

MARTIN EHALA (Tallinn—Cambridge)

RUSSIAN INFLUENCE AND THE CHANGE IN PROGRESS IN THE ESTONIAN ADPOSITIONAL SYSTEM*

1. Introduction

The Baltic-Finnic languages, unlike the rest of Finno-Ugric languages, make use of both postpositions and prepositions. The latter are commonly considered a late development in these languages and their emergence is attributed often to the influence of neighbouring Indo-European languages (see Майтинская 1982). At present there are more than 4 times more postpositions than prepositions in Estonian, but the strong Russian influence in the second half of this century is said further to have favoured prepositional usages at the expense of postpositional ones in Estonian.

In this paper I will argue that the robust Russian influence explanation for this change in progress is oversimplified. Following the ideas of language as an open self-organising system (Ehala, in preparation) I further suggest that there should be some linguistic factors, the change of which has triggered the expansion of prepositions. In order to find these crucial factors, a statistical study of adpositional usage in newspaper language was carried out. The results of this study are discussed in this paper with a conclusion that the importance of foreign influence for this case is not as decisive as previously thought. Finally, an alternative explanation is offered for this change in progress.

2. The nature and the sociolinguistic conditions of the expansion of prepositions

According to Hint (1990), the expansion of Estonian prepositions is manifested through two processes: 1) some prepositions have expanded their area of use, and 2) in the presence of two parallel constructions of which one is prepositional and the other is postpositional, the prepositional construction is preferred.

Let us take some examples from the first process. The adposition *läbi* can be used both as a preposition and a postposition. If used as a postposition, it expresses the meaning of 'by, by means of, with the help of, by the use of' as presented in (1a). If used as a preposition it means 'through' (1b). In contemporary Estonian, usages are increasing where the preposition carries both meanings, i.e.

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it is expanding at the expense of the corresponding postposition. Examples are given in (1c), following Hint 1990 : 1401 (glosses and translation mine).

- (1) a) *mees sai kohtu läbi oma raha tagasi*
 man get&IPF court&G through his money&G back
 'The man got his money back with the help of the court'
- b) *varas tuli läbi akna sisse*
 thief come-IMP through window&G in
 'The thief came in through the window'
- c) *nad säilitavad läbi selle paragrahvi partei võimu*
 they maintain-PL3P through this&G section&G party&G authority&G
 'They maintain the authority of the party with the help of this section'
- vabadus tuleb läbi demokratiseerimise*
 freedom come-SG3P through democratization&G
 'Freedom comes through democratization'

In (2), examples (Hint 1990 : 1401) are given where prepositions are allegedly preferred if two options (prepositional and postpositional) are available to express a certain relationship.

- (2) *enne õhtut õhtu eel*
 before evening-P evening&G before
 'before the evening'
- pärast võitlust võitluse järel*
 after fight-P fight&G after
 'after the fight'
- ümber laua laua ümber*
 around table&G table&G around
 'around the table'

According to Hint (1990 : 1401), the increased usage of prepositions is clearly Russian-influenced. The new meanings of prepositional constructions are also Russian-influenced. This position seems initially to be well motivated, since Estonian has been under Russian influence for the last fifty years. On the other hand, Estonian was also influenced by the German language from the 13th century until the 20th century. German influence was probably at its greatest from the middle of the 19th century when the Estonian intelligentsia started to be formed, until 1918 when the German University of Dorpat was reorganized into an Estonian university (University of Tartu). As only primary schools were Estonian, Estonian intellectuals had to have their education in German. They were bilinguals and German was often their family language. Yet the changes described above have not happened under German influence, though German, like Russian, uses mostly prepositions.

Under these circumstances, the explanation of the change in progress in the Estonian adpositional system by Russian influence as suggested in Hint (1990) can only be half an explanation, as it cannot explain why this change did not take place earlier under the similar conditions of German influence. It is, of course, possible that the change was initiated, but failed to spread over the whole speech community. It may also be that it did not happen just by chance, but it is also possible that the adpositional system was in a shape which did not favour this change at that time despite the presence of German influence.

If we assume that language is a self-organising system, the basic model of change underlying all diachronic phenomena in self-organising systems could provide the principal way to choose among these three hypothesis. Below I will outline some basic assumptions which lie in the very heart in this model.

