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PERSISTENCY IN EVOLUTION OF LANGUAGE

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Abstract

In this paper, two cognitively salient constructions, stativity and locative relationship, are analysed in relation to the evolution of language. The difference between them is that stativity is more persistent than locative relationship. This illustrates that the cognitive saliency is not sufficient for a certain construction to be persistent in the evolution of language. Instead, it is argued that the presence of binary opposition is more crucial: stativity has a binary opposition (dynamicity), but locative relationship lacks such an opposition. On this basis, binary opposition can be considered to play an important role in the evolution of language.

1. Introduction

There have been numerous claims for the driving force behind the emergence of language, for example: Cheney and Seyfarth (1990) on communicating the social relationship; Deacon (1997) on the use of symbols as an arbitrary item to stand for something; Dunbar (1996) on gossip as a replacement of grooming. Walker and Shipman (1996) claim the hunting and the gathering of food was a crucial factor, i.e. the language emerged in order to communicate "places to hunt; new sorts of traps; locations of water, good caves ... techniques for making tools ... or ways to make and keep fire" (ibid. p. 231). This may explain the naming of food, animals, predators, etc. and why some locational relationships are considered to have been present in the origins of language: in order to locate where the water or food are. In considering the persistence in grammatical development, we consider this form of nominal-based (i.e. stativity-based) language with locational relationship as the basis of a primitive grammar.

The organisation of this paper is as follows: I first illustrate what has existed in the beginning of the genesis of language, and give details of stativity and locative relationship. I incorporate the recapitulationist hypothesis in their description. Then I examine these two constructions in terms of persistency in language evolution, and propose some possible reasons for its persistency or non-persistency. I conclude the paper by suggesting some further work based on the analysis of language persistence.

In the rest of the paper, stativity and the locational relationship are analysed, and a century-old, once popular hypothesis called recapitulationist hypothesis is incorporated

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into the analysis. This hypothesis, which states that 'ontogeny (individual development of the foetus) recapitulates phylogeny (evolution of phylum/species)', was proposed by the German biologist Ernst Haeckel (1874) in the nineteenth century (Note 1). According to his proposal, a human foetus in the mother's womb repeats the whole sequence of evolutionary patterns. In evolutionary biology, several missing stages have been found (Note 2), and Haeckel's theory is no longer wholly accepted, but most of the sequences seem to show similar patterns. There are some linguists who apply Haeckel's theory to the evolution of language. Lamendella (1976) is probably one of the first scholars to have made such attempts, followed by Givón (1979), Bickerton (1981), and others. At least this hypothesis, in spite of some inaccuracy, created a lot of impact on the field and is still highly praised. Nevertheless, it is fair to consider that stativity and the locative relationship existed from the earlier stages of human language. They are both considered cognitively salient (i.e. they form a part of the basis in our cognitive system), but their developmental patterns seem to differ slightly. So we turn to details below.

2. What Has Come First?

It has been assumed that at the earliest stage of human language, the word category *noun* dominated the grammar, perhaps along with a handful of verbs, such as motion verbs 'come' and 'go' (Aitchison 1996, p. 110-111). The term 'noun' can for modern languages mean several different categories, such as deadjectival nouns (e.g. *old* and *young* as in *The old is wiser than the young*), action nominals (e.g. departure, referring to the action of departing), gerund (e.g. forms with a suffix *-ing*, as in *doing*), etc. (cf. Croft 2001, p. 88), but here, it specifically means a reference to an object. Without the possibility to name objects, communication seems to be extremely difficult, and this is reflected in the vocabulary of languages. In present-day English, for example, there are about three times as many nouns as verbs (Sweetser 1990, p. 9). The category of nouns supersedes other categories, such as verb, since human cognition generally prefers the time-durable (i.e. stative) expression (cf. Hopper and Thompson 1984). These are expressions that express a situation that remains constant, at least for some time, like fixed properties of objects, the locations of big objects, etc. This explains the noun-only initial stage.

The emergence of complexity of modern languages was aided by the emergence of the ability to use expressions that express change (less time-durable), involving verbs (cf. Givón 1979, p. 303-304; Pinker and Bloom 1990, p. 771; Hurford 1990, 2003; Carstairs-McCarthy 1999, p. 76-106). The categories noun and verb are considered basic parts of speech (cf. Lyons 1977, p. 442-447; Givón 1979, p. 320-321; Hopper and Thompson 1984; Barner and Bale 2002). For example, Sapir (1921, p. 117-119) claims that "[n]o language wholly fails to distinguish noun and verb, though in particular cases the nature of the distinction may be an elusive one." In addition, Hopper and Thompson (1984, p. 745) claim that special nominalising morpheme is productive

and that it is more commonly found than verbalising morpheme cross-linguistically. So the earlier use of nouns stems from the presence of stativity, and the dynamic aspect emerged later out of necessity in communicating more complex information, as argued in Givón (1979, p. 295-303), or as Pinker and Bloom (1990) argue, in reply to Hurford (1990), that predicate-argument structure derives from the distinction between physical objects and the states or actions in which they participate.

