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Title
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Permalink
https://escholarship.org/uc/item/5378602b

Journal
Proceedings of the Annual Meeting of the Berkeley Linguistics Society, 37(37)

ISSN
2377-1666

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Publication Date
2013

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Proceedings of the 37th Annual Meeting of the Berkeley Linguistics Society (2013), pp. 76-90

Editors: Chundra Cathcart, I-Hsuan Chen, Greg Finley, Shinae Kang, Clare S. Sandy, and Elise Stickles

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Reconsidering the "Isolating Protolanguage Hypothesis" in the Evolution of Morphology[1]

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1 Introduction

Much recent work on the evolution of language assumes explicitly or implicitly that the original language was without morphology. Under this assumption, morphology is merely a consequence of language use: affixal morphology is the result of the agglutination of free words, and morphophonemic (MP) alternations arise through the morphologization of once regular phonological processes.

This hypothesis is based on at least two questionable assumptions: first, that the methods and results of historical linguistics can provide a "window" on the evolution of language, and second, based on the claim that some languages have no morphology (the so-called isolating languages), that morphology is not a necessary part of language.

The aim of this paper is to suggest that there is in fact no basis for what I will call the "Isolating Proto-Language Hypothesis" (henceforth IPH), either on historical or typological grounds, and that the evolution of morphology remains an interesting question.

2 The Hypothesis

The hypothesis that the first language was isolating (leaving aside the question of mono- vs. polygenesis) is not new and is not specific to any theoretical framework (see for example Sapir 1921:67, and Fitch 2010:401-433 and references therein). The IPH seems reasonably uncontroversial because it builds on conventional knowledge about linguistic change and morphological typology, and because it cuts across theoretical divides in linguistics. It is also presupposed by non lin-

[1] I wish to thank Profs. Rajendra Singh, Denis Bouchard, and Robert Ratcliffe for helpful discussions; all mistakes are mine. This work was supported by a SSHRC Armand-Bombardier fellowship from the Canadian Government.

guists investigating the origin of language. An explicit formulation of it can be found in Comrie (1992), who acknowledges that it is not unproblematic but still finds it plausible.

The diachronic part of the argument rests on two well attested types of linguistic change: grammaticalization and morphologization. These respectively give rise to new morphemes and MP alternations. A classic example of grammaticalization is the development of adverbs in *-ment(e)* in Romance languages from an NP in the ablative case of the form [ADJ + *mente* 'mind']$_{NP}$ in Latin. Another classic example is used to illustrate morphologization: plural marking by umlaut in Germanic (e.g. German *Mutter* 'mother' ~ *Mütter* 'mothers'). Here, the loss of a plural affix *-i*, that was first reduced to *-ə*, made the fronting of the stem vowel opaque and was reanalyzed as the morphological exponent of the plural.

Because there are so many instances of theses two types of change, it is only good scientific practice to suppose, as uniformitarianism dictates, that these processes have been operating since the beginning of human language. The next step in the elaboration of the IPH is to generalize from countless occurrences of change to general principles that may have guided the development of language from its first appearance until the present day. This yields the following:

(1) Affixal morphology comes from independent words through grammaticalization.

(2) MP alternations (and all stem modification)[2] come from regular phonological alternations through morphologization.

It follows from these principles that the origin of morphology is not liable to an evolutionary explanation but is the result of normal historical development. In other words, the origin of morphology is the result of *change* as opposed to *evolution*, just like the transition from Latin to French is described in terms of change while the transition from ape to man is described in terms of evolution.

In order for the IPH to be a good explanation of the origin of morphology, principles (1) and (2) must fully characterize the general (long-term) direction of morphological change, and a purely isolating language must be a possible human language.

[2] The latter term should be used because it covers more ground. If the IPH is to be an explanation of the emergence of morphology, it must account for all cases of stem modification (cf. Wurzel's 1989 "non affixal morphology") that are not traditionally referred to as *morphophonemic* (e.g. reduplication, root-and-pattern morphology, infixation, and morphological metathesis)

3 Historical Bases

3.1 The Comparative Method and Internal Reconstruction

Although a better understanding of phonetics helped the Neo-Grammarians obtain impressive generalizations in the form of sound-laws, the Comparative Method has always been about sound *and* meaning (Kiparsky 1982), which is to say that it is about morphology.

