

LINGUISTIC ADAPTATION AT WORK? THE CHANGE OF WORD ORDER AND CASE SYSTEM FROM LATIN TO THE ROMANCE LANGUAGES

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Understanding language evolution in terms of cultural transmission across generations of language users raises the possibility that some of the processes that have shaped language evolution can also be observed in historical language change. In this paper, we explore how constraints on production may affect the cultural evolution of language by analyzing the emergence of the Romance languages from Latin. Specifically, we focus on the change from Latin's flexible but OV (Object-Verb) dominant word order with complex case marking to fixed SVO (Subject-Verb-Object) word order with little or no noun inflections in Romance Languages. We suggest that constraints on second language learners' ability to produce sentences may help explain this historical change. We conclude that historical data on linguistic change can provide a useful source of information relevant to investigating the cognitive constraints that affect the cultural evolution of language.

1. Introduction

If language has evolved primarily through cultural transmission (e.g., Christiansen & Chater, 2008), then language evolution and language change may not be clearly distinct in a theoretical sense. Rather, it may be expected that the processes proposed to underlie patterns of historical language change (e.g., grammaticalization) also have been at play across the longer timescale of language evolution (e.g., Heine & Kuteva, 2009). Thus, diachronic change may be construed as a microcosm of language evolution and potentially provide a rich source of data to illuminate potential constraints on linguistic adaptation.

In this paper we ask: Are there diachronic data on language change that indicate that constraints on human cognition have shaped language on a historical time scale? To answer this question, we consider as a case study the

change from Latin to the Romance Languages, focusing on how limitations on production may affect linguistic adaptation. We sketch an account that highlights production as one of the multiple cognitive constraints influencing historical language change. This account highlights the sequencing problems a second language (L2) learner faces when producing a sentence. Finally, we broaden our discussion of the mutual relationship between L2 acquisition and language evolution beyond Latin and the Roman languages to English and Chinese. Together, these observations corroborate our suggestion that historical language change may be construed as *linguistic adaptation* to cognitive and social constraints.

2. The Diachronic Change from Latin to the Romance Languages

Taking the development of Latin towards modern Romance languages as an example of linguistic adaptation, we concentrate on simple transitive sentences because they can be considered the neutral prototype of other more complicated constructions (Slobin & Bever, 1982). There are two interesting changes to this sentence type occurring in the time span between Latin (~500 BC – AD 500) and recent Romance languages:

- i) While Latin had a seven case system, all subsequent Romance languages use fewer cases.
- ii) The word order in simple transitive sentences has changed from OV (foremost realized in SOV and OSV) to SVO.

Consider for example the following aphorism by Vergil:

(1) *Fata viam invenient*
fate-NOM-PL way-ACC-SG find-3P-PL-PRE-ACT

(2) *I fati trovano una via* (direct Italian translation)

Latin makes use of the accusative marker to indicate who finds whom: *fata viam*, but in Italian the marker has vanished and the problem of assigning thematic roles is solved by using a strict SVO word order. The nature of the change in word order has been the subject of some debate among specialists of Romance languages (e.g., Pinkster, 1991; Lee, 2002; Salvi, 2004). We therefore tabulated the number of sentences with different {S,O,V} ordering in simple declarative sentences. Using the two complete sets of counts from the classical period (Caesar and Petronius) and the later *Peregrinatio* (AD 400) from Pinkster (1991), we obtained the distribution shown in Figure 1. As Pinkster notes, S preferably takes initial position and O precedes V more often than the other way around. This displays the OV pattern as predominant, albeit in a flexible system.

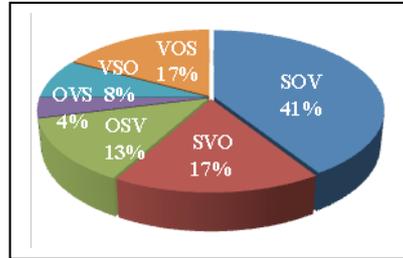


Figure 1. The frequencies of different word orders in Latin (based on Pinkster, 1991:72).

