biological systems and 'memetic' behaviour (on those points, see also Rastall, 2000, and, for biological systems, Dawkins, 2004). He is right also to point out that languages are not discrete, and that linguistic entities must be seen in multiple dimensions (p. 6). However, he does not make clear whether he regards linguistic systems as discrete from other communication systems or how non-verbal and verbal communication can be integrated in his approach. In his relational networks, we still have the centrality of phonological, grammatical, and lexemic structures relatively unconnected to social or wider discoursal determinants and patterns. However, he rightly points out that the boundaries between perception and language, if they exist at all, are fuzzy. Also, it is not clear whether the multiple associations of linguistic entities (such as are found in his example of *cup*) are consistent with the idea of a 'system' (see below).

Despite those areas of agreement, I think there are serious epistemological issues that need to be addressed in connection with Lamb's proposals (or any other structural account with a strong ontological claim). We should be grateful to Lamb for providing a basis for such a discussion. The first issue is a matter of what Quine (1953: 1 *ff*) calls 'ontological commitment'. To what extent, if any, are we committed to asserting the objective existence of linguistic entities and structures, and, if so, what sort of existence do they have? 'Existence' is, of course, not the same as 'reality'. There are many sorts of reality, and one of them—an example of a constructed reality—is the reality of structures in our *conception* of language, languages, and verbal interaction. 'Our' conception may be that of a linguist's analysis or a speaker's private conception of his or her language, which are well known to differ considerably. There is also the question of the different meanings of 'language'. Saussure (1972: 27 *ff*) placed structural/systemic reality in the minds of speakers as a component of the 'speech circuit', but also spoke of its existence as a supra-individual reality in the 'collectivity'[1] (1972: 38–9). In the first case, he seemed to attribute actual existence to linguistic systems as mental entities. The second seems to be more of an explanatory construct or social property. One can also see 'language' as the intension of the class of languages—the properties shared by all languages by definition (in a theory) or by induction (from observed languages or language behaviours), or as a set of social events or interactions,

[1] Saussure's idea has been much criticised. It is 'mumbo-jumbo' according to Roy Harris (1973: 158). However, Saussure's ideas come to us through the prism of his students' notes (an unenviable fate). We could take Saussure to mean that a language is the defining property of a speech community in its totality. While this interpretation may not allow an ontological commitment to the existence of a language, it would provide us with a conception of a language, in all its varieties, as the property which binds speech communities and gives linguistic identity.

for example. The various meanings are clearly not identical. Another issue raised by Lamb is intimately connected to our understanding of the role of language in the construction of reality, and how verbally constructed reality comes about.

To take the ontological issue first, Lamb's position is clearly stated. He says (p. 4), 'linguistic structures exist in the real world, and their loci are the brains of speakers'. Many linguists (including Lamb, 1999) have taken the view that linguistic structures are mental, or cognitive, realities with existence in each speaker's brain. There have been doubting voices (e.g. Hjelmslev (1953)[2] and Mulder (1993)). Those linguists regard our conception of languages and linguistic structures as a function of our methods of analysis and general theoretical framework, which contains many 'arbitrary but appropriate' choices on the part of the linguist. For them, there is no justification for attributing the linguist's structure to the speaker. It is just a tool for our understanding of selected aspects of phenomena. That is clearly in the tradition of Kant and the view that our conception of the world depends on our sense organs and ways of organising our understanding. The above choice can be expressed tendentiously as one between 'god's truth' and 'hocus-pocus'—in Householder's formulation (1952: 260). That is, are linguistic structures as we conceive them 'real' in any objective sense or is structure (to paraphrase Schopenhauer) my representation of it? (Other linguists, notably Harris, 1982, have denied the validity of 'language' as an entity at all.)

There are at least three considerations in this question of ontological commitment. In the first place, it should be clear that linguistic units and relations are not simply naturally occurring, i.e. we cannot 'observe words in linguistic productions', as Lamb puts it (p. 9). They are constructs, and as such are heavily 'theory-laden'. You may say there are 45 phonemes in southern standard British English, but I may agree with Mulder and Hurren (1968) that there are 25. You may say *are* is a word, but I may say it is an allomorph. You may say *butcher* is a morphological complex, but I may say it is morphologically simple (a 'pseudo-composite'). You may say *video-recorder* is a compound word, but I may say it is a syntagm. You may say *John loves Mary* is an instance of **subject-predicate**, but I may say it is a case of **diverse determination of the nuclear verb**. The disagreements are not matters of factual observation (*quid facti*?), but a matter of different theories with different methodologies leading to different constructs (as in the (in)famous case of whether *blackbird* is a simple or complex entity). My phoneme or word may not be your phoneme or word. Given the arbitrary theoretical content of any construct, how can we claim exact correspondence of a construct with an essentially unknowable real-world entity? As Lamb says (p. 9), 'the exact form of the network varies from one investigator to another'. It does so because their approaches are theoretically and methodologically different, leading to different constructs or views of different aspects of phenomena.

Secondly, linguistic constructs are class properties. The phoneme /t/ in English is a class of allophones, each of which is a class of phonetic realisations, i.e. it is a class of classes of classes or the property which is common to all members of the class of allophones. Here the question of ontological commitment arises, i.e. do we admit the existence of class properties as real-world entities? Lamb's solution is to take class concepts like /t/ and place them in the relational hierarchy as entities (and *mutatis mutandis* for other units of analysis), but that

[2] I am not sure how Lamb interprets Hjelmslev's explicit rejection of an 'existence postulate'.

looks very much like a platonic hypostatisation. We would not normally want to assert the existence of 'the blue tit' because we have a real-world class of birds grouped together by similar properties, although we will want to consider the properties shared by blue tits—and the same goes for /t/ and other linguistic units.

Thirdly, there is a further class-member issue. Saussure struggled to reconcile the difference between the individual's language and the language of the community. The problem is the same for Lamb (or any other linguist). His relational network is in the individual brain (like Saussure's system), but we still need the concept of a shared community language to explain mutual communication and the sense of shared linguistic identity, where each individual's relational network is *different* (in varying degrees depending on many social and varietal factors). We thus end up with a linguist's analysis referring to a *class* of relational networks abstracting from the differences between individuals—the linguist works mainly with what is *typical* for a speech community; but a class of relational networks is not a relational network any more than a class of horses is a horse, and the abstracted generalised system runs into all the problems noted above. Again, we face the problem of ontological commitment to a class property, but in this case we have a huge collection of constructs of constructs, and they must be projected onto different individual brains.

I would like to suggest there is a third possibility, which is connected to our wider understanding of language. It is that our sense of linguistic structure or system arises from our partial and imperfect understanding of the complexity of verbal communication, and that what is needed is a deeper point of view which accounts for, *and includes*, our sense of regularity in verbal communication. The physicist, Carlo Rovelli, has suggested (2015: 42) that our sense of the space-time order of the physical world comes from our 'blurred vision' due to the limited and partial interactions we are capable of with our limited senses and intellects. The order of the apparently regularly rising sun, its movement through the sky and setting at night, or the sense of the earth below and the sky above us, are illusions arising from our limited perspectives and our need to make sense of our everyday level of experience. Our confusion and difficulty in understanding the quantum world arises, he says, because we can only deal in a small number of perspectives on it, whereas quantum phenomena involve many interacting forces. Rovelli's view is clearly in the tradition of Kant (without the commitment to fixed forms of the understanding), Schopenhauer, and Nietzsche (and Zen Buddhists), who took the view that we only glimpse selected aspects of the world through our limited perceptions and intellect.