The debate about long-range comparison and macro-groupings (Nostratic, Amerind, Proto-World, etc.) has led historical linguists to reaffirm what makes the method a proven tool to guard against similarities that are due to chance, phono-symbolism, borrowing, etc. Put negatively, this can be summarized in the form of a slogan: "Lexical comparison is not enough."

Relying heavily on Meillet (1913), Nichols (1995: 41-58) stresses the positive side of this, which she calls the "requirement of paradigmaticity:" the Comparative Method is based on the establishment of regular sound correspondences between *paradigmatic* sets of words; that is, morphological subsystems such as pronouns, declensions, and conjugations.

This method depends so much on morphology that questions can be raised about its applicability to so-called isolating languages. According to Nichols, we cannot reach as far back into a language's history if it is morphologically poor. For such a language, genetic grouping may be possible (and valid according to the standard Comparative Method):

> [W]here the family is sufficiently shallow that relatedness is self-evident (e.g. Tai, Chinese). […] Sometimes an isolating group fits into a deeper family that has more morphology and whose relatedness has been established in part on the evidence of that morphology (e.g. Chinese in Sino-Tibetan, Vietnamese in Austro-Asiatic, Kwa in Niger-Congo). (Nichols 1995:63)

The method is also dependent on morphological irregularities of the kind shown in (3) which are in principle absent from purely agglutinative languages.

> "Languages of the isolating type, and to a lesser extent languages with agglutinative morphology, lack the intersecting arbitrary classifications and grammatical accidence that make subsystems like the Indo-European gender system diagnostic of genetic relatedness." (Nichols 1995:63)

(3) Paradigmatic irregularities in Indo-European languages

	(Old) French	Latin	German	Old Slavic	Sanskrit
3sg 'is'	*est*	*est*	*ist*	*yestu*	*ásti*
3pl 'are'	*sont*	*sunt*	*sind*	*sãtu*	*sánti*

This is not to say that the history of these languages cannot be investigated rigorously or that genetic relationships among them cannot be established. The point is that the usefulness of the Comparative Method, *qua method*, is in a sense proportional to the amount of morphology (and, to a lesser degree, of allomorphy) present in a putative language family.

Another important tool in historical linguistics is the method of Internal Reconstruction which is in effect the procedure used to undo the effects of principle (2): MP alternations are presumed to come from originally automatic phonological alternations (Trask 1996:248). This technique raises a methodological problem formulated by Lass (1975): are there known human languages that are phonologically completely regular? As Comrie puts it:

> Such protolanguages are different typologically from most, probably all, attested languages, most or all of which have at least some morphophonemic alternation. [...This] violates the constraint of typological congruity between reconstructed and attested languages. (Comrie 1992: 204-205)

Putting this problem aside, it could still be said that there is a general trend towards more stem modification (MP alternations), but this overlooks a major source of morphological change that regularly counteracts and obscures the effects of morphologization, namely analogical levelling (see Trask 1996:108 on Sturtevant's paradox: "sound change is regular, but produces irregularity; analogy is irregular, but produces regularity.").

Principle (2) of the IPH predicts that, if we work back in time, we should find less stem modification. But, even though reconstruction has been applied extensively to Proto-Indo-European (PIE) itself, it still has a considerable amount of stem modification (see Fortson 2004) such as ablaut (roots, derivational affixes, and flexional affixes are subject to gradation), and stress shift (cf. "internal derivation"). These have not been successfully reduced to previous regular phonological processes.[3]

What is worse is that stem modification, assumed to be an irregularity in mostly affixing IE languages, cannot be viewed as irregular in the same sense when it is the preferred morphological process of a language, which is apparently the case for Semitic languages under the traditional analysis.

> With regard to Semitic the orthodox view is that proto-Semitic was templatic, i.e. that "roots" and "patterns" were always there from the beginning. [...] most people who have thought about this problem at all assume that the Semitic system is conservative and essentially identical to Proto-Afroasiatic. [...] I don't think that there is any evidence for the development of stem-changing morphology (ablaut, infixation) out of stem-external af-

[3] It has even been suggested, although this is a marginal position, that ablaut in PIE reflects a Semitic-like root-and-pattern morphology in (pre)PIE (Pooth 2009).

> fixation in all of Afroasiatic, even though the proto-language must go back some 10,000 years. (Ratcliffe p.c.)