3. Change in self-organising systems

According to the theory of self-organisation (Prigogine, Stengers 1984), each system has a tendency to maintain its structure which is necessary for its functioning. This is called the principle of structural stability. Due to this property, the system tends to suppress innovations and resist change. The innovations or fluctuations, as they are usually called, form a natural and inevitable part in every system's existence, but remain only small temporary deviations from the average state of the system as far as the system is in a stable state. In such a state the fluctuations cancel each other out and no change is possible.

The main principle of this model is that change can and, in fact, must happen only if the stability of the system's state has been lost. The stability does not depend on fluctuations but is a function of the leading parameter of a given system. This leading or control parameter is not a part of the system itself but an external factor. Thus, at the point when the leading parameter of a system has reached the critical value for the system, the system loses its stability and has to choose a new stable state. This is called the point of bifurcation. At this point the system has to choose between possible new stable states, the number of which is determined by the properties of the system itself.

When the stability has been lost at the bifurcation point, a new stable state is chosen by random fluctuations. It happens as one of such fluctuations. Instead of remaining a small temporary deviation it will start to grow until it has become a dominant pattern. Prigogine and Stengers (1984) call this "order through fluctuations". The principle, however, has been known also in historical linguistics at least from the time of Hermann Paul who stated that every change in language has once originated from a mistake.

As the fluctuations are random, it is not possible to predict which option will be chosen at the bifurcation point, and each of the possible new steady states is equally likely to emerge. However, as systems can be influenced by various types of external fields which can change the random character of fluctuations, a certain type may become relatively more frequent than others. As a consequence, the likelihood of this type of fluctuation to initiate the change grows proportionally. In the case of language, foreign language influences constitute fields which support the emergence of changes increasing the similarities between the two languages involved. On the other hand, the articulatory and mental properties of humans may also form fields which could explain the phenomenon of the so-called natural changes.

This is a short outline of the model of change developed within the theory of self-organising systems. Its basic assumption is that when the system loses its stability, a change must occur which leads it into a new stable state. This means that every change has a cause — the system will not lose its stability unless the control parameter has reached its critical value.

If we return to the case of expanding prepositions, the most natural explanation for the problem of why the change currently affecting the adpositional system did not happen under the German influence, would be that the Estonian adpositional system had not lost its stability at the time when German was influencing it. If we could find a control parameter for the adpositional system and a change of it after the German influence was eliminated, we might be able to explain why prepositions have started to expand now but did not do so earlier. Furthermore, the model predicts that in such a case we should not be able to find fluctuations, similar to these which have initiated the change in the present-day

Estonian adpositional system, in the texts written at the beginning of this century, let us say in 1905 when the German influence was still strong, but Johannes Aavik's language renewal campaign had not started yet.

If the external conditions were not similar, and the change did not happen under German influence because it failed to spread, traces of fluctuations should be detectable from the texts written by Estonian-German bilinguals at the beginning of this century, as they are detectable from the texts written by present day Estonian-Russian bilinguals. Thus, if we find similar fluctuations in texts from 1905 and 1992, we have to conclude that the Russian influence from 1944 onwards has been stronger than the previous German influence; and this would also mean that this change is conditioned by an extra-linguistic control parameter. If, however, we are not able to find signs of this type of deviation in texts from 1905, there should be a control parameter which has changed independently of both German and Russian influence, and has caused the adpositional system to lose its stability only now.

In order to choose between these hypotheses, a statistical study of the adpositional usage in three different stages of Estonian (1905, 1972, and 1992) was carried out. The results of this study will be outlined and discussed in subsequent sections.

4. The adpositional patterns in Estonian

Estonian adpositions can form two types of syntagmas — either preceding their complements or following them. On this basis they form two major subsystems (prepositions and postpositions) within the Estonian adpositional system. These systems are not equal, either in the number of adpositions belonging to each of them or in the frequency of each in the discourse, postpositions being on average 7 times more frequent than prepositions. The graph in Figure 1 shows the number of pre- and postpositional usages in the samples of Estonian adpositions from 1905, 1972 and 1992.

On the basis of case assignment patterns, Estonian adpositions form 12 subsystems, but half of them have extremely low frequency. There are also quite significant differences between the case assignment of postpositions and prepositions which suggests that there seem to be two patterns of case assignment (for postpositions and prepositions) rather than a general one for all adpositions.