Having indicated the importance of stativity, it seems somewhat contradictory to state that there were some motion verbs earlier. I consider motion verbs here not purely in a sense of 'to come' and 'to go' in various modern languages, but in a sense of location, such as 'to go to' or 'to come from'. This relationship can be still found in some modern languages, such as Serbo-Croatian: a verb *ići* is often glossed as 'to go' in English, but the verb itself merely expresses the motion, and English 'to go' is more specifically expressed with a directional prefix *iz-* 'from' as in *izaći* (*iz-aći*, i.e. motion away from the speaker). Furthermore, English 'to come' is also formed with the same verb with another prefix *do-* 'to' as in *doći* (*do-ći*, i.e. motion towards the speaker). So a hypothetical phrase of proto-language 'deer to' can mean 'a deer goes', and likewise, 'deer from' in modern language will be 'a deer comes'. Like stativity, locative relationship is considered one of the basic mechanisms in human cognition, and human language is known to be built upon preexisting representation, such as body-centred space, deictic variables (such as *this* and *that*, or *here* and *there*, etc.), direct pointing to objects, etc. (cf. Bickerton 1998; Kirby 1999, 2000; Hurford 2000, 2003). So it is fair to claim that the locative relationship has existed from the earliest stage of human language, and that it can be still found in various aspects of human language.

In addition, the existence of category verbs at the very beginning of the emergence of language seems to be doubtful: the emergence of verb in general is yet to be analysed in detail. Some recent attempts (cf. Toyota 2004) to discuss this issue pay attention to the distinction of two types of noun, one referring to state and the other to action, claim that the ones referring to action developed into verbs. So the emergence of motion verbs should in the evolution of language follow that of the distinction between nouns for state and for action. This line of argument also raises another question over the type of motion verbs, since what motion verbs in a broad sense indicate is the location of an entity, including static ones (e.g. the location related to 'to stay', 'to remain', etc.) and the motion itself, as exemplified in 'to go' or 'to come'. Which type appeared first is open to discussion, but judging from the development of the verb, one can suggest that the static one seems more likely to have appeared first. Since the beginning of earliest appearance of the verb is still not clearly defined, in this article I use the concept of 'locational relationship' instead of 'motion verbs', since it can cover the wider range relating to the concept of locomotion.

2.1. *Stativity*

As noted in the previous section, stativity is cognitively salient, since it is concerned with referents which are time-durable and concrete. Such features are reflected in the

nominal-only construction in earlier languages, i.e. stativity is derived originally from naming objects. The cognitive salience of stativity can also be found in acquisition of language by children, a number of historical grammatical changes (stativity appears first), as well as language use in language disorder (naming objects is less troublesome than, say, arranging events according to their chronological sequence. In addition, children with autism do not use verbs, and their utterances consist solely of nouns. This can also be shown in the recapitulationist hypothesis. It is reported that children at an earlier stage in general prefer stative meanings to dynamic ones and children in general tend to be more sensitive to the aspectual properties of verbal inflections than temporal properties (cf. Bloom et al. 1980; Shirai and Andersen 1995). Children learning languages start talking by using nouns like *Duck*, *Mummy*, *Dada*, or set phrases like *Bye bye*, *Hello*; verb phrases generally come later. Some verbs may be involved in earlier utterances such as *How are you*, but they are often considered a result of copying the adult. This preference to nouns seems to be reflected in the whole structure of children's grammar. It is often considered that the categories *noun* and *verb* form basic parts of speech in modern languages (cf. Hopper and Thompson 1984; Du Bois 1980, p. 208; Givón 1979, p. 320-321, 198, p. 85; Lyons 1977, p. 442-447). However, this grammatical system does not appear from the beginning.