In contrast, modern Romance languages are widely assumed to have a clear predominance of SVO word order (Harris 1988; Lee, 2000; Salvi, 2004). For example, Slobin and Bever (1982) report word order frequency data for Italian indicating a clear predominance of SVO sentences (adults: 82% SVO, 2% SOV, 0 % OSV; children: 72% SVO, 1% SOV, 1 % OSV). Thus, usage of the OV patterns has declined to a minimum in Romance languages, such as Italian.

3. Production Constraints as a Source of Language Change

Past work investigating how cognitive constraints may shape language change has primarily focused either on limitations on learning (e.g., Polinsky & Van Everbroeck, 2003) or parsing (e.g., Hawkins, 2004). Because comprehension can typically be accomplished by integrating partial information, whereas production requires specifying the complete utterance, we suggest that the latter may cause more problems for L2 learners and therefore become a factor in the shaping of languages with many non-native speakers.. Consider the diagram in Figure 2, illustrating the complex dependency relationships within the previous Latin sentence in (1). Subject agreement information has to ‘bypass’ the direct object to get to the verb. This is likely to complicate processing further in sentences with embedded structures due to memory limitations (Hawkins, 2004). Moreover, the information required to inflect the direct object correctly, namely the thematic role assigned by the verb, is not given until the end of the sentence. Thus, thematic role assignment has to be ‘back-projected’ from the verb to the subject and object, complicating the left-to-right sequencing of words in language production. The more complex the sentence, the more complex the role assignment becomes. In the example of a ditransitive sentence in (3), the speaker already has to assign three roles and therefore inflect two nouns:

- (3) *Magister puell-ae libr-um dat*
 teacher-NOM-SG girl-DAT-SG book-ACC-SG give-3P-PRE

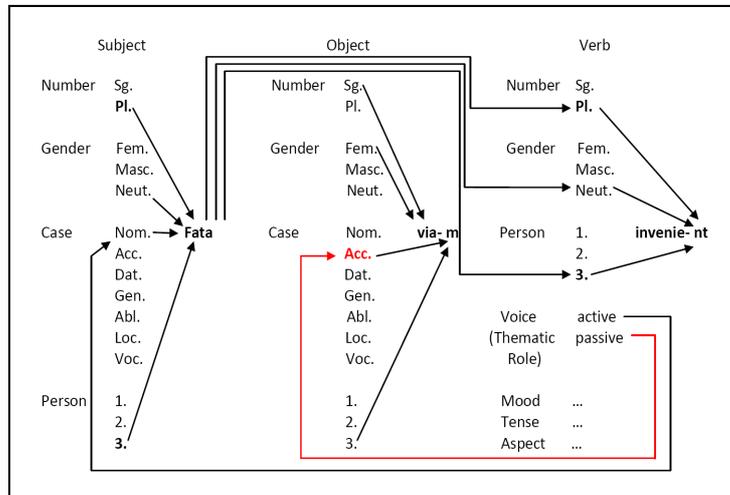


Figure 2. SOV with case marking in the Latin sentence *Fata viam invenient*.

This complexity contrasts with the much simpler set of dependency relationships shown in Figure 3 for the Italian transitive sentence in (2). Crucially, all arrows proceed from left to right, except the one assigning the thematic role of agent to the subject (mapped onto the voice character of the verb). But as the subject does not inflect according to the thematic role in Italian (at least for proper nouns) this is not a problem. Thus, Italian SVO word order fits well with a simple left-to-right sequence production mechanism. Obviously there is a tradeoff between two constraints within such simple transitive sentences. On the one hand, the verb should follow the subject because then the information regarding agreement of person and number is available when the