3.2 Grammaticalization, Boundedness, and Lexicalization

If we follow Heine (2003:583) (see also Sapir (1921:114), and Bréal's (1897) *Loi de spécialité*), we must recognize that grammaticalization is primarily a semantic phenomenon: the bleaching of content words into more and more grammatical or functional items (either free or bound).

As such, it is not in itself a source of morphology. It can only be construed as such a source if it is supplemented with loss of phonological autonomy and with phonological erosion. Unfortunately, bleaching and phonological erosion are apparently independent processes. For example, while bleaching explains the transition of the French word *pas* 'step' from a noun to a negative particle, it cannot explain why it did not become a suffix attaching to verbs.

Heine and Kuteva (2011) actually demonstrate that grammaticalization is apparent even in a so-called isolating language like Mandarin that has not developed prototypical inflectional morphology but instead uses function words to mark grammatical relations.

> [T]he lack of boundedness of form does not mean lack of grammaticalization. Grammatical categories can be expressed by non-bound forms; in fact, this is the general tendency in earlier stages of grammaticalization. This work views phonological erosion - which leads to cliticization and ultimately to affixation - as a possible (but certainly not necessary) phenomenon accompanying grammaticalization. (Heine & Kuteva 2011:522)

The inclusion of phonological erosion in the "cycle of grammaticalization" by Heine (2003) and also Croft (1990), among many others, is thus misleading because it suggests that grammaticalization is a constant trend toward more morphology. As a matter of fact, grammaticalization also plays a role in the development of analytical exponence.

The transition from French *je mangeai* to *j'ai mangé* (both meaning 'I ate') is an example of the rise of a periphrastic construction where a synthetic one used to be available. In this case, grammaticalization may be responsible for a *loss* of morphology: the periphrastic punctual past tense has replaced the synthetic "simple past," which also expresses punctuality, in many dialects of spoken French. It is clear that grammaticalization is and has been at play throughout the history of English and French even though on the whole they are largely moving toward a more isolating type.

Principle (1) of the IPH predicts that if we go back in time we should find less and less polymorphemic words, but this cannot be true because of another general trend that creates monomorphemic words out of polymorphemic words (com-

pounds, derived and inflected forms) through lexicalization and phonological change (erosion).

There are local but very numerous examples of this trend: for example, the origin of the English word *window* as an Old Norse compound *vindauga* 'wind-eye' or the origin of the French verb *arriver* 'arrive' from the Latin *ar-rīpāre* 'to touch the shore.' There are also systemic examples: in French, as in most Romance languages, nouns inherited from Latin have their source in a case marked form (nominative or accusative usually) which, according to most standard theories of morphology, were composed of at least a stem and a case suffix. This last case also shows that monomorphemic words can be created without lexicalization: the loss of the case system in Romance languages is the result of regular phonetic change.

3.3 The Opacity of Linguistic Change

After this brief examination of the historical bases of the IPH, it seems that it is possible to argue for the mirror-image hypothesis: a morphologically rich protolanguage could be posited on the basis of two types of morphological change (lexicalization and levelling) that are as well established as (1) and (2) and that we have to assume have been active throughout the history of human language. But this new hypothesis would suffer from the same defects as the IPH.

Instead, we have to recognize that we are faced with complementary types of change that reflect competing pressures towards complexity *and* simplicity.[4] A more complete portrayal of morphological change brings into sharp focus the potential *opacity* of historical developments.

(4) The "Cycle of Complexity"

Complexification mechanism	Result	Result	Simplification mechanism
Grammaticalization	more morphology	less morphology	Lexicalization
Morphologization	more stem modification	less stem modification	Levelling

4 Typological Bases

In order to validate the IPH it is important that the term "isolating" refer to a purely isolating language (with *no* morphology), otherwise the hypothesis cannot

[4] It is not surprising that these mechanisms act in opposing directions, but this calls into question Comrie's (1992) notion of complexity. It is to be expected that human language is the resolution of conflicting pressures towards simplicity (e.g., in the phonological domain, perceptual clarity and ease of articulation). Languages (including the original language described by the IPH) cannot be unilaterally simple if they are to be useful means of communication.

be an account of the first appearance of morphology in human language.