Such an argument is further aided by the recapitulationist hypothesis. The linkage between the ontogeny and phylogeny of language, like its original biological counterpart, does not seem to be firmly held any longer in modern linguistic theories (personal communication, Jennifer Ridley). The distinction between the stative and dynamic aspects seems to be still present in the acquisition of child language, since children commonly take advantage of the stativity at the first stage. As Bloom (1973) has noted, agent coding is more commonly found first in stative or intransitive constructions in acquisition of child language. Stativity inherently cannot accommodate any agentivity, but the combination of agentivity and stativity is made since children rely heavily on the use of stativity at earlier stages. In addition, there are some other pieces of evidence supporting this line of argument. A development of particular constructions, such as the periphrastic passive voice in Indo-European languages is one such instance. There is much evidence that children acquiring English start with the adjectival passive or resultative (i.e. stative construction) and gradually learn the more dynamic, verbal passive (cf. Horgan 1978; Israel, Johnson and Brooks 2000). Israel, Johnson, and Brooks (2000) argue on the basis of constructional grounding (Note 3) as proposed by Johnson (1999), that children undergo some intermediate stage between stative and dynamic passive construction to reach a stage where they use dynamic passive more productively (Israel, Johnson and Brooks 2000, p. 107-110). Their result (ibid. p. 115-116) seems to suggest that the emergence of dynamic reading happens around the age of three. Note that when the passive makes a stative-dynamic distinction, as in English, children start to cross-linguistically use the stative passive first (see Antinucci and Miller 1976 for Italian), but the morphological passive does not follow this developmental pattern (see Allen and Crago (1993) for Inuktitut, Demuth (1989) for Sesotho (Bantu), Slobin (1994) for Turkish) and the passive is dynamic even in earlier occurrences.

What such use of language among children indicates, along with the case of the acquisition of the passive, is that this is the period when children start to realise that language involves more than stativity, witness such concepts as the force-dynamic distinction, the presence of an instigator of action (actor), or the recipient of action (undergoer). Some scholars, like Croft (1991), claim that the force-dynamic distinction involving causation is the basic grammatical organisation in the modern structure of language. Thus, one can observe some parallel patterns between the acquisition of child language (and synchronic characteristics) and diachronic language changes, i.e. stativity is a basic unit in our cognition in early stages of development, and the more non-stative context develops later. Like the use of stativity among children, the diachronic change of language seems to form a consistent pattern from earlier stative to later dynamic construction. In spite of the major difference in the environment for language use between the ancestral primates (they had to create language) and human babies (they can copy adult speech), stativity still plays an important role in our cognition in each case. Therefore, as far as the stativity/dynamicity distinction is concerned, we can claim that the linkage between the ontogeny and phylogeny of language is supported.

2.2. *Locative Relationship*

The locative relationship, like stativity, has existed throughout the history of human language, and it exists in various guises, from purely locative relationships such as describing the location, e.g. 'at', 'in', etc. or describing the motion, e.g. 'from', 'to', etc., to various other specific, often metaphorised or grammaticalised, usage. As a proof, the locative relationship underlies numerous non-locative constructions in modern languages. For example, phrases relating to possession are often achieved with locative phrases. Cross-linguistically, possession is most frequently expressed with periphrastic construction 'NP (possessed) is at/with NP (possessor)' (personal communication William Croft; Benveniste 1966: 200; Seiler 1983: 73; Heine 1993), e.g. "there are very many languages throughout the world in which overtly locative constructions are used in sentences that would be translated into English as 'John has a book' (or 'The book is John's')" (Lyons 1977, p. 722). Heine (1993, p. 47) usefully lists eight possible types of possession, in which we can find four types involving locativeness, as listed in (1).

(1) i. Y is located at X (the location schema)
ii. X is with Y (the companion schema)
iii. Y exists for/to X (the goal schema)
iv. Y exists from X (the source schema)

Another instance is the tense-aspectual construction. It has been claimed that the temporal relation is often realised as an extension of location (cf. Traugott 1978). In this case, when the time is metaphorically considered as a linear sequence, the sequence of events can be considered in a sense 'an event A is at, on, before or after

another event B.' So the progressive aspect can be expressed as 'event A is at or on event B.' (cf. example (2)); the perfective aspect as 'event A is after event B' (cf. example (3)). Like *possession*, this type of construction is not restricted to a particular language family, but can be found across the world.

Scottish Gaelic (Celtic)

(2) Bha Iain a' sgríobhadh litir
was John at writing letter
'John was writing a letter.' (lit. 'he is at writing a letter')

Irish (Celtic)

(3) Tá mé tar éis mo chuid oibre a chríochnú.
is I after my piece work PARTICLE finishing
'I have finished my work.'

