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REDUPLICATIVES AND THE EVOLUTION OF MORPHOLOGY

1. Armenian reduplicatives: An anachronistic development

Whereas speakers of English would use compound formations such as *snow white* or *pitch black*, where the adjective is preceded by a quintessential illustration, speakers of West Armenian would say, respectively, *dzep-dzermag* or *sep-sev*, using a reduplicative process whereby the initial or only syllable of adjectives is given a more substantial coda and prefixed to it. This process, which is consistently used with the primary colors is also applied to a variety of adjectives, producing formations such as *mas-makur* 'absolutely clean' (< *makur* 'clean'), *čop-čor* 'completely dry' (< *čor* 'dry'), *mis-minag* 'all alone' (< *minag* 'alone'), etc.

The origin of this process seems to lie in the relatively recent history of the language. Armenian, as it is well known, is an Indo-European language, which has split into two standard variants, each with its array of dialectal vernaculars. The Eastern variant, spoken by the inhabitants of the present-day Republic of Armenia and Nagorno Karabakh and by the Armenian minorities of Iran, is associated with the monastical center of Ečmiadzin, the Armenian "Vatican,"located a few miles west of the capital city of Erevan; the Western variant had its cultural epicenter in the former Constantinople, the worthy heir of the Hellenistic Byzantium. It is spoken by the Armenian minorities of the Middle East and members of the European and American diaspora. The two variants must be said to be mutually understandable, though the speakers of one are confronted with the task of processing significant differences in phonology, morphology and syntax, and here and there in the lexicon. One of those differences concerns the above-described reduplicatives – West Armenian uses them, East Armenian does not (see Acharian 1954-65 I:117 for the dialects that belong to one variant but side the other when it comes to this feature).

Though in the absence of other indices it could be surmised that reduplicatives were ancestral to both variants and the Eastern one had phased them out, there are serious indications that the process is an innovation of the Western branch. This paper will concur with that interpretation, but argue that the process is indeed characteristic of earlier forms of grammar, and that the evolution of morphology has normally proceeded from stem modulation processes, to suffixes, and thence to independent particles.

2. A possible borrowing or possibly an areal feature

There are indeed serious indications that reduplicatives are a West Armenian innovation, but their exact development is less sure. They could be the direct product of the bilingualism that fell the lot of West Armenian speakers after they became subjected to Turkish rule, but reduplicatives could also be an areal feature that permeated the languages of the Anatolian and Caucasian regions.

2.1. A direct product of bilingualism?

It must be observed first of all that in Classical Armenian, the fifth century ancestor of the two modern variants, no examples of the above-described type of reduplication have been found. Meillet states the case emphatically: "Die einzige Form der Reduplikation, welche das Armenische in geschichtlicher Zeit frei gebraucht, ist Wiederholung des ganzen Worts" (1913:42). The repetition of the entire word, the two being written in one or two words and the former with or without a svarabhakti vowel, was used either to express a distributive meaning, as in *gownd gownd* 'in groups' (< *gownd* 'group), also *gownd[a]gownd*, or to denote a superlative degree of the adjective, as in *aragarag* 'very fast' (< *arag* 'fast') or *džerm[a]džerm* 'very hot' (< *džerm* 'hot'). The contrast between the Classical *džermadžerm* and the Mod. W. Arm. *džep-džermag* 'completely white' confirms Meillet's observation that the only type of active reduplication was that of the full repetition of the word and *ipso facto* suggests that the first syllable repetition with a modified coda is a post classical development.

The West Armenian type of reduplicatives are indeed found in Turkish, where intensives can be formed by duplicating the initial or only syllable of an adjective and by changing at the same time the existing coda or by introducing one if there is none, as in *bom-boş* 'completely empty' (< *boş* 'empty'), *tap-taze* 'very fresh' (< *taze* 'fresh'), *yus-yuvarlak* 'completely round' (< *yuvarlak* 'round'), or *ter-temiz* 'totally clean' (< *temiz* 'clean'). Jaklin Kornfilt who gives these examples stipulates further that "the issue of how to determine the choice of the ... [coda] has not been fully resolved in the literature" (1997:419). In Armenian the three possible codas of duplicate syllables are primarily *-s* and *-p* and the rarer *-m*, but the factors that determine the choice of one over the other have also remained elusive (Acharian 1954-65 1:114 and 119).