I would like to suggest that Rovelli's point can be extended to the world of social communication. We see ordered structure in our understanding of verbal communication because we look at it (and for it) from a limited number of perspectives—not least from a natural human propensity to seek ordered classification and system in all things. When we allow for the multiplicity of potential associations in verbal behaviour and interactions, we arrive at an enormously complex verbal world whose totality we have difficulty in understanding, and in which regularity or structure is less apparent and only a small part of the totality. Indeed, our sense of reality, insofar as it is verbally constructed, involves vast numbers of interacting factors and is constantly changing; and our linguistic means of communication are constantly changing too, as we learn from studies in the 'synchronic dynamics' of languages. 'Structure' is a convenient illusion for *some aspects* of macro-level

understanding. I think Lamb's position is actually not too far from this. He too points out the many disposing factors in verbal communication. His example of the semantic associations of *cup* (p. 20 *ff*) clearly shows the complexity. But it also shows that each linguistic sign's associations are idiosyncratic—there is little that is systematic about them. The apparent clustering of associated signs—*cup, mug*, etc.—reflects the clusters of experiences and real things, not a linguistic ordering.

To make progress, we must make an epistemological detour, revive an ancient debate, consider some evidence, and suggest some wider perspectives.

2.0 Some epistemological points

A hypothesis is a kind of *statement* (or set of connected statements). Each hypothesis is a statement whose truth or falsehood is contingent on facts. Its key feature must be its testability in confrontation with real-world states of affairs (see, among many possible references, Hempel, 1952: 36 *ff*). I am sure Lamb will agree with that. Followers of Popper would say the key characteristic of a hypothesis is its potential falsifiability. We do not have to follow Popper's 'criterion of demarcation' (1972a: 34 *ff*) between empirical science and 'metaphysics' in all its details, but the potential for falsification is a key feature of testability. One cannot have a hypothesis which can never—even in principle—be false, so there must be some way of testing a hypothesis to destruction.

Any hypothesis can be launched regardless of its plausibility. Boltzmann's (correct) hypothesis that heat is transferred from hot to cold things and not *vice versa* because that direction is more *probable* was regarded as highly *im*plausible at first (Rovelli, 2015: 49 *ff*). Similarly, many must have doubted Einstein's (correct) prediction that light would be bent by the sun. On the other hand, Lamarck's (false) views on the hereditability of acquired characteristics and Heyerdahl's hypothesis of a South American origin of Polynesian people were regarded as plausible in their day. Thus, plausibility is neither necessary nor sufficient for *launching* a hypothesis. As only the facts decide on a hypothesis, plausibility is neither necessary nor sufficient for *accepting* a hypothesis too. Who (before Einstein) would have imagined that light from a distant object originating millions of light years away could be bent by a curve in space-time, or until recently that Neanderthal or Denisovan DNA is found in the genomes of various human populations?

A hypothesis can only be tested. It must, therefore, be very precise (as indeed Lamb's specific hypotheses about particular structures are), and contain both a subject and a predicate in such a way that we can identify instances of the subject and instances of characteristics in the real world. 'Structuralism', 'structure', and 'linguistic structure' are *not* hypotheses (and neither are the phoneme /t/ or the structure **subject-predicate**). They are naming expressions, and hence shorthand for the statements relating to the entities being named and their claimed properties. Of course, they could be components in statements, such as 'structures exist', 'structuralism is our best explanatory framework in linguistics', or '/tš/ is a phoneme of English'. It is not clear that the first two statements would be *testable* hypotheses. How could they be refuted or even empirically tested? The third is refutable in principle, but only in the terms of the theory and methods which give meaning to the term, 'phoneme'. The resolution of the 'one or two phonemes?' problem (do we have a single

phoneme, /tš/, or a combination of /t + š/ for example?) hangs on the phoneme theory you adopt, as in the above cases of different solutions.

If the naming expression, 'linguistic structure', does *not* correspond to (or name) a real world entity or set of entities, then the claim that 'linguistic structures exist' is automatically false. If they do demonstrably exist, then the statement, 'linguistic structures exist' is at best otiose—no *hypothesis* is then needed; it would be a fact. The problem is, of course, that we do not know whether the expression, 'linguistic structures' has real-world reference or not. The further problem is that we need to be able to test the claim, 'linguistic structures exist', independently of any classification into linguistic structures. Otherwise, we would end up with a clear *petitio principii*.

For example, it is possible to set up a theory for phonological description based around the notion, phoneme, in which phoneme constituency is described in terms of distinctive features, and the distribution of phonemes is described by modelling the construction of groups of phonemes in phonotagms. Lamb's phonology gives a dynamic representation of such an approach. Similarly, one can set up a 'scale and category' grammar with a 'rank scale' of the usual sort. Those theories for the phonological and grammatical description of languages can then be used in the description of specific languages. It is what Martinet (1956) and Mulder (1968) did in phonology[3] (followed by many others) and Cook (1971), among many others (e.g. Berry, 1977, Chalker and Weiner, 1998, Halliday, 2004), did in grammar (tagmemic or systemic). The description of (aspects of) languages using a given approach demonstrates the *applicability* of the method—what Lamb (p. 1) describes as operability. It does not demonstrate the empirical *validity* of the description. For that, one would need some triangulation with other methods to test whether structures exist *in the way linguists set them up*[4]. (A successful application of a method is necessary but not sufficient for empirical validity.) To claim that a structural description demonstrated the empirical validity or existence of linguistic structures would be a clear *petitio principii* because the linguistic method itself presupposes a structural viewpoint—the 'proof' presupposes what was to be demonstrated. Phonemes, distinctive feature analysis, phonotagms, the scale and category approach, and many other approaches plainly contain a presupposition of structure. You cannot use a structural description to show the empirical validity of a structural approach[5]. Lamb's numerous examples are both clearly set out and interesting analyses, but they do not show the *existence* of the structures in the real world. Thus, his claim (p. 3) that:

> People are indeed able to speak and write, and to comprehend texts (if often imperfectly). This obvious fact assures us that linguistic systems are able to operate for producing and comprehending texts.

either begs the question, or means that *any* organisation or process is trivially a 'system'—the claim that linguistic structures exist would become irrefutable in principle.

[3] Both explicitly presented theory first and then *applied* it in the description of Franco-Provençal and Chinese respectively.

[4] I am tempted to say such a thing is inherently improbable, but have excluded plausibility arguments.

[5] Possibly, that was Pike's error when he stated that 'phonemes exist' (1971: 61).

Lamb's claim for plausibility (his triangulation), however, rests on a comparison between the features of his (in itself interesting) stratificational approach[6] and a number of facts of neuroscience. However, whereas the linguistic analyses are very detailed, the facts of neuroscience (at least insofar as specific linguistic entities are concerned) are at a much more general level. As has been often observed, neuroscience has made great strides at a cellular level and at the level of macro-level functions. The problem is the gap between the two levels, but that is precisely where Lamb's theory fits (along with those of other linguists). The problem is clear even in the work of the neurolinguist, Pulvemüller (2005: 273), who says:

> A closer look at the actual empirical data so far indicates that a clear correlation between language phenomena and patterns of electrical activity [in the brain] are not easy to find.

In short, the many hypotheses grouped in his theory are not (currently) testable for empirical validity, but broad comparability (plausibility) is not a strong argument—it is a type of 'subjective conviction' (Popper, 1972a: 44).