The 19th century classification of languages according to their morphological characteristics is a holistic scheme which was hoped to be predictive of other features of the grammars of the classified languages as well as to reflect phylogenetic relationships among them as it encapsulated a presumably universal path of change (Morpurgo-Davies 1975, Croft 1990).

In fact, the IPH can be traced back to Bopp's ideas about the disintegration of the original "Indo-Germanic" language into the attested classical languages and then the modern European languages. According to this view, morphological types are also historical stages through which languages "evolve" from a state of perfection to a final stage of decay (cf. Lehmann 1967:39). The modern version of this teleological conception takes advantage of the cyclical nature of change and supposes a path from the simple (isolating) to the complex (fusional). The parallelism is striking.

(5) Developmental path

Bopp:			*agglutinating*	>	*fusional*	>	*isolating*
IPH:	*isolating*	>	*agglutinating*	>	*fusional*	>	
Processes:	Grammaticalization		Morphologization				

Bopp's hypothesis was abandoned during the 19th century:

> By this demonstration Grassmann also undermined the notion that language developed from an analytic to a synthetic structure through an agglutinative. With it he did away with the close relationship that had been observed previously between genealogical and typological classification. After the publication of his article we find fewer and fewer references to the typological structure of a language in comparative treatments; and when typology is taken up by Finck in the definitive treatment of the nineteenth-century approach there is no reference to genealogical classification. The appealing notion of a straightforward development of language had been abandoned. (Lehmann 1967:109-110)

Modern accounts (cf. Comrie 1981, Croft 1990) only refer to the typology for historical reasons and to point out that it is not only disconnected from the facts of language change, but it is also of little use as a strictly synchronic tool in modern typology because of two main problems.

1) The languages are classified according to at least two independent parameters: the index of fusion (degree of divergence from the ideal morpheme as a biunique unit of form and meaning) and the index of agglutination (number of morphemes per word) (Haspelmath 2009 has three parameters, Plank 1999 has eight logically independent parameters). This yields not one but two perhaps unrelated continuous scales of morphological complexity.

2) The classification has apparently no predictive value as to the presence or absence of other properties outside of the morphology. Even the fact that a language has fusional nominal morphology for example does not predict the same for verbs (Haspelmath 2009).

Despite the fact that the morphological classification on which the IPH partly rests is of little use either for historical or synchronic analysis, we can ask the following questions: is there a correlation between time-depth and morphological complexity, and is a purely isolating language possible?

4.1 Languages Without Morphology?

Since everybody agrees that there are no purely isolating languages, this is admittedly a redundant exercise, but it seems nevertheless necessary in order to show to what extent they diverge from the ideal type. Some of the most cited examples of "almost-isolating" languages include Vietnamese, Indonesian, and Chinese.

Vietnamese, according to Nguyễn (1997) who devotes 40 pages to its morphology, has productive reduplication and compounding as well as derivational prefixes and suffixes. As for Indonesian, Mueller (2007) devotes 22 pages to the description of patterns of compounding, reduplication, derivation (around 25 affixes), and inflexion (3 affixes). According to Packard (2006), Mandarin is "moderately isolating". The issue for him is whether Mandarin is analytic, not whether it is isolating.

> As it turns out, many (if not most) Chinese words are in fact dimorphemic, consisting of either (1) two free content morphemes (compound word), (2) one free and one bound content morpheme or two bound content morphemes (bound root word), (3) a free or bound content morpheme plus a word-forming affix (derived word), or (4) a free content morpheme plus an inflectional affix. (Packard 2006: 356)

The label "isolating language" is thus a somewhat misleading simplification, but most importantly, as suggested by Packard (2006), it must be recognized that while there are arguably purely analytic languages (marking grammatical relations with "independent" words and having no "obligatory" morphology), there are no languages without morphology, and that it is surely a mistake to conflate analycity and monomorphemicity. This conflation is probably to blame for the continued use of the term "isolating".

Because it seems that no modern language with extant history is actually isolating, we may turn to reconstructed protolanguages to see if the typological basis for the IPH can be substantiated.

