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# THE EVOLUTION OF CLITIC SYSTEMS:
## A LEXICALIZATION EXPLANATION

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THE CLITICS DISCUSSED in this paper are mainly object pronouns and auxiliary verbs.[1] The evolution of the clitic systems in question—as shown in (1)—comprises the transformation of second position (2P) systems (such as those of Latin, Old Church Slavic, and modern Serbian and Croatian) into verb-adjacent clitic systems (such as those of French, Spanish, Bulgarian and Macedonian),[2] and the subsequent development of verb-adjacent clitics into verb-affixes.

(1)   A              B           C             D            E
    Independent  →  2P clitics   →   2P clitics   →   Verb clitics  →  Verb affixes
    Words        (word-based) (constituent-based)

1. THE EVOLUTION FROM STAGE B TO E. For reasons that will become apparent in the course of the paper, stages B to E in (1) will be discussed starting with E and working backwards. Stage E is illustrated by the future tense suffixes of French. Thus French *fera* '(he/she/it) will do/make' derives ultimately from the Vulgar Latin compound form *facere habet* (Harris 1978:145):

(2)     Vulgar Latin *facere habet* → Modern French *fer-a* '(he/she/it) will do/make'

Similarly, in the Russian of (3), *-ся* /sja/ 'self' is now a verb-suffix rather than an independent reflexive pronoun (Jakobson 1971:19–20):[3]

(3)     брить-ся /brit'-sja/                                                      [Rus]
        to shave-self
        'to shave (oneself)'

Stage D is illustrated by the French example (4)a. By contrast, (4)b—with its (italicized) clitics at 2P rather than adjacent to the verb—is ungrammatical, and thus shows that French clitics cannot occur in second position (2P) if this involves separating them from the verb.

(4)   a. D'habitude Pierre *me*    *l'* achète le    lundi                          [Fre]
         usually      Peter [to] me it buys   the  Monday

(4)  b. *D'habitude *me*      *le* Pierre achète le  lundi                        [Fre]
          usually        [to] me it Peter  buys   the Monday
          'Usually Peter buys it for me on Mondays'

Stage C, with clitics after the first constituent, is illustrated by Slovenian example (5)a, in which the 3rd person singular clitic auxiliary *je* follows the first syntactic constituent, the noun phrase *njegov obraz* 'his face'; and (5)b—in which the clitic is adjacent to the main verb *pordel* 'reddened' rather than at 2P—is ungrammatical in modern spoken or written prose, though such word orders can be encountered in poetry. (The additional ungrammatical example (5)c is contrasted with Croatian example (7), discussed below.)

(5)  a. Njegov obraz *je*      v  trenutku škrlatno pordel                        [Sln]
          his        face aux.3sg in instant    scarlet   reddened
     b. *Njegov obraz v  trenutku škrlatno *je*        pordel                     [Sln]
          his        face in instant    scarlet   aux.3sg  reddened
     c. *Njegov *je*        obraz v  trenutku škrlatno pordel                     [Sln]
          his    aux.3sg face in instant    scarlet   reddened
          'Instantly his face turned scarlet'

Stage B, at which clitics may interrupt a clause-initial complex constituent by being attached to the first word, is the earlier stage (Benacchio & Renzi 1987:5, Bennett 2002:174) illustrated by the Latin example in (6) and the modern Croatian example in (7)—where, however, the possibility also exists of placing the clitic cluster *će vam* after the whole noun phrase *moj sluga* 'my servant':

(6)     Populus *se*     Romanus erexit                                          [Lat]
         people    itself Roman      raised
         'The Roman people rose up'
(7)     Moj *će*  *vam*  sluga dati  rječnik                                     [Cro]
         my   will  to-you servant give  dictionary
         'My servant will give you the dictionary'

Comparable examples to (7) for Slovenian may be found in early texts (Stone 1996:217) and might still be encountered in poetry. However, they do not occur in modern Slovenian prose or spoken Slovenian; thus (5)c is marked as ungrammatical.