I think Hjelmslev was aware of that set of problems when he put forward *his* hypothesis of linguistic structure; that for every *process* there is a *system* to analyse and describe it using a limited number of premises (1953: 9). While it was a statement, it was a point of view which was not empirically testable in relation to naturally occurring phenomena. Of course, Hjelmslev's conception of empiricism differed from that of other linguists (as many commentators have pointed out). He was more concerned with the coherence of descriptions than with correspondence to fact. For Hjelmslev, I think[7], empiricism included the *coherence* of a description with observables. Since Hjelmslev rejected the idea of an 'existence postulate'—the claim that a linguistic description represents some ultimate real-world entity (linguistic 'substance')-, coherence with observables in a logical framework of ideas would be the test of the hypothesis of linguistic structure 'underlying' phenomena. He thus avoided circularity at the expense of not making any claim for correspondence with the external world. Unfortunately, he also immunised his hypothesis against refutation, since it is always possible to find *some* way of making a coherent description, if only by constantly adjusting it or absorbing diversity by some additional component (as Popper pointed out, 1972b:30). There may be some justification for the view that we can never get beyond ever more complex explanatory constructions of experience, but it could not include hypotheses in the usually accepted sense, and one could not arrive at 'empirical truth' in the usual sense of correspondence with reality external to descriptive statements. Hjelmslev's strategy would not suit Lamb, although it would suit those who regard linguistic analyses as explanatory constructs.

3.0 Questioning structural views

So, we must ask—are there any reasons for questioning structural views of language and languages? Apart from the serious epistemological problems above (including Rovelli's idea of our 'blurred vision'), it seems to me that there are at least three sources of doubt.

[6] I would like to mention the work of Sotavalta (1936) which has some remarkable similarities to Lamb's stratificational grammar. Sotavalta's theory is a connected hierarchy of constants and variables on several levels.

[7] But there are many different views on the meaning of Hjelmslev's work.

3.1 Diversity of communicational means

Firstly, by comparison with macro-level structural generalisations, there are significant amounts of anomaly of detail and variations in structure in all languages. Of course, verbal phenomena can be considered 'anomalous' only in relation to structures which are regarded as 'normal'. There is diversity, rather than 'anomaly', if structures are *not* regarded as classificatory norms. If we look at 'case languages' such as Russian, for example, it is clear that a macro-level structure such as **noun = [prefix] + root + case + number** covers a very large diversity of combinations, and is actually false in the case of 'indeclinables'. In fact, there is considerable 'amalgamation' in Russian, which makes it difficult to specify the forms of roots, cases, and number (those categories are projected onto phenomena as forms of classificatory explanation), and the functions of cases are very diverse, as any standard grammar will show (e.g. Unbegaun, 1957, or Offord, 1994). The macro-level generalisation lumps together many different features of form and meaning, and imposes a structural analysis on them. In English, the macro-level structure **subject—predicate** for the 'simple sentence' covers a wide diversity of subject (and predicate) functions, and is false for so-called 'minor sentence types' (extensively listed by Cook[8], 1971, and discussed in Rastall, 1995).

3.1.1Examples of grammatical variation

In languages like Russian, it is particularly important to allow for impersonal expressions (such as *mn'e xolodno*—lit. 'to me is cold', 'I'm cold'; *jemu n'ekuda idt'i*—lit 'to him nowhere to go', 'he has nowhere to go') as well as **subject-predicate** structures as separate linguistic strategies to achieve communicational ends. Impersonal expressions have largely disappeared from English except in fossilised expressions such as *methinks*, although they existed in Early Modern English (*me thinketh, him liketh it*). However, even in English, it is important to see that **subject-predicate** structures are by no means all of one type. Copulatives (e.g. *Fred is a good worker*) differ in structure and function from non-copulatives, which—as we know—must be divided into transitives, di-transtives, and intransitives, and those in turn must be distinguished from 'middle voice' structures (*the shirt cleaned well*, etc.). Furthermore, the internal structure of the predicate and its relation to the 'subject' clearly differ. The array of possibilities (ignoring adverbial complements) includes those listed in Table 1.

In addition to the above types, we should note the many 'predicates' which are, in fact, fixed phrases, where the predicate appears to consist of a verb with a direct object (or other complement), but where the meaning of the whole is not a function of its parts and the predicate is not grammatically analysable. Such expressions are generally of metaphorical origin—e.g. *x bit the bullet/bore fruit/came a cropper/hit the sack/showed a leg*, etc. Another subset of verbs with a fixed and meaningless direct object is the class of 'fixed reflexives' (usually of romance origin) in which the reflexive pronoun is contextually required, but does not commute with nouns or personal pronouns—*avail oneself (of), behave oneself, concern oneself (with), enjoy oneself*, etc. (as opposed to 'genuine reflexives'—*cut oneself, see oneself in*

[8] Curiously, neither Cook nor other scale-and-category grammarians consider the many 'minor sentence types' to be refutations of the claim that all simple sentences are analysable as **subject-predicate** structures. They are treated as 'exceptions'.

Table 1. Varieties of subject-predicate structure

Subject	Copulative verb	Noun phrase	*John is a drummer*
		Adjectival	*John is big*
		Adverbial	*John is here*
		Prepositional phrase	*John is in the garden*
		Past participle*	*John is loved*
	Intransitive verb A		*John sleeps*
	Intransitive verb B (Middle)		*The carpet washes (well)*
	Transitive verb	Direct object	*John sees the cat*
	Di-transitive verb A	Direct object + Indirect object	*John gives the cat its dinner*
	Di-transitive verb B	Direct object + Complement	*John considers Mary the ideal woman*

* I regard the 'passive' as an orientation towards the subject expressed by a **participle + complement** structure (along with a number of earlier linguists such as Fries, 1957

a mirror). Some 'fixed reflexives' are of the middle voice type—*the situation resolved itself, the boat righted itself*. Other 'middle voice' expressions are probably derived as fossils from the old passive in *–ing* (such as *the tea was serving = was being served*, still found in early 19th Century English), e.g. *the kettle is boiling, the chicken is cooking*[9], whereas others are more recent 'middle voice' expressions, *the book is launching, clouds are forming*, etc. Another possibility is that of 'verbs of general meaning' (Guiraud, 1970: 24–6)[10], where the predicate is grammatically analysable, but where the verb makes very little, or no, semantic contribution, and the relation of the subject to predicate is variable (*John had trouble, John made trouble*).

We can add that there are a number of restrictions in the verb structures related to the type of predicate, e.g. we can have *John is being good, John is being a cowboy* (e.g. in describing a child's behaviour or play) but not *John is being big, John is being here, John is being in the garden*, etc. *John is being a bartender* suggests a temporary occupation (as opposed to *John is a bartender*). That is, the above **copulative + complement** structures hide micro-level diversity. It should be obvious from the examples that the relation of the predicate to the subject varies considerably and includes the identification, classification, description, location, and attributes of the subject in the case of copulatives, and the naming of real-world actions, processes connected with the subject or the effects of the subject on other parts of the world or attitudes to it in non-copulatives. What we are saying is, of course, not that such phenomena cannot be accommodated in a stratificational or other structural approach, but that a structure such as **subject-predicate** is a generalisation of several generalisations to the point of meaninglessness, and that we can only achieve deeper understanding by a consideration of micro-level strategies for communication, which have broad similarities . Familiarity with the **subject-predicate** structure can blind us to the anomalies and

[9] Another interesting aspect of linguistic diversity is the existence of expressions from earlier stages of a language, whose grammatical form is not consistent with synchronic 'norms'—*waste not, want not; gather ye rosebuds, while ye may*; or President Kennedy's '[A]sk not what your country can do for you,...' with its biblical overtones.