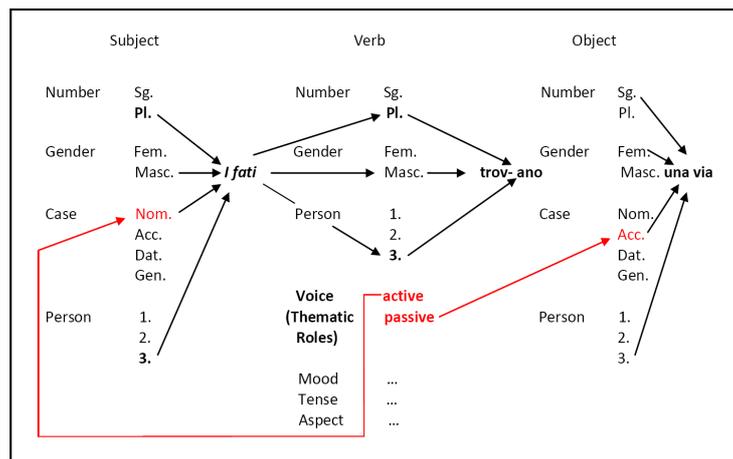


Figure 3. SVO without case marking in the Italian sentence *I fati trovano una via*.

verb has to be inflected. On the other hand, the verb should precede both subject and object to facilitate case marking. Given these constraints, the change from Latin OV and case marking of proper nouns to Italian SVO and no case marking makes sense for a left-to-right sequencing production system.

4. Meeting the Needs of Adult L2 Learners of Latin

Native speakers of Latin would, of course, have been able to learn, process, and produce constructions such as (1) and (3) despite their complex dependency relationships, just as children are able to understand *who did what to whom* in Turkish, another heavily case-marked language with flexible but OV-biased word order (Slobin & Bever, 1982). Therefore we suggest that an important pressure toward the simpler dependency relationships found in the Romance languages came primarily from adult L2 learners, and only to a smaller extent from L1 acquisition. As the Roman Empire grew, (Vulgar) Latin became its *lingua franca* and thus ‘recruited’ large numbers of non-native speakers. This may be seen as a large-scale historical parallel to the change from *esoteric* to *exoteric* communication, described by Wray and Grace (2007): Whereas the former is shaped by children’s learning abilities, allowing the existence of idiosyncratic regularities that are hard for adult learners to master, the latter is tailored to the need for cross-group interactions, oftentimes by adult L2 learners. Thus, the problems facing adult L2 learners of Latin SOV (respectively OSV) word order and case marking when producing a sentence as sequential *output* may have provided an important pressure towards the Romance SVO without case marking.

But is there evidence that the ‘recruitment’ of non-native speakers might have impacted the structure of Latin? Herman and Wright (2000) describe the Latin speech community between 100 BC and 500 AD, suggesting that speakers of other languages (e.g., slaves, merchants, inhabitants of the Romanized provinces) were continuously integrated into the wider Latin speech community on a large scale. This led to the atypical situation in which non-native L2 learners in many geographical areas outnumbered native speakers of Latin. Based on a detailed analysis of changes to Latin’s formerly rich case system, Herman and Wright argue that the large amount of L2 speakers is likely to have shaped Vulgar Latin both in terms of morphology and syntax. The overall result would have been an increasing number of confusions between cases that previously had been distinctive: Ablative constructions were replaced by nouns with accusative markers and dative was used with prepositions to indicate possession instead of the classical genitive. Importantly, for our purposes,

Herman and Wright note that (2000: 54), “The accusative was originally used for the direct object of a transitive verb, and transitivity itself increased. Many verbs in Classical Latin were followed by a noun in the genitive, dative, or ablative case, but in Vulgar texts these verbs tend to take an accusative.” Because the word order in the period of Vulgar Latin still displayed mainly OV patterns, the tendency to over-generalize accusative case may be seen as a consequence of the difficulty of ‘back projecting’ thematic roles outlined in Figure 2. As a consequence of this ambiguous use of the case markers, the full system could no longer be maintained, and it shrank to a minimum. Therefore another strategy for solving *who did what to whom* dependencies was needed and emerged in later centuries in the form of a fixed SVO word order.