In addition to these examples, the locative relationship and the tense-aspect system seem to be also related at the cognitive level: for example, languages that use the past and non-past as the basic tense distinction tend to have a specific metaphorical usage of body part, i.e. the front part of the body for future and the back part, past, e.g. as years ahead of us indicates that the forthcoming year is expressed with the front parts of the body, while years behind us, the past years require the back of the body. Those languages that have the distinction between future and non-future often use the opposite combination, i.e. the back of the body for future and the front of the body, past. Nuñez (1999, p. 52) reports a case of Aymara (an Amerind language spoken in the highlands of Andes). This language has the second pattern of metaphorisation (i.e. back of body-future and front of body-past) and this can be found in the spontaneous gesture of the native speakers, i.e. "when saying something like 'long time ago' they point towards the from of them. And when referring to some event that occurred even earlier than that, they point even further ahead" (Nuñez ibid., p. 52). Such instances further confirm that the time and locative relationship are somehow related to each other in human cognition.

The locative relationship underlines numerous grammatical features, which can be commonly found in languages across the world. This wide-spreadness indicates that this is not a mere historical accident, since for our cognition the locative relationship is much easier to process. This also makes the motion verb possible at an early stage of language development. The locative relationship is not often found in early language use by children. This fact indicates that the locative relationship cannot be applied to the recapitulationist hypothesis.

3. Persistency in Linguistic Evolution

It has been shown that both stativity and the locative relationship are cognitively basic, and also that features that emerged early in the evolution of human language are likely to have been cognitively more salient. However, these two categories differ in several respects: the locative relationship can function as a good base for metaphorisation or grammaticalisation, but such application is not common in stativity.

Stativity, on the other hand, is often recursive in the framework of the recapitulationist hypothesis, but the locative relationship does not follow this pattern. Such a pattern can be summarised as follows:

	Metaphor/ grammaticalisation	Child language Acquisition	Recapitulationist hypothesis
Stativity	–	+	+
Locative	+	–	–

Keys: + feature present; – feature absent

Table 1, Stativity and locative relationship as replicators.

What the distribution pattern in Table 1 indicates is that the locative relationship is more susceptible to changes than stativity in the language evolution, and it can be suggested that the locative relationship played a bigger role in the development of human language towards the current state.

There are some examples that illustrate the susceptibility of the locative relationship. Particularly during the 1970's and early 1980's, there was a surge of a doctrine known as localism, which can be defined as follows:

> The doctrine that spatial expressions are linguistically more basic than other kinds of expression, and that spatial expressions accordingly constitute the primary raw material for such processes as metaphor and grammaticalization. (Trask 2000, p. 201)

Lyons (1977, p.720), for example, refers to the prominence of locative relationship, stating that "much of what is commonly thought of as being metaphorical in the use of language can be brought within the scope of the thesis of localism." Lakoff and Johnson (1980) discuss metaphorisation in phrases such as *Life is a journey* in terms of localism, i.e. assuming a departure and a goal of life, and this process is considered in a locational sense as a movement from source to goal. As for a specific aspect of grammaticalisation, the locative relation often serves as a base for the historical development, as Heine et al. (1991, p.113) claim, "localism ... according to which spatial expressions are linguistically more basic than other kinds of expressions and therefore serve as structural templates for the latter." Table 2 illustrates some typical patterns.

Source	Derived Structure
Locative categories	Temporal categories
Abstract location	Possession and existence
Locative and deictic expressions	Distinction past vs. non-past
Locative construction	Aspectual notions of progressive or stativity
Locative notions	Temporal, causal, and conditional clauses

Table 2, Some instances of grammaticalisation proposed by localists (cf. Lyons 1977, p.718ff), after Heine et al (1991, p.115)

Some scholars, e.g. Anderson (1971), claim that every linguistic construction can be attributed to the locative sense, e.g. "underlying grammatical functions are in general organized basically in terms of oppositions involving location and direction" (Anderson ibid., p.10). There are also opinions, e.g. Heine et al. (1991, p.115), that this 'stronger' version of localism can only account for a limited part of cognitive patterning.

It has already been seen that the concept of possession is often considered in terms of locative relationship. However, *possession* sometimes develops into either another construction that originated from the locative relationship or something completely different, such as the invention of a lexical verb. Consider the cases of Cornish and Breton (both Celtic). They used to have a location schema possession (cf. (1)i), but they have developed a grammaticalised phrase which means 'have', e.g. Modern Breton *am euz* 'have' and Modern Cornish *am bes* 'have'. In the Britonic branch of Celtic languages, there used to be a form *a-m ess* 'to me is' (*a-* is a prefixing preverbal particle, *-m* is a one-person singular dative infix, and *ess* is a third person singular form of 'be'), which was used for expressing possession. Some scholars, like Hardie (1948, p.100), claim that Old Breton *a-m ess* 'to me is', is the source of Modern Breton *am euz* 'have'. This seems plausible, since in other Celtic languages, the possession is still expressed in the same way as in Old Breton and in Old Cornish. Also, Georgian (Caucasian) exhibits a developmental path similar to Breton or Cornish (cf. Aronson 1982, p.340-341): Georgian has *m-akv-s-* 'have', which involves the bound pronominal with dative force, *m-*. The root *-akv-* is used when the object possessed is inanimate. When it is animate, another root *-gav-* is used. The final element *-s-* is a copula.