[10] Often put in the ill-defined ragbag of so-called 'light verbs'.

variations. It is even less meaningful to start top-down with a presupposed **subject-predicate** structure and fit all utterances, however diverse, to it.

As a further example, it should be very clear that negation and interrogation in English each contain two separate structures—one for the verb *to be* (post-negation and inversion respectively) and one for other verbs (involving '*do*-support')[11]. Even then, there is some overlap where '*do*-support' is found with *to be* (*Little Johnny does be good sometimes, Do you always be kind to animals?*), and certain verbs (e.g. *have* and *dare*) are found with or without '*do*-support' (*I haven't a clue/I don't have a clue*, *He daren't go there/He doesn't dare go there*) in some contexts. Macro-level structures obscure that diversity and the disposing factors involved in the variation.

3.1.2 Examples of phonological variation

In phonology, it is well known that macro-level phonemic systems are built up from a mass of very varied and overlapping (but not identical) micro-level commutations in fixed contexts. Twaddell (1935) first made that clear, and Mulder (1968) devised a method for generalising from micro-level contexts to macro-level entities and structures. The distribution of phonemes in phonotactic combinations can be described in broad macro-level generalisations for English (e.g. CVC, CCVC, etc.), but the occurrence of phonemes in such structures is highly *un*systematic. (Lamb allows for that in his representation of phonological processes, but the point here is that phonological systems are highly unsystematic—and that is hidden by his representation.) The following table illustrates the points clearly.

One way of representing the great diversity of phonotactic combinations is given in Rastall (2006). There a table of the combinations of phonemes in the pattern CVC for any given English short vowel is set up. It shows the very variable 'deployment' of phonemes in the formation of the forms of allomorphs, as well as the considerable differences in the frequency and distribution of phonemes and contexts. Obviously, one can use the same method for more complex groups, but the variability will be the same. Here we use the same method for a restricted number of consonants (occlusives and fricatives[12]) and the 'long' vowels[13] in broad phonemic transcription, /a:/ and /u:/ (i.e, the vowels in forms of words such as *part, dark, booth, coot*, etc.). The first +/- refers to /a:/ and the second to /u:/ in each cell. Thus, in the columns we have /a:/ and /u:/ + Consonant and in the rows we have Consonant + /a:/ and /u:/ (+ C). The initial consonant is in the column and the final consonant is in the row. Only 'canonical' words of the form Consonant-Vowel-Consonant are considered[14]. The restricted sample is for convenience of presentation only. Increased complexity reduces the ratio of attested forms to possible forms, as one can easily test for oneself using contexts such as /bl-/, /spr-/ or /-lk/.

Table 2 shows a number of significant features. (It allows for a number of marginal words (e.g. *sahib, sars, souk, sooth*) and slightly non-standard expressions (e.g. *barf, goof*)—all found

[11] Of course, there are other ways of asking questions and denying as well.

[12] Other phonemes could be considered, but the table is for illustrative purposes, so complications relating to distribution (/h/, /ŋ/) and phonemic status (/r/, /j/, /w/) are avoided. The fundamental points would not be affected.

[13] Phonetically, the vowels in question are often diphtongised.

[14] I.e. excluding past tenses and plurals, such as *sued, booed, zoos*, etc. and personal names.

Table 2. Attested CVC combinations of English occlusives and fricatives with /a:/ and /u:/[15]

	-p	-b	-f	-v	-t	-d	-θ	-ð	-s	-z	-k	-g
p	-/+	-/-	-/+	-/-	+/-	-/+	+/-	-/-	+/-	-/-	+/-	-/-
b	-/-	+/+	+/-	-/-	-/+	+/	+/+	-/-	-/-	-/+	+/-	-/-
f	-/-	-/-	-/-	-/-	+/-	-/+	-/-	-/-	+/-	-/-	-/-	-/-
v	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	+/-	-/-	-/-
t	+/-	-/-	-/-	-/-	+/+	-/-	-/+	-/-	-/-	-/-	-/-	-/-
d	-/-	-/-	-/-	-/-	+/-	-/+	-/-	-/-	-/-	-/-	+/-	-/-
θ	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
ð	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
s	-/+	+/-	-/-	-/-	-/+	-/-	-/+	-/+	-/-	+/-	-/+	-/-
z	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
k	+/+	+/-	+/-	+/-	+/+	+/-	-/+	-/-	-/-	-/-	-/+	-/-
g	-/-	-/-	-/+	-/-	-/-	+/-	+/-	-/-	-/+	-/-	-/-	-/-

in standard dictionaries. The results would be slightly different if polysyllabic words or words with a more complex consonantal structure were considered (e.g. *booster*, *bouffon, sloop*), but then the number of possible combinations would also rise.

Overall, there are 12×12×2 possible combinations i.e. 288 possible forms, of which only 48 are attested. 26 forms contain /a:/ and 22 contain /u:/. Reading across, the phonemes /θ, ð, v, z/ do not occur initially in these combinations. They have no functions in these contexts. The phoneme /k/ occurs the most (10 out of 24 possible forms) followed by /b/ (9), /s/ (7), /p/ (7), /t/ (4), /g/ (4), /d/ (3), and /f/ (3). There are relatively few minimal pairs (*tarp/carp, poop/coop*, etc.). Most of the minimal pairs reading downwards occur in the context /-Vt/. In the contexts /-Vð, v, s/, there are no minimal pairs.

Reading down, we see that there are no combinations in the context /CVg/. At least, in these contexts /g/ has no function. /v/ has only one attestation, and hence only a marginal functional load in these contexts.

It should be clear that only a small proportion of possible combinations are actually attested (slightly more than 21%), and some phonemes and some combinations are far more commonly found than others. (The figures for combinations with short vowels (Rastall, 2006) show around 48% of attested forms, so short and long vowels behave differently.) In the above table, /k/ is more frequent than its minimal pair, /g/. The context /a:t/ is more common than /a:d/, etc. Some phonemes have no function at all in these contexts, but appear in the overall phonological structure because they have functions attested elsewhere. While some combinations do not occur at all, others (e.g. /pa:k/) are used in more than one sign (*park* in different senses). If we compare with the neatness of the phoneme matrix or the phonotactic structure CVC, we can see that there is little that is systematic in the phonotactic system. The overall picture conceals many anomalies and a great deal of variation. In this example, of course, the number of combinations is affected by the fact that /u:/ does not occur in all contexts and we find /u/ instead (*book*, etc.), but that is merely part of the overall variation.

[15] Checking the pluses and minuses is very simple. Take an initial combination such as /su:/ and identify the monosyllabic words ending in a single consonant from the list that can be formed: *soup, sooth, soothe, soon, souk*.

The structure CVC can be used to account for the occurrence of actual groups and the potentiality of others, but it does not determine the distribution of phonemes.

Any micro-level analysis will provide similar findings (of course, there are many possible contexts). Usually, the many unattested forms are regarded as 'accidental gaps' (such as /ga:k/, /pu:g/, etc.) Perhaps, in view of the statistics one should speak of 'accidental fills' for attested forms instead.