5. Possible Effects of L2 Acquisition beyond the Romance Languages

The claim that fixed SVO word order without case marking should be easier to use by L2 learners than flexible OV word order with case marking may appear problematic when compared to the typological frequencies of the world’s languages. Standard typological analyses in terms of number of languages indicate that SOV word order is predominant: SOV 497; SVO 435; VSO 85; VOS 26; OVS 9; OSV 4 (Haspelmath et al., 2005: 330). However, if we look at the number of speakers that each language has, then a different picture emerges. Figure 4 shows the number of speakers for the twenty most frequently spoken languages in the world (*SIL Ethnologue online version*) and their respective word order according to the online version of WALS (Haspelmath et al., 2005). Adding up the numbers of speakers of these languages, a different pattern emerges: roughly 2,390 million speakers of SVO languages against 894 million of SOV languages. Even when taking statistical error into account (+/- 25%) SVO still outnumbers SOV by far in terms of number of speakers.

Strikingly, this predominance of SVO patterns is mainly due to the fact that the three most widespread languages: Chinese, English and Spanish are SVO languages. Perhaps English and Chinese have also been subject to pressures from L2 learners? Although there is much debate over why and when exactly the word order changed from SOV or OSV (with tendency to be flexible) in Old English to SVO in modern English (see Pintzuk, 1999, for discussion), it is nevertheless widely agreed that it changed in this way. In the case of Modern and Old Chinese, Xu (2006) argues that in earlier periods, Mandarin was a typologically “mixed language” because it oscillated between verb-object (VO) and object-verb (OV) word orders. However, in a text-count study of written and spoken Modern Mandarin, Sun (1996) found that 90% of the syntactic objects

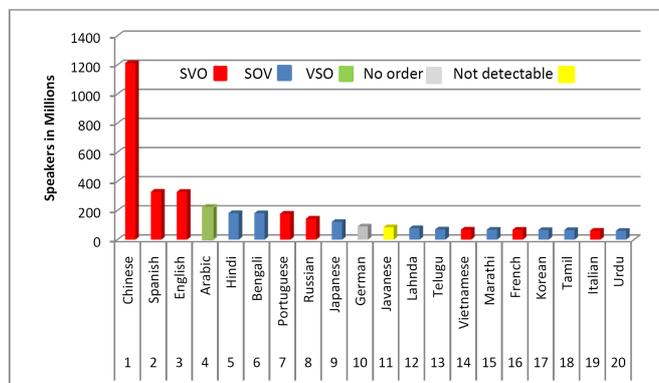


Figure 4. WALS distribution of word order patterns mapped onto SIL counts.

followed the verb (VO), whereas OV with grammaticalized verb-constructions marking agent/patient dependencies only occur in 10% of the sentences, pointing to SVO as the dominant word order. When these observations are combined with our analysis of Latin, we may speculate that production pressures from L2 learners can push OV languages with complex systems of solving *who did what to whom* ambiguities toward a fixed SVO word order with little or no additional marking.

6. Conclusion

Because there seems to be a tradeoff between strict SVO word order without case marking and flexible OV word order with additional morphological markers (Greenberg, 1966: Universal 41), it is an interesting fact that all Romance languages ‘chose’ the first strategy to solve ambiguities relating to *who did what to whom* in simple transitive sentences. In this paper, we have suggested that this change may be an example of how language adapts to the human brain. In particular, the difficulties in determining the relevant dependency relationships and generating the appropriate sequence of case-marked words would make L2 Latin learners prone to errors. L2 production pressures may furthermore have played a role in the similar shift from a relatively flexible word order to fixed SVO in English and Chinese, both of which have historically recruited a large number of L2 speakers. More generally, our analyses suggest that historical language change can be used as a source of data for understanding the kind of constraints that may have shaped linguistic adaptation over evolutionary time.

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