This narrow resemblance between the Turkish and West Armenian processes along with the absence of such formations in the Classical language does suggest that the strategy could have been borrowed from Turkish. Such a hypothesis is all the more plausible since for nearly a millennium, West Armenian was generally spoken along with Turkish, and the latter was the dominant language. This, in fact, is the view of the distinguished Armenian linguist Hrachia Acharian (1954-65, 1:119), and the idea of a carryover from the politically dominant language does stand to reason.

2.2. An areal feature?

There is however another Turkish reduplicative process which deserves considera-
tion. This process consists of repeating a word with its initial consonant replaced with
an *m-* or with an *m-* added at the beginning if there is no initial consonant. This is done
to convey, on a somewhat disparaging tone, the meaning of 'and suchlike' and by so
doing reinforce a negation as in *telefon melefon çalmiyor* 'there is no telephone or such
thing ringing' (the example is from Kornfilt, 1997:482; the translation is mine).

The same construction exists in West Armenian, but in this case the process was
already observed in the classical language. "Eine besondere Art der Gemination besteht
darin, daβ der anlautende Konsonant des zweiten Wortes durch *m-* ersetzt wird; ... begin-
nt das betreffende Wort mit Vokal, so tritt das *m-* vor den Vokal des zweiten Wortes (Jensen
1959:47). The examples given are *lowŕ mowŕ* (< *lowŕ* 'silent'), *sowt mowt* (< *sowt* 'false'),
ałx[a]małx 'goods' (< *ałx* 'utensil').

Since the Turkish and Armenian processes display great similarity, and since the
Armenian usage is documented long before the Turks arrived in the area, Armenian
could not have borrowed it from Turkish. That much is clear, but what is the explana-
tion for the similar usage being present in Turkish? Surely, such an *m-* insertion
reduplicative process is not a language universal. Could it be instead an areal feature?
It looks very much like it. Acharian points out (1954-65 *Introduction*, p. 407) that in
modern times, when expressing themselves in Russian, speakers of Caucasian lan-
guages carry over their commonly used native *m-* reduplication and produce sequences
such as *xoroŝo-moroŝo* (< *xoroŝo* 'good, well'). For Rüdiger Schmitt, who supports his
view with a reference to Deeters (1926/1927), the Classical Armenian reduplicatives
are indeed the result of an influence coming from the South Caucasian languages
(1981:87). If so, could that influence also have been on the Turkish language when its
speakers arrived in the region, and the first syllable reduplicatives (Tu. *tap-taze* 'very
fresh' and W.Arm. *tap-tats* 'completely wet') be also an areal feature with its roots in
the South Caucasian vernaculars? Probably not in the case of Turkish, since first-syl-
lable reduplication also exists in other, more eastern Turkic languages (Acharian 1954-
65 1:119).

In Armenian there could be a number of contributing factors. There are indications
that Armenian was open to such a strategy. Though the word-formation process was no
longer active, the Classical language was replete with iteratives that had been formed by
duplicating the first syllable, such as *p'op'oxem* (< *p'oxem* 'to change'), *dzgdzgem*
(< *dzgem* 'to pull'), *tsitsałim* (< *tsałr* 'laugh'). In addition to these verbs, Classical
Armenian had also compounds similar to the Engl. *chit-chat*, where the duplication
process is accompanied with a vowel change, as in *sarsowŕ* 'shiver' (< *sarsem* 'to trem-
ble'), *sparspowŕ* 'exhaustively' (< *spaŕ* 'entirely'), or *ker[a]kowr* 'meal' (< *ker* 'food').

Reduplicatives are also very common in Georgian, where they can be used to pro-
duce intensives, but like the Classical Armenian iteratives, the duplicate syllable is open,
and not closed like the Tu. *tap-taze* 'very fresh' and W.Arm. *tap-tats* 'completely wet.'
The following examples are from Neisser (1953) and Vogt (1971:254).

p'ap'a 'grandfather'	*p'ep'era* 'great grandfather'
berva 'blow, inflate'	*bebreva* 'swell'
xula 'hut haystack'	*xuxula* 'hut, little house'
k'vır (kvirti) 'bud'	*k'uk'uri (k'vik'viri)* 'sprout, bud'
basri 'sharp'	*babasili* 'very bitter'
ɣud- 'to rise (dough)'	*ɣuɣudi* 'blister from a burn'
bič'ebi 'boys'	*bič'buč'ebi* 'street boys, gangs'
xevi 'ravine'	*xev-xuvi* 'deep, dangerous ravine'

These alliterative compounds from Classical Armenian and Modern Georgian do
suggest that while the West Armenian reduplicatives are indeed the result of a borrow-
ing from the politically dominant language, the Turkish strategy could be said to have
fallen on fertile ground since it was consistent with a word formation pattern that exist-
ed both in the ancestral language and the vernaculars used in the region.