That is, from the micro-level (or 'bottom-up') point of view of the individual unit, the 'top-down' macro-level analysis is very misleading (unless supplemented by a clear linkage between macro—and micro-level entities and functions such as Mulder (1968) provides), and probably proceeds from the general human propensity to classify and systematise. However, there are many other areas of 'anomaly' in all phonological systems. Consider the (functionalist) phoneme table for English in Table 3:

Table 3. Partial phoneme table for standard English consonants

Series/Order	**Occlusive**		**Fricative**		**Nasal**
	Voiced	**Voiceless**	**Voiced**	**Voiceless**	
Labial	b	p	v	f	m
Apical	d	t	ð	θ	n
Hissing			z	s	
Hushing			ž	š	
Affricate			dž	tš	
Velar	g	k			ŋ

Again it was Mulder (1978) who pointed out that standard phoneme tables for English (such as the one above) put together phonemes with three dimensions of distinctive feature constituency (e.g. /p, b, t, d/) with two-dimensional phonemes (e.g. /s, z, m, n/), and in the overall set of consonants we must even allow for /h/ and /l/ which cannot be analysed into component (*functional*, not *phonetic*) distinctive features at all. Furthermore, it is clear that the function of a feature such as /fricative/ has no value in the context of /dorsal/ since there is no /dorsal, fricative/ combination in English. This means that /voiced/ has different values in the contexts /labial/ and /apical/ from the context /dorsal/. In the first case, /voiced/ is mutually exclusive with /voiceless/ and /fricative/, but in the context of /dorsal/, only /voiced/ and /voiceless/ are in opposition. Rastall (1993) offers a way of modelling the combinability of distinctive features and phonemes working 'bottom-up' from the associations of individual features.

4. Multiple perspectives

The *second* source of doubt about structure, again from the point of view of the individual linguistic unit, is the set of associations (Saussure's 'rapports associatifs', 1972: 173 *ff*) of any entity cuts across structural classifications (I think Lamb agrees here). A phoneme such as /ð/ in English, from a macro-level point of view, enters correlations with the order of apicals /d, t, θ, n/ and with the series of fricatives/continuants /v, z, ž, dž/, and thus takes its place in a phonematic table of consonants, such as the one above. It occupies the first and second consonant positions in the structure CVC.

However, it is obvious that the phoneme /ð/ has a low frequency in terms of its distribution in phonotactic combinations. It enters relatively few minimal-pair commutations, certainly far fewer than its minimal pair /θ/, which also has a different phonotactic distribution. /θ/ occurs in CCVC—*thrash, thwack*—and CVCC—*wealth, length*, for example. The symmetry of the phoneme table is misleading—minimally paired phonemes have different phonotactic distributions—wouldn't we expect a system to be more systematic? Furthermore, /ð/ is nevertheless relatively frequent in terms of its occurrence in texts. It is a redundant feature signalling the identity of a number of words with important grammatical roles—*the, this, that, there, then,* etc. /ð/ also occurs in the non-meaningful formant, /-ðr-/ again as a redundant signal of sign identification—*wither, bother, dither, slither, blether*—often in verbs with a specific descriptive meaning used in relatively informal contexts, and occurs in the important kinship terms (*mother, father, brother*). Another non-phonological function of /ð/ is its role as a component of certain plurals in alternation with /θ/—*booth/booths, truth/truths*—and in certain adjectives—*south/southern, north/northern.* Any description of /ð/ would be incomplete without these intersecting non-phonological and aesthetic functions. Similar remarks can be made about the phonemes, /v, z/, and phonemes such as /t/, /s/, /n/ also have a number of non-phonological functions.

Individual signs too have associations in numerous, idiosyncratic, dimensions. The sign, *string*, taken at random for example, has a range of interpretations as a noun—type of material (twine, cord), instance of that material used for tying, catgut used in musical instruments, linearly linked group of objects or events (*string of people, string of horses, string of misfortunes*) among other possibilities. It enters a number of common collocations—*bowstring, violin string, apron string, string of pearls*, *string theory*—and metaphors—*two strings to one's bow, be tied to x's apron strings, pull the strings, like a puppet on a string*[16], etc. It enters morphological combinations such as *stringy, stringer.* As a verb it is found in *string a bow, string beads*, and metaphors such as *string x along, string x up.* Of course, many more associations of *string* could be added (such as the field, *string, rope, hawser, cable,*...) but the point is that *string*, like most other signs, enters a mass of different associations, morphological, syntactic, semantic, metaphorical, and collocational in a number of aesthetic registers. From a 'bottom-up' point of view, the identification of *string* as a noun or verb is a function of its use in a range of contexts. It shares some of those contexts with other signs and thus the generalisation, 'noun' or 'verb', arises from those similarities, but is relatively unhelpful in understanding the sign, *string*, and its position in the 'linguistic space' of multiple associations or the disposing factors in its instantiation in utterances.

4.1 A further example of multiple complexity—nouns in –er in English

English nouns may be formed with the suffix *–er.* The class of nouns in *–er* shows the same diversity and complexity as in other morphological combinations (such as verbs in *–en*). Some of those nouns are clearly morphologically complex from a functional point of view, i.e. both the root and the suffix have a recurrent form and meaning, and the meaning of the whole is a function of the component signs—*writer, runner* (i.e. 'one who runs' as opposed to the

[16] For older British speakers almost inevitably associated with Miss Sandie Shaw's Eurovision song contest performance—an example of an idiosyncratic experiential association. Other speakers will wonder what on earth I'm talking about... that's part of the point.

various other meanings), *employer*, etc. Some nouns in *–er* do not meet these criteria. They are 'pseudo-composites', i.e. they appear to be genuine combinations, but the meaning is not a function of the parts because the apparent analysis is incomplete. *Butcher, carpenter, lever*, etc. are of that type. Those signs have a final syllable in *–er* and are thus only formally associated with the other *–er* nouns. Some nouns end in *–er*, as it were, 'accidentally'—e.g. *badger.* Some pseudo-composites are not synchronically analysable, but may have been so historically—e.g. *joiner* (except as a neologism from *join —she isn't a great joiner of clubs*) whereas others—*butcher, carpenter*—are derived from borrowings. The *–er* nouns are an example of a class in which functional, natural, and formal criteria overlap.

In the case of genuinely (synchronically) composite *–er* nouns, *–er* is strongly associated with naming the one who performs an action—*maker, swimmer, employer, plasterer*, etc., although not all nouns in *–er* are formed from verbs (*footballer, (an) upper, (a) downer*). However, *–er* has more than one recurrent meaning (it is a class of homonyms). Other meanings include:

- Inhabitant of a place—*Londoner, Berliner*, ...
- Object/instrument used to perform an action—*drier, cooker, cleanser*, ...
- Occupation name—*cricketer, drummer, driver, cleaner* (overlapping with performer of an action),..
- Example or instance of an item (especially involving numbers)—*fiver* ('five pound note'), *tenner* ('ten pound note'), *sixer* ('a score of six runs in cricket', *three-pointer* ('score of three points in rugby'), but also *goer* ('a suggestion or idea with real potential'), *non-starter* ('idea or suggestion which is immediately rejected', *no-brainer* ('question whose answer requires no thought'). Note also the register effects of these expressions.
- Place where an action is performed—*diner, boozer.*

There are frequent cases of homonymy involving the different categories (and pseudo-composites), which are usually easily disambiguated contextually. For example, *(football) player/(CD) player, a boozer (*person*)/at a boozer* (place), *sleeper (railway sleeper, sleeper in an underground organisation), reader (in a library)/(card) reader* among other meanings, *eater* (person)*/(a good) eater* (apple), *steamer* (pan for steaming)/*steamer* (ship), *(crowd) pleaser* ('one who pleases/action which pleases a crowd'), *racer* ('one who races', 'bike used for racing').

Some examples involve metaphorical uses—*loosener, gnashers* (= teeth), *sucker* (on a rose plant)/*sucker* ('person who can be duped'). In other cases, the reference may be restricted to particular contexts (e.g. *carer* ('person with responsibility for caring for another', not 'anyone who cares'). Or there may be multiple homonymy: a *starter* may be 'one who starts a race' (i.e. either a competitor or an official), 'a first course', 'an initial question', etc. An *opener* may be 'one who bats first in an innings in cricket', 'an instrument for opening a can', 'an initial statement, suggestion', 'first game in a series', etc.