2. LEXICALIZATION. 'Lexicalization' in the title of the paper can be clarified by reference to Lamb (1999:163–70, 179, 271), together with information about the frequency of occurrence of particular English words. Lamb notes (163) that even though a word such as *happiness* can be understood on the basis of the meanings of its constituent morphemes, the frequency with which this combination occurs is such that the lexicon of the typical speaker will contain not just the separate lexemes *happy* and *-ness* but also a complex lexeme *happiness*. Moreover, for this to be the case it is unnecessary for the meaning of *happiness* to be

in any way idiomatic: 'it is repeated use rather than degree of idiomaticity that determines presence or absence of a higher-level lexical [node]' (165, 271). Furthermore, the more frequently any part of the linguistic network (or wider cognitive network) is used, the easier it is to use it again: 'The pathways of the brain are like pathways through a meadow or field or jungle—the more they are used the easier they become to use again' (179). In formalizing this phenomenon in Relational Network Grammar (RNG), lines of different strengths are used (e.g. they are drawn with different thicknesses) and it is assumed that the strengths of the lines corresponding to frequently used items will increase over time. A Google search on the words *happy*, *happiness*, *full* and *fullness*, carried out on July 5, 2005, revealed that while the word *happiness* was only 7 times less frequent than *happy*, *fullness* was 443 times less frequent than *full*. If these figures are representative of a typical speaker's receptive and productive experience with the words in question, it seems reasonable to assume that he/she might either have no single node corresponding to the word *fullness* or, at least, that its connections would be rather weak compared with those of *happiness*.

3. UNIDIRECTIONALITY. The evolution of clitic systems is essentially unidirectional, as shown in (1). Thus, while there is ample evidence of 2P clitics becoming verb-adjacent clitics, there are no known examples of verb-adjacent clitics becoming 2P clitics. Lexicalization is similarly unidirectional and this fact is one reason for contemplating explaining the evolution of clitic systems in terms of lexicalization. However, certain qualifications of unidirectionality need to be mentioned. First, (bound) affixes may come to be used as (free) roots, as with the derivational affix in 'communism, capitalism and other *isms*' and the inflectional affix in '-*ing* verbs'. Secondly, in section 6 we shall see that the gradual loss of the possibility of interrupting complex constituents with a clitic cluster—cf. change B → C in (1)—can be reversed in special circumstances.

4. THE HYPOTHESIS OF THIS PAPER. The evolution of clitic systems seems to break down naturally into the three separate transitions B → C, C → D, and D → E of (1). It is a fairly obvious suggestion that the affixation involved in D → E might involve lexicalization in the sense of section 2. For instance, it seems possible that some Russian reflexive verbs may have come to be represented by single nodes in a RNG of the kind envisaged by Lamb, for the same reason and in the same way as has been hypothesized for words such as *happiness*. To investigate this possibility further, a Google search was carried out (on December 8, 2005) on the Russian verbs *брить* /brit'/ 'to shave', *пугать* /pugat'/ 'to frighten', and *досадить* /dosadit'/ 'to annoy'; and their corresponding reflexives *бриться* /brit'-sja/ 'to shave (oneself)', *пугаться* /pugat'-sja/ 'to be frightened', and *досадиться* /dosadit'-sja/ 'to annoy oneself'. The frequencies in question are shown in **Table 1** (overleaf).

As might well have been predicted (in view of the fact that most men shave themselves), (a.ii) is somewhat more frequent than its non-reflexive counterpart. In (b), by contrast, the non-reflexive verb is 3½ times more frequent than its reflexive counterpart. Nevertheless, the reflexive verb *пугаться* /pugat'-sja/ has a high frequency of occurrence; and the reason for this is that its customary meaning is 'to be frightened' rather than 'to frighten oneself'. (If the latter were the only possible meaning, the verb would presumably be considerably

| | | Verb | Occurrences |
|---|---|---|---|
| a | i | брить /brit'/ 'to shave' | 67,600 |
| | ii | бриться /brit'-sja/ 'to shave (oneself)' | 84,100 |
| b | i | пугать /pugat'/ 'to frighten' | 396,000 |
| | ii | пугаться /pugat'-sja/ 'to be frightened' | 112,000 |
| c | i | досадить /dosadit'/ 'to annoy' | 39,400 |
| | ii | досадиться /dosadit'-sja/ 'to annoy oneself' | 18 |