3. The evolutionary approach

Whatever the exact origin of the Turkish and West Armenian processes, reduplica-
tives are very old strategies, and for them to be properly understood they must be as-
sessed in an evolutionary perspective. The task of linguists must be in part similar to that
of anthropologists. The specialty of the latter is the study of *Homo sapiens*, but, if our
species has been so dubbed, it is largely because we are both *faciens* and *loquens*, and
therefore the artefacts of *Homo loquens* must be studied and assessed much like anthro-
pologists study and assess the artefacts of *Homo faciens*, that is, in an evolutionary per-
spective.

When looking at an Acheulean hand ax, we may marvel at the graceful shape of the
object, admire the near-symmetry of the two sides, and even envy the dexterity of the
prehistoric craftsman, but however favorable our impression may be, we must concede
that Acheulean hand axes are crude implements, representing a modest step in the long
line of development leading to the laser instruments used today in microsurgery. The
observation may seem trivial, but it must be borne in mind, and Basalla stated it clearly
when he wrote: "The modern technological world in all its complexity is merely the lat-
est manifestation of a continuum that extends back to the dawn of humankind and to the
first shaped artifacts" (1988:30-31). How many steps separate the hand axe from today's

advanced surgical instruments is open to interpretation. Certainly hafting – fitting a handle to an otherwise hand-held tool – was a major one, and so was the discovery of the wheel; around that time came the use of metal instead of stone, and the metallic implement was subsequently improved through mechanical engineering, and finally electrical and electronic engineering brought it to its present level. What is undeniable, however, is that each new step brought about greater efficiency, either in reducing the expenditure of energy, as in the case of hafting, or in improving the quality or the performance of the implement, as in the replacement of stone with metal. Each time the new model was more advantageous.

Though the steps observed in technology may not have their exact one-to-one equivalent in linguistics, the artefacts of *Homo loquens* have evolved in similar fashion and along similar lines as the artefacts of *Homo faciens*, and the Indo-European languages, with their longest and most intensively studied history, provide clear and abundant data suggesting the occurrence of an evolutionary process.

– The ancestral consonants, which were predominantly articulated with increased subglottal pressure* were replaced with alternatives produced in the supraglottal or even suprapharingeal part of the vocal tract;

– Fricatives, such as *f, v, ʌ* and *ž*, developed and became part of the consonantal system, while complex stops receded.

– The number of vowels increased steadily, with modern inventions such as *y* and *ø* or *ɨ* and *ʌ* being introduced to replace the long-short distinction that had developed in the aftermath of the elimination of laryngeals.

– Aspect and modality first used as a lame attempt to indicate the time of the action were largely replaced with temporal distinctions;

– Adjectives appeared and drove away verbs of state (cf. Lat. *seneō* 'to be old').

– Real-life acting roles such as *agent* and *patient* were gradually replaced with the especially invented linguistic functions of *subject* and *object*;

– The passive voice developed, and the newly created active/passive dichotomy largely supplanted the archaic distinction between active and middle (cf. Lat. *dicō vs. loquor* or *fabulor*);

– The technique of sentence embedding was gradually acquired and expended;

– Linguistic structures were gradually reorganized from the head-last to the head-first model or from SOV to SVO.

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* "Increased subglottal pressure" is a phonetic feature used by Chomsky and Halle (1968:326), while Ladefoged speaks "of an extra push from the respiratory muscles" for aspirates, and of "raising and constricting the whole larynx" for ejectives (1971:10 and 25). Whatever the better characterization, the fact remains that ancestral articulations had pulmonic and glottalic components that they have come to lose as consonantal sounds are produced with articulations that take place in the front part of the vocal tract.

All these highly pervasive changes to a greater or lesser extent, at a faster or slower rate, and in one form or another have occurred in the world's languages during the last 10000 years (for a detailed presentation cf. Bichakjian 1999*a* and *b*). These gradual developments clearly suggest that there is absolutely no empirical support for the steady state conception that is inherent to the innatist scenario advocated by Chomsky (cf. *e.g.* 1980: 28) or in a revised form by Pinker and Bloom (1990:721). Neither is there empirical support for Bickerton's two-step saltationist model, which claims that, while our species is genetically endowed with *language* and can thus produce coherent, hierarchically-structured sentences, earlier speakers were only endowed with a *protolanguage* and could only string words together and jabber fragmentary utterances.

When persons, who are ill, exhausted, drunk or merely impatient speak in this fragmentary manner, they are simply using protolanguage rather than language (Bickerton, 1990:124).