Like other signs, nouns in –er also have their collocational associations—*for starters*, *spin drier*, *rotary drier*, *clothes drier*, *seed drier*, *egg timer*, *on a timer*, etc.

While we can easily see that nouns can be put in classes when they form similar sets of semantic associations, it should also be clear that there are many variations and intersecting associations with the result that each noun in *–er* has its own distinctive set of associations differing from other nouns in *–er*. Thus, *player* and *reader* share at least two semantic

parameters (performer of an action and instrument used for an action), but the collocational associations of the two signs are quite different—as in, for example *card player* as opposed to *card reader*. *Employer* shares the parameter of 'performer of an action', but not 'instrument used for an action'. With *cleanser* it is the reverse (instrument not actor). The associations of *eater, steamer, starter*, etc. are—as we have seen—even more complex and idiosyncratic. Furthermore, there is no 'rule' for formation of nouns in *–er* with a particular function. A *cooker* is not a *cook*, and we find *farmer* along with *shepherd, swimmer* along with *gymnast*, etc.

Consequently, we can see that the overall (macro-level) pattern for the formation of nouns in *–er*, while having some use as a generalisation, covers up an enormous diversity. In fact, on a micro-level, each sign has a different set of functions and associations, which partially overlaps with the associations of other signs—hence the possibility of some overlapping classifications. Thus, while a top-down classification by genus and species is useful for exposition, one may conclude that a classification is actually formed from a mass of overlapping (and idiosyncratic) individual similarities in different parameters. Most important here is the sheer range of diverse association types and ways of looking at the 'same' phenomena. Of course, one can produce a more refined set of '*–er*' structures, but that would be to miss the point that structure is only one way of looking at verbal phenomena. As noted above, one cannot demonstrate the empirical validity of linguistic structure by simply adducing more structures.

5.0 'Aesthetic' scales

The *third* point about structure is a development of the second. Linguistic units and constructions enter scales that are broadly aesthetic—i.e. based on their social and attitudinal or emotive values. Thus, *hang* and *string up* both refer to a form of execution, but are used in different contexts and with different emotional overtones. We can all understand a scale such as, *please go away, leave me alone, take a hike, sling your hook, get lost, bugger off*, or *make worse, worsen, deteriorate; make weaker, weaken, debilitate.* In other cases, there is a mixture of stylistic and contextual/situational factors in the range of grammatically different, possible expressions for the same set of circumstances, e.g.:

The rail workers
- *are striking*
- *are on strike*
- *are taking industrial action*
- *have withdrawn their labour*
- *have walked out*
- *have downed tools.*

We will generally find a set of semantically linked expressions for virtually any set of circumstances[17]. The set is different for each possibility. While we may discern some patterns, each set of verbal associations is idiosyncratic, and the use of a particular expression by a

[17] One might see these as potential 'multiple drafts' in Dennett's terms (see below).

particular person is dependent on a complex range of contextual and attitudinal motivating factors, which structural descriptions fail to account for. Another clear example is number agreement in the English verb, which involves several determining factors, only one of which is the grammatical singularity or plurality of the noun—*Parliament has/have decided* (collectively or as separate individuals), *Ham and eggs is my favourite* (two things seen as a unity), *A mother with her children have gone missing* (proximity of the last noun to the verb), etc. Furthermore, each part of an expression (and each combination) raises its own set of verbal and attitudinal associations (as in Lamb's *cup* example). Thus, *rail* is connected to all signs connected with railways—including *transport, station, train, signal, level crossing*,...—and *strike* relates to *dispute, management, unions*, *workforce, labour*, etc. By combining the two expressions we have further verbal associations—*disruption, negotiations*, etc. as well as attitudinal and experiential associations connected with railways or strikes or both[18]. Any instance of one of the above sentences in actual verbal interaction or written discourse can lead to a response or connection which depends on the priorities and associations of the speaker or writer. Of course, there may also be no connection with the preceding utterance at all, when the subject is changed or dropped. That unpredictability of response or discoursal connection is partly accounted for by the many different associational possibilities combined with the focus of interest or disposing factors of the speaker or writer.

What the examples show is that, as we introduce more perspectives on verbal expressions and see them in context, so the associations become less systematic and more unpredictable, and the perspective of (grammatical or semantic) structure becomes less significant and less explanatory. But it also becomes more difficult to get an overall view of a language or even a part of it. There are so many dimensions to the understanding of even a single expression that we cannot control all of them. I am certain Lamb is well aware of all this—our difference is over the interpretation or significance of these facts. In my view, our preoccupation with structure is due to the same kind of 'blurred vision' that Rovelli (above) sees in our understanding of the physical world. The dynamism of verbal communication comes from multiple coordinated verbal associations with a constantly changing perception of reality. A hierarchical structure is a way of representing some aspects of verbal behaviour, but its significance is an illusion that comes from a limited set of perspectives on an immensely complex issue and a desire to systematise mixed with the tendency to employ successful or ingrained communicational strategies repeatedly. To put it somewhat tendentiously, verbal productions ('language') are not the Lego-like constructions of structural mechanisms, but are rather patchwork quilts resulting from numerous determining factors.

6.0 Analogy and anomaly

We might ask where our adherence (addiction?) to structural explanation in linguistics comes from. Historically, since the mid-19th century there has been a recognition of the regularity or patterning of linguistic entities, and that has led to successful predictions (in historical-comparative linguistics) and explanatory models for *some* aspects of languages in structural frameworks. Structuralism is the triumph of analogy over anomaly in the ancient debate. The

[18] Such associations can, of course, be very varied. Railway strikes remind me of certain sections of the novel *Dr. Zhivago*, and its film representation—again the inextricable mixing of verbal and real-world associations.

emergence of monistic views in philosophy and neuroscience, combined with the need to integrate different perspectives on verbal phenomena (including the sort of observations above) leads to doubts about the validity of structural approaches, because languages are organic, natural processes, full of unpredictable variations. While there are certainly patterns in linguistic phenomena (at least from some points of view), one can still ask about the nature of the patterning and its role or position in the complex open systems that languages are. Monism, as noted, rejects mind-body dualism. Neuroscience teaches us of the billions of synaptic connections in the brain and of the involvement of numerous brain functions and parts in verbal behaviour. To the extent that structuralism implies a mind-body dualism in which language is a tool or instrument 'used' by speakers with a division between cognitive and executive functions (as in the standard models of communication originating with that of Shannon and Weaver, 1975, and many versions of linguistics), it is at odds with monism. Where there is a conception of a structural language core central to every utterance, it is at odds with neuroscience, which teaches of a multiplicity of simultaneous connections and varied brain functions, which is constantly being renewed. There is no single language centre in the brain. The idea of a conscious or controlling mind in verbal communication is untenable in the light of the time delay between unconscious verbal planning and conscious awareness of speaking. What seems to us to be contemporaneous, such as our perceptions or speech activity, actually takes place slightly before our awareness of them. We all live, as it were, in the past, but that implies that our sense of controlling speech activity is an illusion[19] (as Lamb also clearly implies.) All this leads one back to a reconsideration of 'anomaly', or at least a mass of diverse and unsystematic associations in multiple dimensions.