Another instance involves transitivity. The emergence of transitivity (i.e. transfer of energy from one entity to another) can be considered in several different ways. Toyota (in prep.) argues that the transitivity originates from various features, such as the active-inactive nominal distinction. The active nouns refer to entities that are capable of acting on their own, and the earlier sentence requires the presence of an active noun as actor. The use of inactive nouns as actors requires a special morpheme to 'activise' this noun (Note 4). This means that the speakers of proto-languages were aware of the causer-causee relationship. The basic transitivity relationship is simple: transfer of action (or cause) from one entity (i.e. actor) to another (i.e. undergoer). This is why active nouns were required as actor in earlier stages in the development of language. Such interpretation of causer-causee relationship is unique to human beings (Tomasello 1999), it is absent in other primates. The outer cause and its recipient are two indispensable elements in forming the transitive clause. If the recipient is missing, it is intransitive. Earlier usage of language is assumed to involve the description of prey, food, where one can go hunting, etc., and this description indicates that there was no transfer of energy. So one can assume that the earlier construction was intransitive. What underlies transitivity, i.e. transfer of energy, can be considered in terms of locational movement, i.e. action from causer to causee. For example, many accusative (or direct object) markers are often considered as earlier dative or allative (goal of event) markers, indicating the end point or goal of causation (cf. Lass 1997, p.309-316). The basic

notion of transitivity (i.e. the causer-causee relationship) is considered by some linguists (e.g. Pinker and Bloom 1990; Caristair-McCarthy 1999, etc.) as the beginning of the complex grammar of modern languages, i.e. "[t]he external world can profitably be decomposed into main effects of objects and main effects of actions or states, and the properties of the cross-product can, to a large extent, be predicted linearly, without one's knowing all the interaction terms" (Pinker and Bloom 1990, p. 771).

It is obvious that stativity is persistent in the course of language evolution and the locative relationship is more likely to change into something else, although they are both considered to be salient in our cognition. The salience of stativity obtains further evidence in the recapitulationist hypothesis. Children take advantage of something cognitively more salient at an earlier stage and develop skills to incorporate something more complex. This salience seems to be realised at different levels, i.e. stativity is used for synchronic comprehension and for the locative relationship, as a base for diachronic change. This raises a question as to what causes this difference. In the following section, I propose one possible reason for the difference between these two constructions.

4. **Reasons for Persistency**

It seems that cognitive salience is not enough to serve as a base for persistence. If this is so, the locative relationship should behave like stativity. Then what is the reason for the difference between stativity and the locative relationship? For this, I would like to focus on a particular feature in human evolution, which is a binary feature and symmetrical opposition. Binary features are commonly found in humans: the body structure, for instance, is more or less symmetrical and this is an example of a binary feature in the human body. In view of the fact that asymmetrical features are far more rare in creatures, some evolutionary biologists such as Dawkins (1997, p. 204-235), claim that symmetry can be a great advantage in evolution (in his terms, 'evolution of evolutionability') and he terms such symmetric features *kaleidoscopic embryology*, since most of the mutations take place in embryos. The importance of symmetry does not seem to be restricted to the evolution of animals alone, some pieces of such evidence can be found in the history of human civilisation or human cognition: Homo sapiens as early as Cro-Magnon, as argued by Wynn (2000), have left various traces of symmetrical artefacts, ranging from the famous cave paintings at Lascaux (France) to various weapons, such as axes and spearheads (see also Jablan 1995; Naccache 2004). This is a binary feature in shape recognition. Among hominids, Homo sapiens, both earlier and modern, seems to be the only species that can create such symmetry, although a case of nest-building by chimpanzees may be an exception.

Roehm (2004) has proposed another piece of evidence from cognitive psychology. He has done an experiment, in which he used various categories, such as colour, and asked participants to relate two closely related entities. For example, participants were given a colour term 'black', and then shown three choices, say, 'white', 'yellow' and

'nice' separately. The criterion was reaction time. The result shows that the participants can relate 'black' and 'white' the quickest, and 'black' and 'nice', the slowest, while the combination of 'black' and 'yellow' is somewhere in between. He claims that our cognition tends to sort out entities according to the binary feature within the same category, such as 'black' and 'white'. 'Black' and 'yellow' is somewhere intermediate due to the fact that they both belong to the same category 'colour', but they do not form a binary opposition. 'Black' and 'nice' are the slowest, since they do not belong to the same category, nor do they form a binary opposition. This result can be schematised as follows:

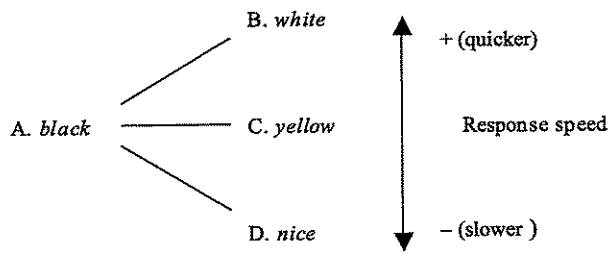

Figure 1, Binary feature in category recognition.

Binary opposition is preferred in human cognition, since this pair is likely to be more stable in the evolution of language. Such a pair is also easier to conceptualise; opposition thus seems to be cognitively salient (personal communication Olaf Dietrich). Such a special feature of Homo sapiens is, in our view, reflected in modern language too. Furthermore, Toyota (2004) considers the importance of symmetry in human language in terms of what may be called *kaleidoscopic grammar*, where binary opposition is given prominence over other features in language evolution.

As we have seen, stativity has as its opposite feature dynamicity. Historically, however, stativity existed earlier and dynamicity appeared later. There then must have been a period when the binary aspectual distinction did also not exist, and the observation of opposite features could have been a reason for the emergence of the dynamic feature. In this sense, stativity functioned as a base for the binary feature. This relationship is also comparable to the topic-focus system in modern languages. Topic or topicality here refers to its traditional sense, i.e. an entity in a clause presented as already existing in the discourse and it is often the case that the rest of the clause is about such entities. Focus, on the other hand, refers to an entity representing the most important new information in a clause since it can be used to indicate a contrast with some other entity. Topicality tends to serve as background information in discourse, which is more stable in interlocutors' minds. Focus, in this sense, functions as something unstable, since it is new in this case and it is often not expected. So stativity and topicality seem to function as a solid base for easier conceptualisation, while what dynamicity and focus create in discourse is not stable, but this enriches

the expressiveness of human language. The difference between these two systems is that topic-focus constructions appeared much later, and they are expressed in various different ways across languages, some more explicitly than the others.

As for the locative relationship, one can observe a number of binary oppositions, such as motion 'from' and 'to', static location 'above' and 'below', etc. As we have seen, the emergence of transitivity can be attributed to the transfer of causation 'from' actor 'to' undergoer. The internal relationship in the locative construction is indeed binary, but this relationship itself does not have its opposition, and the binary feature only exists within the locative relationship. The locative relationship has existed, but what changed was its interpretation, i.e. it was often used literally in a locational sense, but it was often metaphorised and created a new category.

In this sense, both stativity and the locative relationship seem to have a binary opposition. However, there is a slight difference: the stative-dynamic relationship is an opposition within an aspectual category, but stativity itself cannot be subdivided into different types of stativity. So there is no 'internal' structure in stativity. However, the locative relationship does not have its opposition. The binary features in the locative relationship are internal structures and not comparable to the stative-dynamic opposition. In our view, this lack of binary opposition in locative relationship makes it susceptible for change in the evolution of language. The locative sense itself is always preserved in language, but its application to other constructions such as possession, tense-aspect, etc., often forced the locative relationship to be superseded by other constructions. This may explain why this construction is cognitively salient, but often loses its ground, i.e. if it is not stable, in the sense that it has no binary opposition. So the lack of opposition in locative relationship can be the cause for the lack of persistency in some languages.

5. Future Implication from Persistency

I have claimed that persistency is the result of the presence of binary oppositions, and I have also suggested that the binary feature may hold a key to the development of human language. Languages have gone through a couple of key turning points, such as noun-verb distinction, predicate-argument structure, realis-irrealis distinction, etc., in the period of their history between 50,000 to 100,000 years ago (cf. Aitchison 1996, p. 4). The emergence of each opposition system may vary chronologically, as roughly represented in Figure 2, but they form crucial grammatical structures in modern languages.

The emergence of these features is reasonably late, considering the history of human language is estimated at around 100,000 years. This also suggests that language requires a long time to establish binary opposition, but once it is obtained, the development is reasonably quick. Even quicker is the development of ternary or quaternary features, which are in fact more commonly found in modern languages. Most of them appeared in the past 2,000 to 3,000 years, which, seen in the whole development of human language (i.e. ca. 100,000 years), is very recent.