Neither incipient speech strategies nor hand axes are the work of ill-like or drunk-like individuals. The observational data strongly suggest instead that, like industry, language is not a finite all-or-none entity spread on one or two plateaus, it is a developing continuum, which started as a rudimentary implement of thought and communication, and gradually developed into the increasingly powerful and efficient systems we are using today. Like any other development, the development of language has not come to a stop. Linguistic features are developing and will continue to develop, just as technology will progress and biological evolution will pursue its course.

The empirical data linguists can gather and the ones they can reliably reconstruct cover no more than 10000 years, and before that we have no data. Let that fact be stated unequivocally, but let it also be stated unequivocally that the clearly observed pattern of developments toward ever more powerful and ever more efficient linguistic features is like the tip of an iceberg. We do not see the submerged part, but we can surmise its existence and its being identical in nature with the visible part. We have no possibility of tracing the developments that led to the features found at the dawn of the empirical period, but we have no reason to doubt that they were the product of steady developments of which the observed ones are the continuation. Just as there is a steady development from the first projectile that was aimed at a target to today's ballistic missiles or from the most primitive chopper to the most advanced surgical instrument (cf. Basalla, quoted above), so is there a steady development from the most primitive linguistic implements to today's sophisticated systems.

4. The evolution of morphological features

In morphology the observational data reveal a continuum that displays a sequence of three developmental steps. The first strategy for marking grammatical distinctions

consisted of modulating the stem, the second of tagging suffixes to the root, and the third and most modern one is to use independent words, especially earmarked for a specific grammatical function. The sequence can be illustrated with the evolution of the past tense of the verb 'to sing' from Latin to French. The original Latin form for 'I sang' was *cecinī*. Since the present was *canō*, *cecinī* represented a form of stem modulation comparable with the West Armenian and Turkish reduplicatives quoted above, with, moreover, the first syllable duplication triggering a sound change in the stem. Since it had lost its stress, *a* had become *i* (cf. also *pater*, but *Iuppiter*). But early on, the pair *canō/cecinī* had to compete with the pair *cantō/cantāvī*. Originally, *cantō* was the intensive form of *canō*, but that particular nuance was soon lost, and the former intensive pair prevailed because *cantāvī* was perceived as a modern form – gone were the archaic first syllable reduplication, and replaced with the "modern" suffix -*āv*-. Ablaut and stem reduplication were indeed set on a recessive course. But what was then modern later fell out of grace, and suffixes were in turn, at least partially, replaced with independent words emptied out of their original lexical meaning and converted into grammatical markers. Hence, the French *j'ai chantū*, where the Latin suffixes have been replaced with the independent words *je* 'I' and *ai* 'have 1st pers. sing.'

Obviously, vowel alternation is still to be found in extant languages (cf. Engl. *sing*, *sang*, *sung*), and suffixation is quite common today, but there is no doubt that there is a developmental sequence, and that sequence is (1) stem modulation, (2) suffixation (3) use of independent words. The linguistic situation has its equivalent in biology, where the co-existence of toads, turtles, and tigers does not invalidate the theory of evolution that says that amphibians are ancestral to reptilians, and reptilians to mammals.

4.1. The incipient strategy

The observed developmental sequence is an indication of how *Homo loquens* has tinkered grammatical markers. It is not surprising that the task of building a linguistic system would start with coining words for objects or actions. The first words had no doubt a strong iconic character, but, as the lexicon expanded, greater arbitrariness became imperative and triggered a process of mutual fertilization between the increasing arbitrariness of the lexicon and the increasing potential for abstraction in the speakers. But the problem was how to produce the grammatical variants of words. How, for instance, were the incipient speakers who had coined a word for 'cutting' to make a distinction between a cutting that is completed (the perfective aspect and the ancestor of the past tense) and a cutting that is in progress (imperfective aspect and the ancestor of the present), or between "ordinary" cutting and the same action performed with greater intensity? This is where stem modulation was pressed into serv-

ice. By alternating the vowel or by repeating the initial syllable, incipient speakers could give to words a different grammatical value or switch them to a different category. The Engl. *sing, sang, sung*, on the one hand, and *sing, song* or Lat. *fido* 'to trust' and *foedus* 'treaty,' on the other, illustrate how vowel alternation could be put to use. The other strategy was initial syllable or stem reduplication as in *canō/cecinī* 'I sing/I sang' or Gk. *gráphō/gúgrapha* 'I write/I have written.' Meillet gives the following summary of the uses of reduplication: "Le redoublement indo-européen est un procédé grammatical employé dans le verbe soit pour renforcer le sens, soit pour marquer la répétition ou la durée de l'action, soit enfin pour en indiquer l'achèvement complet ..." (1964:182).