Closely reflecting the earliest recorded IE languages, PIE is expectedly a highly fusional language. This is well illustrated by one of countless examples of

distributed and cumulative exponence:

(6) PIE perfect marking (Fortson 2004: 93-94):

*me-	món-	h_2e
RED.PERF-	think.PERF-	1sg.PERF

Here, the perfect is marked, in the singular, by 1) reduplication with *-e-* insertion, 2) stressed o-grade stem, and 3) a specific 1sg marker. (6) also demonstrates the pervasiveness of cumulative exponence in PIE: every morph realizes at least 2 semantic units (morphosyntactic features or lexical meaning). The fusional character of PIE is not limited to verbs as it is also characteristic of nominal inflection.

To be sure, it is not only in the IE domain that the protolanguage reflects the morphological type of the daughter languages. Hetzron (1976) uses a morphological pattern of the root and pattern kind precisely to establish the major subdivisions of Proto-Semitic. This pattern involves the formation of tense/aspect specific stems and is found throughout the Semitic languages (just as is the so-called broken plural). Reconstructed languages are, by definition, "prototypical model[s] of the daughter languages" (Haas 1966:24).

(7) Root-and-pattern morphology in Proto-Semitic (Hetzron 1976:103)

	Akkadian	South-Semitic	Central Semitic
Non-past	*-qattVl*	*-qät(t)əl*	*-qtVl(u)*
Past	*-qtVl*	*qätVl*	*qatVl-*
Jussive	*-qtVl*	*-qtVl*	*-qtVl*
Permansive	*qatVl-*	–	–
Root *q-t-l* 'kill'; V=thematic vowel; prefixes and suffixes not indicated.			

Under the unilateral view of complexity that is behind the IPH, we would expect, all things being equal, younger languages to be simpler than older ones. This is surely an overly simplistic idealization (this is what the *ceteris paribus* clause is for), but it seems to be the only way to find empirical confirmation for the hypothesis. One kind of confirmation would be to see that the developmental path implied by the IPH is reflected in young versus old languages *and* that the differences in morphological complexity are greater between these than between, say, English and Latin.

The presence of morphology in relatively young languages has been termed a paradox (Aronoff et al. 2005)[5] because it seems to go against conventional knowledge about the development of morphology (principles (1) and (2) of the

[5] Aronoff et al. attribute the unexpected presence of non-affixal morphology in sign languages to a different modality, a questionable hypothesis, but do not offer an explanation for the presence of affixal morphology.

IPH). Aronoff et al. describe affixal and non-affixal morphology in American and Israeli Sign Language. Non affixal morphology is notably found in verbal agreement, aspect (durational, intensive), classifier constructions, characteristic adjectives, and deverbal nouns. Sign languages also exhibit extensive use of reduplication, and productive compounding.

Regarding Creoles and Pidgins, there seems to be a growing consensus that they are not simpler than older languages in any meaningful way. For morphological complexity, it is safe to say that all pidgins and creoles have morphology (Plag 2006 and references therein): "It is a myth that creoles [...] do not have inflexional or derivational morphology" (Bakker 2002:24).

Furthermore, even if we were to assume that inflectional morphology is by some measure more complex than derivational morphology, we could not support the traditional view of pidgins being simpler than creoles in view of Bakker's (2002) finding that pidgins display *more* inflectional morphology than creoles. As for the presence of non-affixal morphology, the papers in Kouwenberg (2003) demonstrate that reduplication is an almost universal feature of pidgin/creoles.

Any number of carefully chosen examples could not do justice to the morphological complexity of young/simple languages, but consider the case reported by Aronoff et al. (2005:337) of a most atypical simple language which uses not one but two "levels" of non-affixal morphology (reduplication and morphological stress) to independently mark two grammatical categories: "In Mauritian Creole, for example, the stress pattern distinguishes augmentative from attenuative, both of which involve reduplication".

4.2 The Logical Possibility of a Pure Isolating Language

If we are not prepared to state the obvious – that all languages have morphology – before all putative cases of isolating languages have been examined, then we should at least consider what a purely isolating language would look like.

Comrie (1981:45) imagines the case of a pure synthetic-fusional language where each word is a sentence that is only related suppletively to other sentences, a clearly impossible language. In a purely isolating language, all words are phonologically distinct (they share no recurrent sub-part) although they may be semantically related. This means that when speakers need to coin new words for new realities (things or events) that are sufficiently salient to deserve a *name* rather than a description they have to create them *ex nihilo* (on derivation and compounding as naming devices see Koefeld and Van Marle 2000). On the other hand, when speakers of that hypothetical language encounter a new word, they have no way of knowing its meaning except by asking for a definition.