**Table 1.** *Google frequencies (December 8, 2005) for six Russian verbs.*

less frequent.) The reflexive verb in (c.ii) can only mean 'to annoy oneself', not '*to be annoyed'. (To express the latter meaning, there is a separate verb *досадовать* /dosadovat'/.) At any rate, the reflexive verb in (c.ii) is 2,189 times less frequent than its non-reflexive counterpart.

We can conclude from the figures in **Table 1** that it is extremely unlikely that native speakers of Russian store *досадиться* /dosadit'-sja/ 'to annoy oneself' as a single (lexemic) unit. It is far likelier, however, that *бриться* /brit'-sja/ 'to shave (oneself)' and *пугаться* /pugat'-sja/ 'to be frightened' do have the status of single lexemes.[4]

One of the anonymous referees of this paper suggested that it would make sense to investigate the valency of verbs such as those in **Table 1**. This is a good suggestion. However, it is one that I shall not follow up here, since our main concern in the remainder of the paper will be to consider the possibility that all three transitions D → E, C → D, and B → C can be explained as involving lexicalization, and that we are therefore dealing with a single uniform process from B to E rather than three discrete transitions. This is the hypothesis of the present paper. Moreover, it seems reasonable to assume, by way of testing the hypothesis, that it should be possible to find textual evidence of such an ongoing process from languages located at particular points along the scale in question. This possibility will be examined in relation to transitions C → D and B → C in sections 5 and 6.

5. TEXTUAL EVIDENCE FOR THE TRANSITION C → D. Polish provides a good source of data in the present context, in that the last five hundred years of its history have exhibited 'a gradual drift from one ordered state—person and number markers in clause-second position—towards another ordered state—person and number markers as [verb] desinences' (Andersen 1987:41, summarizing the findings of Rittel 1975). It is appropriate to outline the facts in question before providing the promised evidence of lexicalization.

Rittel examined textual evidence from this period in connection with two verb-forms incorporating the active past participle (the -*l* participle): the past tense and the conditional. Because the change in question is not complete, variation can be encountered in the present-day language such as that in (8), taken from a Polish translation of George Orwell's *Nineteen-Eighty Four* and illustrating the past tense:

| (a) 2P-placement (≠ verb-attachment) | (b) 2P-placement/ verb-attachment | (c) verb-attachment (≠ 2P-placement) |
|---|---|---|
| 2 (2%) | 29 (33%) | 57 (65%) |

**Table 2.** *Figures (and percentages) of person-and-number markers in the Polish past tense that were (a) unambiguously at 2P, (b) ambiguously at 2P and attached to the* -l *participle, and (c) unambiguously attached to the* -l *participle (in approximately 20,000 words of the Polish translation of George Orwell's* Nineteen Eighty-Four; *88 examples altogether).*

(8)  Ty-*ś*        to   wiedział...      ty   to   zawsze wiedział-*eś*[5]     [Pol]
     you-aux.2sg  this known.masc.      you this always known.masc-aux.2sg
     'You knew this...                  you have always known it'

The first clause in (8) represents the older 2P word order for the (clitic) person-and-number marker, while the second clause represents the innovating word order with the clitic attached to the participle. Rittel's percentages for agglutination to the participle show a gradual increase, century by century, from 23% for the 1500s, via 49% for the 1600s, 68% for the 1700s, and 80% for the 1800s, to 84% and 92% for two different types of texts from the 1900s (Andersen 1987:29). However, Andersen draws attention to the problem that Rittel did not distinguish between cases where the *-l* participle to which the clitics were attached was in clause-initial position and cases where it occurred later in a clause. Andersen assumes that in the earlier centuries, when deviations from 2P placement would have been fewer, the majority of cases of 'agglutination to the verb' would have involved attachment of the clitics to clause-initial *-l* forms. In investigating this matter for the present-day language, I looked at approximately 20,000 words of the Polish translation of *Nineteen-Eighty Four*, and was concerned to count not only unambiguous examples of 2P placement and verb-adjacent placement, as in the two separate clauses of (8), but also examples that simultaneously involve 2P placement and attachment to the verb, such as (9):