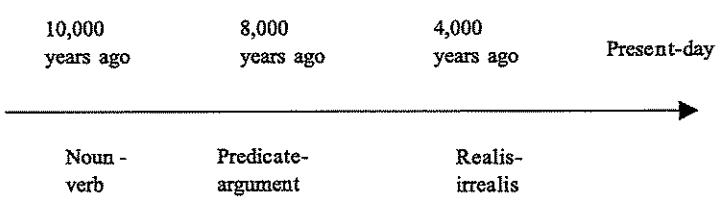

Figure 2, Emergence of binary oppositions in the history of human languages

If one looks at much finer elements of grammar, some categories, such as the adjective, are relatively poorly defined. The reason is that the category of the adjective emerged later in the development as an intermediate category between noun and verb. Ternary or quaternary features are considered a natural result of historical development, since without them, the complexity of grammar cannot be achieved. The break-out of various features of modern grammar created intermediate stages, which resulted in possible intermediate categories like adjectives. Givón (1979, p. 235) claims that "in each instance, a crazy synchronic state of the grammar has arisen via diachronic changes that are highly *natural* and presumably motivated independently by various communicative factors" [emphasis original], or as Harris and Campbell (1995, p. 261) put it, "[i]t is a commonplace of historical linguistics that changes leave residue." Hopper (1991) calls such intermediate features layering. Not many other scholars have studies these grammatical features, in fact they may be considered as to have been rather neglected in linguistic analysis. Some recent works (e.g. Aarts 1998, 2000; Denison 2001; Toyota 2003), however, particularly focus on this intermediate stage of grammatical feature, that now has come to be known as 'gradience'. Analysis of gradience focuses on a specific instance of an intermediate stage, mainly with emphasis on the syntactic aspect, but semantic and pragmatic aspects are also analysed. This type of research is not really possible with reconstructed languages, since it is rather difficult to know what exactly the grammatical structure was like and the paucity of data makes the result less presentable. The importance of gradience in linguistic analysis indicates that diachronic changes often break the earlier binary grammatical features. For example, in many languages the grammatical voice system originally had the active and the middle dichotomy (i.e. constructions such as *He built a house* (active) and *The door closed itself* (middle)) (cf. Greenberg 1995, p. 150). This later turns into the ternary or quaternary system, involving the passive, applicative, etc.

The development of the binary feature seems to be one of the key steps in the development towards modern human language. Binary opposition enables humans to perform linguistic interaction in a more stable fashion, but languages often develop categorization of three or four positions. When motivations for this development are analysed, further insight into the evolution of languages may ensue.

6. Conclusion

I have compared two constructions, stativity and the locative relationship and analysed their capability for persistency in language evolution. They both existed from the beginning of the history of language, and they are both considered as cognitively salient. However, there are some differences: we have investigated the relationship between the ontogeny and phylogeny of language and found various pieces of evidence that that only stativity follows the recapitulationist hypothesis. The locative relationship, on the other hand, does not necessarily follow this pattern. This means that the locative relationship can be transformed into a slightly different function, but stativity stays as it is. However, when the locative relationship turns into non-locative constructions, it becomes something essential in modern human language. One such case is the emergence of transitivity. This means that these two features, which are both considered cognitively salient, differ greatly.

I suggested that the difference stems from whether the binary opposition exists or not. Stativity has its opposition, dynamicity, and this allows stativity to be persistent in the evolution of language, since our cognition processes something binary more easily. Locative relationships, on the other hand, do not form binary oppositions, which makes this construction prone to undergo grammaticalisation or metaphorisation, and therefore it often changes into something else. The presence of the binary feature seems to play an important role in the evolution of language. Most of their evolution concerned the development of this binary structure. The binary feature allows a language to develop faster, and a number of current grammatical systems are based on ternary and quaternary features. I also suggested that the further investigation on this binary feature and its departure to more complex system may lead to further insight into the evolution of language.

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Notes

1. This theory is often associated with Haeckel, but it has been in fact noticed much earlier than his publication in the field of embryology. For example, the similarity between ontogeny and philogeny is mentioned in chapter thirteen of Darwin's celebrated *The Origin of Spieces* (1859), in which he quoted some works preceding his book. However, it is a common practice to attribute this theory to Haeckel, and we follow suit.

2. "Haeckel himself expected that there would be gaps in the sequence, and, because of the brief span of ontogeny, that one could not expect the full sequence of ancestors to be manifested. He also allowed for the interposition of nonrecapitulative (caenogenetic) stages as an adaptation to environmental conditions of the immature organism" (Lamendella 1976, p.396).
3. Constructional grounding is "a process whereby certain uses of a relatively simple source construction provide the basis for children's initial hypotheses about a more difficult target construction" (Israel, Johnson and Brooks 2000, p.103). For a similar argument, see Borer and Wexler (1987), where it is argued that some properties are bound to undergo a process of maturation.
4. Such a pattern can be still found in non-Indo-European languages. For example, Fox, an Algonkian language spoken in eastern Iowa by about 500 people, does not allow a clause without the animate subject. When there is no animate subject, an activising suffix is added to turn the inanimate subject into the animate one. See Anderson (1997) for detailed argument and examples.