As noted above, the view of language as a system (or system of systems) developed out of the success of comparative-historical linguistics, which showed the considerable (and contextually near-universal) regularity of sound changes. This awareness of linguistic regularity could be used in a deductive-explanatory approach to linguistic phenomena in which analogy played a key role, and this top-down systemic view was transferred successfully to synchronic linguistics, where phonological and grammatical systems could account for the regularity of means of communication. As Delbrück (1904: 161) pointed out, the ancient debate between analogists and anomalists was decided in the nineteenth century strongly in favour of the analogists. Saussure's use of a hypothetico-deductive approach to the analysis of the indo-european vowel system and his later views on language as a system also contributed to the dominance of the analogical/structural view. The exceptions to sound laws, which could *not* be explained by analogy, extensively documented by Horn (1923), and the recognition that macro-level language systems were generalisations of a mass of micro-level subsystems (Twadell, 1935, and Firth, 1957) were not widely seen as a problem. Similarly, the enormous number of anomalies and unsystematic nature of supposedly regular systems have largely been ignored (Rastall, 2006). Moreover, there is little doubt that structural explanations and approaches have prospered over the last 120 years or so in a variety of cognate disciplines—linguistics, anthropology, psychology—as part of a wider ethos of a generalising explanatory approach to the diversity of human behaviour which

[19] Incidentally, this does not imply a denial of personality or individuality—every brain configuration is different, as is each external expression of it in social behaviour.

emphasises 'underlying regularities'. The idea that language is a system (or structure) has been a dogma since Saussure and Meillet[20].

The initial dispute between analogists and anomalists concerned the question of whether 'language' had its origins in 'conventions' (analogists) or 'nature' (anomalists). Analogists pointed to regularities (in Greek) as evidence of systematic conventionality and anomalists to irregularities as evidence of an organic growth of language. In fact, from a modern point of view, there is no dichotomy here. It is clear that linguistic communication involves conventional distinctions which vary from language to language and which vary within languages, but it should be equally clear that linguistic conventions do not arise systematically, but arise organically (by nature) in social contexts. The regularities may change as some structures become more 'successful', i.e. are exploited by speakers, and others are used less or become opaque, as in the case of *if you please*, which was originally an impersonal expression with *you* as a dative, but which now seems to be a subject in a fixed phrase as impersonals gradually disappeared from English. Another example might be the gradual differentiation of simple present/past and '*do*' present/past in English and the disappearance of *–th* forms in the third person present in favour of '*-s*' forms. Thus in Shakespeare, we find semantically equivalent forms such as *x goes/goeth* along with *x does go/ doth go* and *x went* along with *x did go*. While the *–th* forms gradually disappeared from normal speech, the *do* forms gradually became differentiated in function. There is a similar story of competing forms in the past simple and past participle with some forms becoming more 'successful'—i.e. widely accepted—and others either disappearing or being restricted to local varieties. While there is a clear analogising process, the forces that bring it about and determine which forms emerge as 'standard' are not predictable. In the case of the past participles and past simple forms, we are left with significant (synchronic) anomalies such as *sing-sang-sung* but *cling-clung-clung*,, and *bring-brought-brought* along with the 'regular' *wing-winged-winged*. What we are describing is the spread of 'memes' in communicational behaviour (see below).

7.0 Conclusion

We need a better conception of 'language' (as acts of speaking) which will address and integrate the multiple perspectives on any linguistic expression. The following remarks are necessarily brief and programmatic, but indicate what such a conception could include.

Our reality is made up of interconnected verbal and non-verbal components. Language is not separate from perceptual, experiential, memorised, or social reality, but helps to provide a verbally constructed, virtual world in which verbal discourse is *part of the overall reality*, and is also the vehicle for social interaction and social persona. What others say to us or what we say to others creates a reality, which can be compared with perceptions, memories, judgements, etc. As we have seen, linguistic expressions are *loci* for verbal and non-verbal associations. Our reality at any particular moment or in any particular set of circumstances arises from the *interaction* of multiple disposing factors with existing linguistic means in the

[20] 'La langue est un système qui ne connaît que son ordre propre' ['Language is a system which has only is own system']—Saussure (1916/1972: 43). 'La langue est un système, rigoureusement agencé, où tout se tient' ['Language is a strictly ordered system in which everything is mutually related']—Meillet, 1921: 11.

form of associations which can be adapted to the communicational circumstances[21]. In this way, our reality is constantly updated, but also our linguistic means are constantly changed[22] through new associations and the effects of positive feedback, which favours successful communicational strategies. We all know that clichés, new meanings, new signs, new grammatical combinations spread through speech communities, while other expressions tend to disappear. Thus, politicians speak always of 'hardworking families' as a cliché; the signs, *brexit* and *brexiteer*, have appeared; the verb, *fix*, is used in a wide array of senses at the expense of *resolve, repair, put right, attach,* etc.; and the sign *how about...*? is now regularly followed by a predicative—*how about we eat*[23], as opposed to *how about us eating*. One can see that any diachronic change can be seen in terms of the favouring of a successful strategy. The spread of the continuous aspect in English from the present and simple past tenses to all tenses, which took place over a long period, can be seen as a case in point. Sound changes can also emanate in waves from a centre through a process of imitation. Such verbal means spreading through social interaction and imitation are 'memes', see above. As an expression is used for successful communication, it is applied in other contexts, which reinforces its use, and leads to it being used more. The more it is used, the more it is reinforced, and the more it is used in a positive feedback cycle (as Lamb also notes). An example might be the well-known and unpredictable shifting of prepositional use, e.g. recently *reason behind* (vs. *reason for*), *explanation for* (vs. *explanation of*), or *congratulate for* (vs. *congratulate on*), as well as differences such as *in search of extra-terrestrials* but *in the search for extra-terrestrials*. Such 'synchronic dynamics' involves the spread of 'memes' in a population. But this suggests a view of language in which there is constant adaptation to new perceived or conceived realities involving associations in multiple dimensions.

The mass of diverse associations that constitutes a language is a kind of organisation (but a very dynamic one in which similar means are constantly updated and created), and as such is subject to entropy—a tendency to become less organised with time, but even though language is constantly changing in detail, linguistic organisation—the mass of associative relations—is relatively stable (at least for the individual speaker for everyday communication and broadly across communities). Otherwise, communication would be impossible. Entropy can be reduced with the expenditure of more energy in open systems. Languages are similar to what Delsemme (2000: 146–7), following Prigogine, calls 'dissipative structures' in chemistry—'an open system that is constantly crossed by a flux of matter and energy which permits entropy to diminish and the system to become organized'. Language (on one definition of the term) is clearly an open system in this sense. As we have said, each communicational act updates and changes the organisation—but the 'organisation' must involve multiple factors in response to changing reality and to adapt verbal means to complex circumstances with multiple determining factors. All communicational activity requires considerable expenditure of energy to maintain the synaptic connections and to coordinate them in forming appropriate utterances. Without that energy, Lamb's complex system would

[21] Rovelli (2015: 18) says that physical reality is the interaction of forces—'...reality is only interaction' in his view.

[22] As von Humboldt said in connection with 'language as acts of communication' (1876: 56), language is not *ergon* but *energeia*.

[23] An interesting sentence for grammatical analysis, by the way. I assume it patterns like *how come...?*

tend towards disorganisation. However, a tendency to disorganisation can be seen in the unpredictable direction of discourse—whether the speaker's connection of ideas or the interaction of speakers in conversation. As suggested, that is due to the large array of possible associations arising from any single utterance. But disorganisation occurs also as verbal means are 'lost', i.e. are not maintained—as anyone will know who has stopped practising a foreign language. Similarly, disused expressions (perhaps because they are old-fashioned, e.g. *lest*, or because they no longer refer to a contemporary reality, e.g. *typewriter ribbon*, or because another expression is 'preferred', e.g. *honour guard* rather than *guard of honour*) drop out of the overall organisation or acquire associations such as 'archaic, 'old-fashioned', etc. Questions of the development and maintenance of verbal organisation need to be seen in the context of entropic forces and ways of resisting them.