(9)  Przyszli-*śmy*  tu...                                                  [Pol]
     come-1pl       here
     'We have come here ...'

**Table 2** gives the relevant figures and percentages.[6]

   Although the text revealed very few examples of person-and-number markers occurring at 2P separated from their *-l* participle, 33% of the examples were cases of verb attachment that were simultaneously at 2P. Nevertheless I am inclined to agree with Andersen (1987:41) that: 'the development as a whole is so far along... that its end point is... plain to see', i.e. that the Polish clitic system is well on the way to becoming a verb-adjacent clitic system.

   The conditional verb-form, illustrated in (10)—(11), lags some way behind the past tense, but 'from the 1700's on, the conditional enclitic complex (*by* + person and number-marker) begins to gravitate out of clause-second position [see (10)] and towards agglutination to the *l*-form [see (11)]' (Andersen 1987:35).

(10)    A   ja *by-m*      nie zatrzymała                          [Pol]
        but  I   would-1sg  not  keep
        'But I wouldn't keep [it]'

(11)    W   takim wypadku zmianie  uległa-*by*        jego  twarz    [Pol]
        in   such  event   to-change succomb-would his   face
        'In such an event, his face would undergo change'

The relevance of these facts for the lexicalization hypothesis becomes clear when we discover—cf. Andersen (1987:35), reporting Rittel's (1975:120, 146) discussion—that the earliest participles to attract the person-and-number markers away from 2P are: *był, został, miał, mógł,* and *chciał*, from the verbs meaning 'be', 'become', 'have', 'be able to' and 'want', which are among the most frequently used verbs in the language. All the Slavic languages had the possibility of beginning a sentence with an *-l* participle followed by an auxiliary. What seems to have happened in Polish, then, is that the most frequent participles tended to take their auxiliary with them when they occurred at some later position in a sentence. This is precisely what the lexicalization hypothesis would predict.

Rittel points out, in addition, that migration of the auxiliary of the conditional away from 2P 'is strongly disfavored by the occurrence of conjunctions in clause-initial position' (Andersen 1987:35, paraphrasing Rittel 1975:143), and Andersen adds (*ibid.*) that 'agglutination [to the participle] is far and away more common in main clauses than in subordinate clauses'. A relevant example is provided in (12):

(12)    jak-*by*   *go*   ktoś       zdzielił pałką gumową po ciemieniu      [Pol]
        as-would  him   somebody  impart  stick  rubber  on temple
        'as if someone imparted him [a blow] with a rubber truncheon'

Under the lexicalization hypothesis, the explanation for this would be that some conjunctions exhibit a still greater degree of lexicalization with the auxiliary of the conditional than even the most frequent verbs. This would seem to be confirmed by the fact that dictionaries of Polish have an entry not only for *jak*, meaning 'how; as; if; than' but also for *jakby* as a compound conjunction, meaning 'as if; if'. Another similar pair is *gdy* 'when; as; that' and *gdyby* 'if'.