Glossary of some technical terms

Nominalising morpheme (Section 2). The minimal grammatical unit (morpheme) which turns grammatical categories such as verb, adjective into noun, e.g. *–ment* in *endorsement* from a verb *endorse* or *–ness* in *naturalness* from an adjective *natural.*

Verbalising morpheme (Section 2). The minimal grammatical unit (morpheme) which turns grammatical categories such as noun, adjective into verb, e.g. *-ise* in *energise* from a noun *energy* or *en-* in *enrich* from an adjective *rich.*

Cross-linguistically (Section 2). In various languages in the world.

Recapitulationist hypothesis (Section 2.1). This is a hypothesis that states 'ontogeny (development of foetus) recapitulates phylogeny (development of phylum)'. According to a biological definition, a human foetus in the mother's womb repeats the whole sequence of evolutionary patterns. Linguistically, it has been claimed that genesis of creole languages/historical development of languages and language acquisition by children follow similar patterns (Lamendella 1976; Givón 1979; Bickerton 1981, 1990, 1995).

Periphrastic passive voice (Section 2.1). One of the two constructions for the passive, which requires one or more auxiliary words in order to express the grammatical distinction. The other construction is known as morphological passive, which does not require any auxiliary words. Compare English *will be loved* (periphrastic) against Latin *amatur* (morphological).

Resultative (Section 2.1). A construction expressing a state resulting from an earlier event.

Dynamic reading (Section 2.1). A sentence, phrase or word expressing an action, movement or change. This term is used in order to contrast with 'stative'.

Periphrastic construction (Section 2.2). A construction in which auxiliary words are used to express the grammatical distinction, as opposed to the direct inflection of the lexical item involved. See also periphrastic passive voice above.

Grammatical voice system (Section 5). The grammatical system expressing the relationship between participant roles and their grammatical relationship. For instance, in *He broke the window*, there are two participants, i.e. *he* and *window*, and they are grammatically realised as a subject and a direct object, respectively. The same participants can be expressed in a different grammatical relationship. In *The window was broken by him*, the same two participants from the first example are used, but their grammatical relationship is different, i.e. *window* is a subject and *he*, a peripheral phrase. The first example is an instance of the active voice, and the second, the passive voice. The grammatical voice also involves various other constructions, such as the middle (two participants are identical, as in *The door opened itself*).

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KIN TERMS *(P)APA, (T)ATA, (M)AMA, (K)AKA,* AND THE ORIGIN OF ARTICULATE LANGUAGE

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Abstract

Globally distributed kin nursery terms are usually explained as spontaneous, independent formations. A careful examination of the relevant data and arguments shows that, on the contrary, these words are inherited from generation to generation. The only explanation of their global distribution is a common original vocabulary, dating back to the early Homo sapiens population. Moreover, several clues point to a much more ancient origin of these words, at the very beginning of articulate language.

1. Introduction

Kin terms *(P)APA*, *(T)ATA*, *(M)AMA*, *(N)ANA*, and *(K)AKA* can be found in more than 60% of the languages in the world – and in almost all of the major families (Bengtson & Ruhlen 1994, Ruhlen 1994*a*, Bancel & Matthey de l'Etang 2002, Matthey de l'Etang & Bancel 2002, Matthey de l'Etang & Bancel 2005, Bancel & Matthey de l'Etang 2005). The global distribution of *(P)APA*, *(T)ATA*, *(M)AMA*, and *(N)ANA* was already known to some 19th century linguists (Lubbock 1889).

1.1. *Spontaneous Generation?*

Most 20th century linguists, following Murdock (1959) and Jakobson (1960), have considered that similar kin "nursery" terms in different language families must have resulted from distinct innovations, the phonetic convergence of which would stem from the limited articulatory abilities of infants. Why? A salient feature of these words is that they are among the first words (and one of them is more often than not the very first one) acquired by children. This happens around the age of one year, when they have not yet fully mastered the phonetic system of their maternal language, and are only able to utter simple syllables made from simple vowels and consonants.

Jakobson (1960) proposed several excellent articulatory, auditory, and acoustic explanations to the greater simplicity of vowel *a*, and of stops *b, p, m, d, t, n* (as well as, to a lesser extent, *g, k, ŋ*). These sounds are the very first phonetic segments to be

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