This is a highly unlikely human language. These awkward situations are not typical in human languages precisely because of the role played by morphology: in Saussurean terms, the partial motivation of complex word forms.

5 Discussion: The Perils of the Method

The investigation of evolutionary origins is by necessity indirect and speculative. The IPH is an extrapolation back in time, to maybe 100,000 years (appearance of *homo sapiens*), of processes that we know have been at play during the 10,000 years or so of linguistic history that are accessible *given the methods that we have*. There is no data for the intervening 90,000 years.

If we look at the attested cases of change that are used to support principles (1) and (2) of the IPH, it is clear that, in evolutionary time, they happen almost instantaneously: the creation of adverbs in *–mente* took place during the period between Vulgar Latin and Old French (*bellement* 'beautifully' is attested in the 11th century), while the morphologization of umlaut took place in the period of Old High German (roughly 500-1000 A.D.). It is also clear that (1) and (2) do not reflect the overall path of change of Romance and Germanic which has been towards a dramatic simplification of the inherited IE morphological system.

It thus seems that grammaticalization and morphologization are short-term changes, not general trends, and that they do not affect the general character of languages (their morphological type, intended in a holistic sense). Why does the IPH continue to be viewed as a truism despite these facts? Because it is inherent to the methods of Comparative Grammar and morphological typology.

Comparative Grammar and Internal Reconstruction seem to point towards an isolating protolanguage without MP alternations because such a language represents the limiting case of these techniques: they *require* paradigms and MP alternations. As for the metric of complexity found in morphological typology, it is based on the Item and Arrangement model of morphological analysis. Here, simplicity is defined as the strict observance of the principle of biuniqueness ("one meaning equals one form") and complexity can be measured either by the number of morphemes per word *or* by the segmentability of the morphemes (Bazell 1966). Thus, isolating is simple; agglutinating is complex in the first sense; fusional is complex in the second sense; and languages are classified according to the types of problems they pose for this particular kind of analysis:

> For one can classify languages precisely according to the problems of analysis which each one presents. (Bazell 1966:37)

> In other words, we ask *not* in what *determinate* way morphological segmentation and classification apply to this and that language. We ask more primitive questions: *whether* segmentation or classification apply in a determinate way [...]. (Bazell 1966:40, emphasis in the original)

On the historical side and on the typological side, it seems that we "attribute to the object of study what is only a requirement of the method[s] of inquiry"

(Coseriu 1973:14). For the evolution of language (and morphology), these methodological biases cannot be ignored precisely because we cannot rely on actual data.

6 Concluding Remarks

To appeal to a random genetic mutation or to a stroke of lightning in order to explain the evolutionary origins of language, or of one of its components, is clearly not an explanation, but it is equally unhelpful to keep a demonstrably wrong hypothesis because it may be the only available alternative to date to the argument from ignorance. Both of these views risk having the effect of preventing interesting investigations of the *problem* (not the *mystery*) of the evolution of morphology.

Some of the questions that are raised by a critical examination of the IPH and that bear on the problem are: 1) should non-affixal morphology continue to be treated as non-prototypical in light of the fact that it can't be explained away by the IPH (cf. Ratcliffe 2008); 2) could derivational morphology as a mechanism for lexical creation—and organization (Bybee 1988)—make a crucial difference in going from the limited size of lexicons in non-human communication systems to the vastness of human lexicons; and 3) what can linguistic change contribute in a different evolutionary scenario for the origin of morphology?

Regarding this last question, I would like to suggest that (1) and (2) do give us a "window" into the evolution of language, not by undoing their effects all the way back to the beginning, but by considering their directionality: phonological alternations morphologize and syntactic combinations morphologize, but there are virtually no examples of change in the opposite direction. Thus, grammatical patterns seem to follow a unidirectional path of change that leads to morphological patterns (Joseph and Janda 1988).

When a (gradual) change from one grammatical modality to another (from one "module" to another) is in progress there is a point where both analyses are equally possible, and, rather surprisingly, speakers choose a morphological one. According to Joseph and Janda (1988; see also Joseph 2003), the unidirectional path to morphology reflects the fact that the brain prefers, all things being equal, a morphological analysis when it is possible. They claim that this is because grammar is, synchronically, "morphocentric," but it could also be an indication that, in the evolution of language, morphology was here first.

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