6. TEXTUAL EVIDENCE FOR THE TRANSITION B → C. The above discussion of Polish data involves the transition C → D of (1). We need now to turn to the transition B → C, i.e., the loss of the ability for clitics to interrupt, or split, a complex syntactic constituent. In the absence of historical evidence from Slovenian to shed light on how split constituents died out in this language, the approach adopted here involved using Google to determine the frequency of particular Serbian and Croatian expressions within Google's corpus of texts. Four examples of split constituents, taken from the Serbian and Croatian translations of Orwell's *Nineteen Eighty-Four*, are given as (13)—(16). The split constituents are highlighted in bold.

| | | Search string | Occurrences |
|---|---|---|---|
| a | i | "ove se dane" | 5 |
| | ii | "ove dane se" | 54 |
| b | i | "jedan je helikopter" | 6 |
| | ii | "jedan helikopter je" | 17 |
| c | i | "čije su fasade" | 19 |
| | ii | "čije fasade su" | 3 |
| d | i | "sve je to" | c. 81,500 |
| | ii | "sve to je" | c. 11,400 |

**Table 3.** *Google frequencies (July 21, 2005) for particular Serbian and Croatian expressions.*

(13)  **ove**  *se*  **dane** električna struja  za  obdanice obustavljala         [Cro]
         these itself days  electric   current for daytimes suspended
         'at present the electric current was cut off during daylight hours'

(14)  U daljini  **jedan** *je*       **helikopter** skliznuo dolje...              [Cro]
         in distance one   aux.3sg helicopter slipped   down
         'In the far distance a helicopter skimmed down …'

(15)  **čije**  *su*      **fasade** bile poduprte gredama                          [Ser]
         whose aux.3pl facades been supported with-beams
         'their sides shored up with baulks of timber'

(16)  **sve** *je*      **to**  ulivalo  zebnju                                     [Ser]
         all   aux.3sg that inspired anxiety
         'everything was intimidating'

**Table 3** shows Google's frequencies, on July 21 2005, for each of these four split constituents and the corresponding combinations with the clitic following the constituent in question. Clitics in both languages may also occur later in their sentence than immediately after the highlighted constituents, but my hypothesis was that wherever else they would occur, the combination in which they occurred was likely to be more frequent than that in which they occurred when they interrupted a complex constituent. In other words, the hypothesis was that, in preferring non-split structures, speakers would be opting for more frequent structures. This is indeed how things look in (a) and (b) in **Table 3**, even though the figures involved are quite small.

However, in (c) and (d) the split constituents turned out to be more frequent than their non-split counterparts. In (c), *čije* is a form of *čiji*, meaning 'whose'. It functions as an interrogative or a relative pronominal adjective, and typically occurs in clause-initial position. Its occurrence in this position with a clitic cluster at 2P is reminiscent of Polish *jakby* 'as if' in (12). It seems reasonable therefore to expect that clitics in this position might resist placement elsewhere, precisely because of the frequency of such clause-initial combinations. In this case the greater degree of lexicalization would encourage the clitic to remain at (word-based) 2P rather than to occur elsewhere. The same sort of explanation would apply also to *sve je to* in (d). Moreover, as speakers of Serbian and Croatian gradually lose the ability to split complex

|          | 1905 | 1935 | 1965 | 1995 |
|----------|------|------|------|------|
| **Serbian** | 56 | 5 | 3 | 5 |
| **Croatian** | 164 | 114 | 57 | 215 |

*Table 4. Clause-initial split constituents in newspaper texts (based on 1,000 examples of clitics for each year and language).*

constituents, one would predict that structures such as (c.i) and (d.i) would be retained longer than structures such as (a.i) and (b.i). It seems, then, that lexicalization has two alternative effects with examples such as those in (13)–(16) and **Table 3**. In the case of some expressions it favors the occurrence of clitics elsewhere than where they interrupt a complex constituent, but with other expressions it encourages the persistence of the split constituent. The history of Slovenian would lead one to predict, though, that Serbian and Croatian prose will eventually be free of interrupted complex constituents.

There is, however, a sociolinguistic factor that needs to be mentioned, involving standard languages and national identity. Over the last 150 years many discussions of Serbian and Croatian have regarded them as two variants of a single language, but equally many have regarded them as separate languages. With the break-up of former Yugoslavia there arose a new political situation. In this connection Reinkowski (2001) investigated the use of clitics in Serbian and Croatian throughout the twentieth century. She carried out textual analysis on Serbian and Croatian newspaper articles from the years 1905, 1935, 1965 and 1995. Specifically, her data consisted of 1,000 sentences from each year for each of Serbian and Croatian (8,000 examples altogether). **Table 4** gives the figures for split clause-initial complex constituents.