In a monistic view, 'mind' is just the representation of the brain to itself and language is part of that representation as well as part of the means of representation. There is no controlling mind which 'uses language', i.e. selects and forms utterances, and then instigates an executive neurological system leading to speech, as Lamb also suggests. Rather, language behaviour is a continuous and multiple process in which there are verbal responses to a wide range of determining social, contextual, perceptual, and verbal factors. As the associations—verbal and non-verbal—are so varied in each instance of the process, numerous different responses are available at any one time. Thus, there are (what Dennett, 1991, calls) 'multiple drafts'. For any input, several responses are activated, and one is prioritised. That there are multiple associations is shown by the unpredictability of speakers' responses. That there is more than one 'draft' is shown by speakers changing their minds', correcting themselves, changing direction in discourse, etc. *The organisation of these drafts and the 'selection' of a draft lies in the adaptation and implementation of verbal means in the context of changing realities.*

In conclusion, then, linguistic structure (at least as it is usually understood in the form of ordered phonological, grammatical, and semantic systems) is an illusion which arises from a limited set of perspectives on verbal communication and our human propensity to classify and systematise, and which would be subject to entropic forces. Macro-level structures have uses as explanatory constructs for certain aspects of verbal phenomena, but are less important when verbal communication is seen from multiple perspectives—they need to be seen in the context of memetic behaviour, where successful combinations or verbal strategies are reapplied in different contexts and with different signs. We can have a better understanding of the role of language in our construction of reality by moving from singular perspectives to complex, multiple ones, and by focusing on the dynamic processes in the creation of meaning in real speech acts[24]. Linguistic structure is not an organising principle; it is an abstraction from our communication strategies and a product of rationalisation.

[24] For an alternative way of approaching verbal dynamics, see Rastall, 2006, 2015.

References

Berry, Margaret. 1977. *Introduction to Systemic Structures*. London: Batsford.

Chalker, Sylvia, and Weiner, Edmund. 1998. *Oxford Dictionary of English Grammar* (2nd. Ed.)—Oxford: OUP. (available online at http://www.libramar.net/news/the_oxford_dictionary_of_english_grammar/2014-1-10-1679)

Cook, Walter, A. 1971. *Introduction to Tagmemic Analysis*. London, New York: Holt, Rinehart, and Winston.

Dawkins, Richard. 2004. *The Ancestor's Tale*. London: Phoenix.

Delbrück, Berthold. 1904. *Einleitung in das Studium der indo-germanischen Sprachen*. Leipzig: Breitkopf und Härtel.

Delsemme, Armand. 2000. *Our Cosmic Origins*. Cambridge: CUP.

Dennett, Daniel. 1991. *Consciousness Explained*. Harmondsworth: Penguin.

Firth, John, R. 1957. *Papers in Linguistics* 1934–51. Oxford: OUP.

Fries, Charles. 1957. *The Structure of English*. London: Longman.

Guiraud, Pierre. 1970. *La syntaxe du français*. Paris: PUF.

Halliday, Michael, A.K. 2004. *Introduction to Functional Grammar* (4th Ed. Revised by Christian M.I.M. Mathiessen). London: Arnold.

Harris, Roy. 1973. *Synonymy and Linguistic Analysis*. Oxford: Blackwell.

Harris, Roy. 1982. *The Language Myth*. London: Duckworth.

Hempel, Carl. 1952. *Fundamental of Concept Formation in Empirical Sciences*. Chicago: University of Chicago.

Hjelmslev, Louis. 1953. *Prolegomena to a Theory of Language* (trans. F. Whitfield). Madison: University of Wisconsin.

Horn, Wilhelm. 1923. *Sprachkörper und Sprachfunktion*. Leipzig: Mayer und Müller.

Householder, Fred. 1952. Review of Zellig Harris, *Methods in Structural Linguistics*. *International Journal of American Linguistics* 18. 260–268.

Von Humboldt, Wilhelm. 1876. *Über die Verschiedenheit des menschlichen Sprachbaues und ihren Einfluss auf die geistige Entwicklung des Menchengeschlechts* (ed. August F. Pott, first published 1836). Berlin: F. Dümmler.

Lamb, Sidney. 1999. *Pathways of the Brain*. Amsterdam: Benjamins.

Lamb, Sidney, 2016 online. Linguistic Structure: A plausible theory. *Language Under Discussion* 4/1. 1–37. (http://www.ludjournal.org/index.php?journal=LUD&page=article&op=view&path[]=30)

Martinet, André. 1956. *La description phonologique*. Geneva/Paris: Droz.

Meillet, Antoine. 1921. *Linguistique historique et linguistique générale*. Paris: Champion.

Mulder, Jan W. F. 1968. *Sets and Relations in Phonology*. Oxford: OUP.

Mulder, Jan W. F. 1978. Phoneme Tables and the Functional Principle. *La linguistique*, 14/2. 3–27.

Mulder, Jan W. F. 1993. How Real Are Linguistic Entities? *La linguistique*, 29/2. 143–67.

Mulder, Jan W.F. and Hurren, Anthony H. 1968. The English Vowel Phonemes from a Functionalist Point of View and a Statement of their Distribution. *La linguistique* 1. 43–60.

Offord, Dennis. 1994. *Modern Russian: an advanced grammar course*. Bristol: Bristol Classical Press.

Pike, Kenneth, L. 1961. *Phonemics*. Ann Arbor: University of Michigan.

Popper, Karl, R. 1972a. *The Logic of Scientific Discovery*. London: Hutchinson.

Popper, Karl . 1972b. *Objective Knowledge*. Oxford: Clarendon Press.

Pulvemüller, Friedemann. 2005. *The Neuroscience of Language*. Cambridge: CUP.

Quine, Willard van Orman. 1953. *From a Logical Point of View*. New York: Harper Row.

Rastall, Paul. 1993. *Empirical Phonology an Cartesian Tables*. Lampeter and Lewiston: Mellen.

Rastall, Paul. 1995. *A Functional View of English Grammar*. Lampeter and Lewiston: Mellen.

Rastall, Paul 2000. *A Linguistic Philosophy of Language*. Lampeter and Lewiston: Mellen.

Rastall, Paul. 2006. *The Power of Speech*. Munich: Lincom Europa.

Rastall, Paul. 2015. Relating Systems and Signals—a dynamic view. *La linguistique* 51/1. 109–124.

Rovelli, Carlo. 2015. *Seven Brief Lessons on Physics* (trans. Simon Carnell and Erica Segre). United Kingdom: Allen Lane/Random House.

Saussure, Ferdinand de. 1972. *Cours de linguistique générale* (first published 1916), edited by Tullio de Mauro. Paris: Payot.

Shannon, Claude and Weaver, Warren. 1975. *The Mathematical Theory of Communication* (first published, 1949). Urbana: University of Illinois.

Sotavalta, Arvo. 1936. *Die Phonetik und ihre Beziehungen zu den Grenzwissenschaften*. Helsinki: Annales Academiae Scientiarum Fennicae, Series B, Tom XXXII/3.

Twaddell, W. Freeman. 1935. *On Defining the Phoneme* (= *Language Monographs 16*). Baltimore: Linguistics Society of America.

Unbegaun, Boris. 1957. *Russian Grammar*. Oxford: Clarendon Pess.