Stem modulation is therefore probably one of the first strategies used by incipient speakers to mark paradigmatic variants. The strategy is no doubt ingenious, but it has its limitations. With stem duplication you can introduce only a binary distinction – absolute *vs.* intensive grade, single *vs.* manifold occurrences, completed *vs.* not completed action – but more than two-way distinctions, such as past/present/future, let alone, past/perfect/present/future are excluded. Vowel alternation offers more possibilities, but the cost is high. Let us take the example of *sing/sang/sung/song*. At first look, the process also looks ingenious, but if such a system were fully active in English, the vowels *a, u,* and *o* would be exclusively earmarked for the past tense, the past participle, and deverbal nouns, respectively, and verbs such as *pant*, *hunt*, and *prompt* would be impossible. Vowel alternation can work with a limited lexicon, but it becomes a serious impediment as the lexicon increases. Moreover, it should be noted that, while Ablaut can accommodate more distinctions than reduplication, its range also remains limited.

4.2. The development of suffixes

The first alternative to stem modulation was suffixation. The advantages of suffixation are enormous – since one can practically form an unlimited number of suffixes, suffixation can become the vector of an unlimited number of distinctions. Suffixes easily meet the demands of rich inflectional systems, providing nouns and adjectives with case, number and gender markers, verbs with mood, aspect, tense, and person markers, adjectives with degree indicators, and every word with derivational extensions. Suffixation is so common today that we may be tempted to assume that suffixes have always been there. Since every tool has a handle today, we may also be tempted to think that handles have always been part of manual implements, but the archaeological record tells us otherwise. In fact, hafting was a portentous invention and a major technological advance, which came after some two million years of toolmaking. Likewise, suffixation was a watershed moment in the history of grammar building.

The significance of the development of suffixes emerges as we reconstruct the efforts of *Homo loquens* to build an oral system of communication. The initial task was obviously to give a name to objects and actions. We have no way of reconstructing the first vocabulary items, but it seems reasonable to assume that they were iconically inspired before the pressure of an expanding lexicon introduced the need for increased and, eventually, nearly total arbitrariness in word forming. In this incipient phase of linguistic development, stem modulation must have been a spontaneous way of supplying the newly coined words with qualifying nuances – reduplicatives were naturally suited to express intensity or repetition, while vowel alternation could provide the contrast between a completed and ongoing action.

But given the limitations of stem modulation, a more productive way had be found to make sure that the increasing number of distinctions were properly indicated. The logical step was to use suffixes, but this was not a trivial event; it was an important innovation and a major jump in abstraction, because up until then segmental morphemes were exclusively *content* morphemes, representing objects and actions in real life, but the invention of suffixes meant that a segmental morpheme could also be assigned to abstract grammatical entities. Segmental morphemes could therefore be not only *content* morphemes, but also *function* morphemes. The mental potential to assign label-like forms to grammatical abstractions could be compared to hafting, whereby the relatively abstract item that handles are, was added to the working part of tools.

It could be argued that instead of discussing the development of *suffixes* one should speak instead of the development of *affixes*. The broader term could indeed be convenient, but it must be borne in mind that, since the dominant word order is normally head-last when languages shift from stem duplication to affixation, the bound morpheme becomes placed after the stem because the grammatical marker is the head and the lexical root the modifier. Hence the development of suffixes, and not prefixes.

Augments and the *ge-* of Dutch and German past participles do not constitute valid counterexamples. The Greek augment is tense bound (it occurs only certain tenses), but it is not a tense marker; the West Germanic *ge-* is also not the past participle marker. The past participle is either marked through Ablaut or suffixation (cf. its total absence in otherwise prefixed verbs, such as *erschlagen, entwickeln, untersuchen, verfolgen,* etc. The WGermc. *ge-* is traced back to an ancestral *ga-*, which meant 'together' (cf. *Gebrøder* lit. 'co-brothers'), and, as such, it had an adverbial meaning and was therefore the modifier of the stem, not the head of the stem (cf. also *mutatis mutandis* Sp. *comer* < Lat. *cum + edere*). From a purely structural point of view *ge-trunken* could be analyzed like *fully drunk*, a head-last structure in English, where *drunk* is the head and *fully* the modifier.