Three things emerge from these figures:

(a) Croatian, throughout the period in question, used more split constituents than Serbian. This was supported by my own figures from the separate Serbian and Croatian translations of Orwell's *Nineteen Eighty-Four*, where corresponding 5,500-word passages containing approximately 400 clitic clusters yielded 7 examples of split constituents for Serbian and 16 examples for Croatian.

(b) The use of split constituents was gradually declining throughout the period in both Serbian and Croatian... at least until 1965.

(c) 1995 (after the break-up of Yugoslavia) reveals a big increase in the number of split constituents in Croatian.

Writing in the 1990s, the Croatian linguists Barić *et al.* (1999:268) describe the splitting of complex constituents as a sign of a more careful style of Croatian, and it would seem that, for the moment at least, this feature of Croatian is on the increase again. One possible explanation for this is simply that sufficiently large numbers of Croats are aware of, and happy to accept, the opinion of linguists such as Barić and her associates. An alternative, or additional, possibility is that Croatian writers are conscious of the fact that the splitting of complex constituents by inserting a clitic cluster is more common in Croatian than

in Serbian, and therefore that the use of this structure provides a way of differentiating themselves linguistically from Serbs. In either case, the structure in question is above the level of consciousness of writers and speakers of the language, which opens up the possibility of reversing the otherwise expected change from B to C.

7. SUMMARY AND FURTHER DISCUSSION. This paper proposed the hypothesis that the whole of the evolution of clitic systems covered by B → E in (1) can be explained in terms of Lamb's (1999:163–70) conception of lexicalization, and provided textual evidence in support of this hypothesis in particular for the separate transitions C → D and B → C. Future work will need to examine what the implications of this diachronically oriented investigation are for the synchronic analysis of languages at different stages of the evolution.

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1    I am grateful to Monika Leeming for help in relation to Polish and Simona Bennett in relation to Slovenian, Serbian and Croatian. In addition, comments by William Sullivan after the oral presentation of the paper led to an improvement of section 5; and further improvements were suggested by the  observations of three anonymous referees. It goes without saying that none of these is responsible for any defects that remain.

2    I am aware of problems with the term 'language', e.g. that 'languages' shade into one another rather than being discrete. Nevertheless it will be convenient in this paper to refer to Latin, French, Russian, etc., as 'languages'.

3    Wherever the reflexive suffix follows a vowel, it takes the form -сь /s'/—e.g. in *отличалось* / otličalo-s'/ '(it) differentiated itself'. Russian reflexive verbs will be briefly revisited in section 4.

4    William Sullivan informs me that there are also cases in Russian where a reflexive verb remains in the language but the corresponding non-reflexive verb has fallen into disuse—e.g. *казаться* /kazat'-sja/ 'to seem' vs. *казать* /kazat'/, which has been replaced by *говорить* /govorit'/ 'to speak, talk'.

5    In the feminine singular forms *wiedziałaś* and *wiedziała*, the *a* that occurs before -*ś* or word-finally is the feminine inflection on the -*l* participle. By contrast, the masculine singular inflection is realized sometimes as *e* (as in *wiedziałeś*) and sometimes as zero (as in *wiedział*). An alternative analysis (e.g. Spencer 1991:370–71) treats the *e* as an epenthetic vowel.

6    For comparison with Rittel's figures, which dealt only with person-and-number markers, I excluded all the examples of other clitics occurring either separated from or adjacent to an -*l* participle, e.g. *się* 'self', *mu* 'to him', and *go* 'him'. In addition, since the majority of instances of the past tense in the text as a whole are 3rd person forms, which have no overt person-and-number markers in either the singular or the plural, the passages that were examined consisted primarily of dialog, which provided sufficiently large numbers of 1st and 2nd person forms.

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