The development of suffixes could be seen as step *two* in the evolution of morphology. It was certainly a very important addition to linguistic systems, and one

that is extensively used today. But suffixation could also present problems. Suffixes stretch words and can give rise to a series of allomorphic variants, either by directly triggering sound changes or by first throwing off the accentuation pattern. In English we have *electric*, *electric-ity*, *public*, *public-ity*, etc. with a *k* softening rule, which however applies differently to *duke*, *duchess* and not at all to *rock*, *rock-y* or *chick*, *chick-en*. Sometimes, allomorphism arises in the suffix itself, as in the Fr. *droit-ier*, but *gauch-er*, respectively, 'right-' and 'left-handed,' or *poir-ier*, but *orang-er*, respectively, 'pear-' and 'orange-tree.' Allomorphic variation produced by word stress displacement is a common source of paradigmatic irregularity, as in the Fr. *je viens* 'I'm coming,' but *nous venons* 'we are coming' and also in derivational morphology, as in *jeu* 'game,' but *jouer* 'to play.' Suffixation is therefore a highly functional process for marking grammatical distinctions, but the number of *ad hoc* phonological rules gives rise to suggests that, while the overall balance may be positive, the debit part is less than negligible. It could be argued that such is the price to pay for a system of communication endowed with a broad gamut of grammatical distinctions. That is partially true, but the key to evolution is selection pressure, and the pressure is always to achieve ever more, while spending ever less. Hence the quest of another solution.

4.3. The development of function words

The next solution, the one that would maintain the high functionality of suffixes while eliminating the attendant disadvantages, was in line with the development that had taken place up until then. Suffixation was the development of *bound* segmental morphemes representing grammatical distinctions; the next step was the development of *free* morphemes performing such functions. This has been done by coring out content words and reducing them to mere grammatical markers. That's how, for instance verbs that meant 'to catch' or 'to hold' have become tense markers. The Lat. *habeō* meaning originally 'to hold' has become an auxiliary in most romance languages; Portuguese has gone a step further by replacing the reflex of the Lat. *habeō*, with the reflex of Lat. *teneō* 'to hold, to hold out.' In the Germanic languages, a verb akin to the Lat. *capiō* 'to catch' has become the auxiliaries *have*, *haben*, etc. The Germanic languages have also carved future markers out content words meaning 'I want, I ought to, I am turning to' and produced, respectively, *will* in English, *shall* and *zal/zullen* in English and Dutch, and *werden* in German. Likewise, a word in Classical Armenian meaning 'it is necessary, fitting, important' (cf. Lat. *oportet* 'id.'), has become the modern auxiliary *bidi*, which serves exclusively to mark the future tense (Acharian 1954-65, *Introduction*, p. 210).

The advantages of function words over suffixes can be seen by comparing the acqui-

sition of Russian, where suffixes play a major role, with English, where they have been almost completely eliminated. Dan Slobin, the well-known American psycholinguist and specialist of Russian child language, has observed a wide gap between the two. "The Russian child does not fully master his morphology until he is several years older than the age at which the American child is believed to have essentially completed his primary grammatical learning" (1966:136). The observed difference implies that with function words instead of suffixes, speakers are spared not only a longer and time-consuming learning process, but also a more onerous cerebral storage and a greater neuromuscular production and processing cost.

Since it is the latest step in the evolution of morphology, the hollowing out of content words, unlike the formation of new suffixes or new vowel alternations, is a process that is pursuing its course under our own eyes, as languages renew their grammatical markers. English for instance is grooming the contracted forms of *going to* and *got to* into possible successors of *shall* and *will*, and *must*, respectively, though for the time being *gonna* and *gotta* cannot be used in interrogatives. The Fr. *aller* is further along: it still has its original semantic value, but it also has become a full-fledge marker of the future tense.

The case of the French *je vais ücrire* 'I gonna write' gradually replacing the traditional *j'ücrirai* is indicative of an important development. Unlike suffixes, which by definition are "fixed" and "fixed" after the stem, *i.e.*, in a head-last position, function words can be easily moved around and fitted into a head-last or head-first (SOV or SVO) pattern. This is not to say that function words are to be found exclusively in head-first languages. The Armenian postpositions (cf. *e.g. dzařin vra* lit. 'tree[GEN] on') make it abundantly clear that SOV languages can have function words and place them in a head-last pattern. But the same Armenian example and its Classical ancestor *i veraj tsařojn* (lit. 'on up tree[GEN])' also provide evidence that free grammatical morphemes can be moved around as word order is changed. At the synchronic level, German pre-poses auxiliaries in main clauses, where the order is SVO, and post-poses them in subordinate clauses, where the order is SOV. But precisely because they can be placed before the word they govern, function words can be consistent with the SVO order, whereas suffixes are not.

Moreover, since, wherever word order has evolved without interference, the shift has been from SOV to SVO, the formation of free grammatical morphemes is not only a more advantageous alternative to suffixation, but also a development consistent with, and contributing to, the overall process of language evolution (Cf. Givyn, 1979:275-6 for the head-last nature of ancestral languages; Newmeyer, 1998 on the unidirectionality of the shift from SOV to SVO in normal circumstances; and Bichakjian, 1997 on the aborted progress and course reversal in the evolution of the Armenian word order).

4. 4. A step-by-step development

Joan Bybee and her associates, Revere Perkins and William Pagliuca, have recently published a study that deserves considerable credit (1994). It deserves credit for the richness of the empirical data – 76 languages out of 75 phila – and for the wording of the title. The book is called *The Evolution of Grammar*. Such a title *mutatis mutandis* would be commonplace in biology or physical anthropology, but in linguistics, where the word *evolution* has been taboo for half a century, the choice implies commitment and indeed courage because the received view has been that linguistic features do *not* evolve, but ride a perpetual merry-go-round (cf. Bichakjyan, 1993 for a discussion of the taboo; and also Bichakjian 1988, where the word *evolution* is used and the process advocated).

One could point out that there is more to evolution than unidirectionality (see § 5), but the authors' recognition and advocacy of unidirectionality is a major move and a significant contribution to the understanding of language and linguistic features. In substance, what the authors argue is that grammatical markers are produced through a double-track attrition process whereby content words are phonetically shortened and/or simplified and semantically cored out and converted into a logically related grammatical feature. That is how – the authors argue – grammatical features are produced, and the process is not reversible.

The reasoning cannot be faulted, and the advocated process does account for the evolution of function words – the examples are galore – and of some suffixes (cf. Fr. *j'aimer-ai* 'I shall love' < Lat. *amāre habeō, habeō* being originally a content word meaning 'to hold'). But whether this process can account for the development of *all* suffixes and also of vowel alternation is less certain. It is cautiously hypothesized that initial syllable reduplication (cf. *e.g.* Lat. *cecidī*, the perfect of *cadō* 'to fall down') is a later product of earlier full word reduplication (1994:166; the Latin example is mine). In the case of the present example, *cecidī* would be the reflex of a hypothetical *cadō cadō*. What is more probable is that the technique of full word reduplication is ancestral to the technique of syllable reduplication, which is not to say that *cecidī* derived from a hypothetical *cadō cadō* through an attrition process. Whatever the chronological place of full word reduplication, the historical data clearly suggest that stem modulation, either in the form of partial reduplication, or vowel alternation, or consonant gemination (cf. Ar. *ʌ̄bat* 'he was striking,' *ʌ̄bbat* 'he was striking hard') is an earlier and more rudimentary strategy for adding grammatical features to a lexical item than segmental grammatical markers – be they suffixes or function words – that have been carved out of content words.

The empirical record combined with the inference of a cross fertilization between an increasing potential for abstraction and a greater use of mental objects suggests that

the evolution of grammatical markers went through three major developmental phases. First came perhaps full word reduplication followed by stem modulation, an instinctively prompted process with Ablaut as its most advanced and most systematic form; then came segmental markers with a specific linear *signifiant* linked to a given grammatical value. These segments were suffixes, and there are at least two reasons for their being indeed suffixes. First, because they probably developed out of some form of stem modulation. The Lat. *canō* 'to sing,' for instance, had an intensive variant in the form of *cantō*, where the intrusive stop was presumably the result of stem modulation, but could also be seen as the forerunner of suffixes. Moreover, when linear grammatical morphemes emerged the languages were of the SOV type, and in such languages suffixes, which by definition are head-last, are the appropriate form of grammatical marking. The third phase in the evolution of grammatical markers is indeed the reduction of content words to function words along with the tendency of placing them before the word they govern, an ordering that is consistent with the gradual shift of languages from SOV to SVO.

5. The Armenian reduplicatives and their place in the evolution of morphology

The foregoing was an attempt to trace the evolutionary history of grammatical markers. Evolutionary studies endeavor to identify the ancestor of an extant form, show how the prototype graded into its successive forms, and, last but not least, point out the selective advantages of each new form over its immediate ancestor. In section 3, it was argued that, if the artefacts of *Homo loquens* are studied like the artifacts of *Homo faciens*, major evolutionary developments become observable, especially in the Indo-European family, which has such a well-documented history. Section 4 dealt specifically with morphology, and the data suggested that the development probably started with stem modulation, went through suffixation, and has now reached the use of function words. The ancestral strategies have not completely disappeared, but their continued existence does not contradict the evolutionary account any more than extant carps, crocodiles, and cuckoo birds contradict the evolution of mammals. The observed evolution was also explained by pointing out that suffixation is more advantageous than stem modulation, and free particles more advantageous than bound morphemes.

Seen in an evolutionary perspective, West Armenian and Turkish reduplicatives must be concluded to belong to an ancestral form of grammatical marking. The conclusion, which *mutatis mutandis* also applies to the English vowel alternation of verbs such as *sing, sang, sung* and the cognate noun *song*, is ineluctable and must simply be accepted. But one must also point out that the reduplication process is perfectly adequate for a dichotomous distinction between the absolute and the superlative forms of adjectives, and moreover well-suited to convey in an expressive way the intensity of a

superlative. With its function word, the E. Arm. *lriv čermak* (lit. 'fully white'), is indeed more intellectual and displays a higher degree of linguistic evolution, but the more zesty *džep-džermag* of West Armenian has the advantage of being more expressive. The underlying conflict between intellect and emotions (also discussed in Jakobson, 1931) was elegantly captured by Pascal, when he wrote: "le coeur a ses raisons que la raison ne connaot point."

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Բ. Բիչակջյան

Կրկնությունները և ձևաբանության զարգացումը
Ամփոփում

Հոդվածը նվիրված է հայերենի կրկնությունների և նրանց՝ լեզվի ձևաբանական զարգացման գործընթացում ունեցած տեղի և դերի քննությանը։ Հաշվի առնելով այն հանգամանքը, որ կրկնություններն աշխարհաբարում առավելապես հատուկ են արևմտահայերենին (խոսքը հատկապես վերաբերում է սկզբնավանկային կրկնություն-ներին, օրինակ՝ ճեփ–ճերմակ, սեփ–սև և այլն), և արևմտահայերենն էլ զգալի չափով գտնվել է թուրքերենի ազդեցության ոլորտում, որին էլ խիստ բնորոշ են նման կրկնու-թյունները՝ հեղինակը որանք համարում է թուրքերենի ազդեցության արդյունք և տա-րածքային առանձնահատկություն։ Կովկասին և Անատոլիային բնորոշ տարածքային երևույթ է համարվում նաև m–ով սկսվող կրկնությունները, որոնք հատկապես բնեց-վում են կովկասյան աղբյուրից, քանի որ դեռևս հին հայերենում եղել են նման կրկնու-թյուններ, ինչը բացառում է թուրքական աղբյուրի հավանականությունը։ Ընդհակառա-կը, թուրքերենում նման կառույցների գոյությունը կարելի է բացատրել կովկասյան լե-զուների ազդեցությամբ։

Հոդվածում քննության են առնվում նաև լեզվի ձևաբանական զարգացման առանձ-նահատկությունները, այդ թվում փորձ է արվում որոշելու կրկնությունների տարբեր տեսակների հարաբերական ժամանակագրությունը։

Առանձնացվում է լեզվի ձևաբանական զարգացման երեք աստիճան՝ հիմքային փո-փոխություններ (այդ թվում նաև կրկնություններ և ձայնդարձ), վերջածանցում և ան-կախ բառերի գործածում, որոնք կոչված են կատարելու հատկապես քերականական գործառույթներ։

Б. Бичакджян

Редупликации и развитие морфологии

Резюме

Статья посвящена наследованию повторов в армянском языке, их месту и роли в морфологическом развитии   языка. Учитывая то обстоятельство, что повторы   в ашхарабаре характерны преимущественно для западноармянского языка (речь идет, в особенности, о повторах в начальных слогах, например, ճերմակ–ճերմակ "белоснежный" սեվ–սև "чернющий") и   западноармянский в значительной степени находится в сфере влияния турецкого языка, для которого весьма характерны подобные повторы, автор считает их   результатом турецкого влияния и ареальной особенностью. Автор относит к ареальным явлениям, характерным для Кавказа и Анатолии, и повторы, начинающие с *м*, которые имеются именно в кавказских языках, так как еще в древнеармянском были подобные повторы, что исключает вероятность турецкого происхождения. Наоборот, наличие подобных конструкций в турецком можно объяснить влиянием кавказских языков.

В статье рассматриваются также особенности морфологического развития языка в том числе   делается попытка установить относительную хронологию разнородных повторов. Выделяются три уровня морфологического развития языка (в том числе - повторы, аблаут), суффиксация и употребление отдельных слов, которые выделяются особыми грамматическими функциями.