For example, the vast majority of postpositions assign genitive case. Eight other cases (ablative, abessive, allative, elative, illative, comitative, nominative and partitive) are also assigned, of which partitive and elative are the most frequent. Still, about 98 per cent of postpositional usages in Estonian have a complement in the genitive case. Differently from postpositions, the case assignment of prepositions is not dominated by one case. Of the 9 patterns of case assignment 6 seem to be comparatively frequent. The diagram featuring the frequency of different case assignment patterns for prepositions is given in Figure 2.

As seen, the syntactic pattern of prepositions seems to be wider and more variable than that of postpositions. The cause of this difference lies probably in the different historical origin of prepositions and postpositions in Estonian, and as we will see, it also has connections with the semantic differences between them.

So far we have discussed only the patterns of the pre- and postpositional usages of adpositions, not the prepositions and postpositions themselves. The problem with this is that some adpositions can be used in both positions in

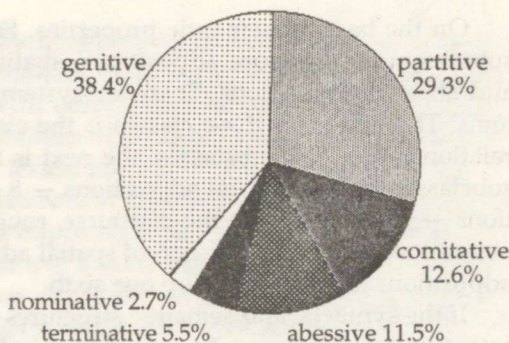
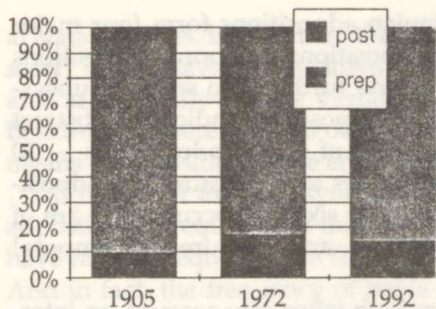


Figure 1. The ratio of adpositional usages Figure 2. Case assignment of prepositions

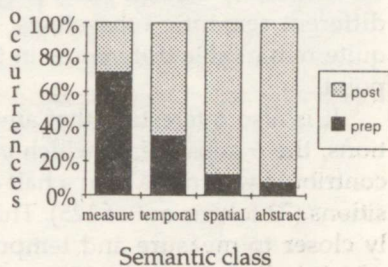
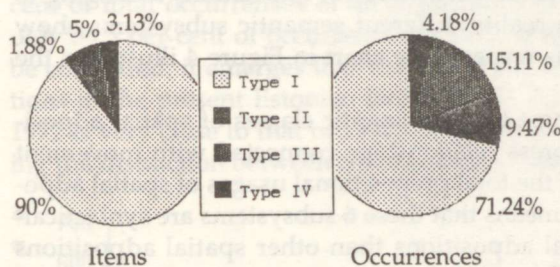


Figure 3. The syntactic types of Estonian adpositions Figure 4. Syntactic properties of semantic classes

Estonian. In most cases there is a difference in meaning if used in either way, but in some cases not. If we take into account these homonymous pairs of postpositions and prepositions, we can distinguish beside the pure prepositions and postpositions two further syntactic patterns which form some kind of a bridge between these two pure types. Thus, a total of four patterns could be specified:

1) Most Estonian adpositions are postpositions which often have the morphological structure of inflected forms of nouns. These adpositions mostly assign the genitive case. This is the dominant syntactic pattern in the Estonian adpositional system. It includes 90 per cent of Estonian adpositions which make up 71.24 per cent of all occurrences of adpositions in the discourse (see Type I in Figure 3).

2) The second type consists of homonymous pairs of pre- and postpositions. It incorporates the homonyms that assign different case in each position (Type II in Figure 3). As can be seen, it includes very few items which, however, make up nearly 9.5 per cent of the total of occurrences.

3) This type also consists of homonymous pairs of pre- and postpositions, but they assign the same case in both positions (Type III). The items of this class are also more frequent than the average.

4) And finally, there is a small type of pure prepositions which includes 3.13 per cent of Estonian adpositions with 4.18 per cent of total occurrences (see Type IV in Figure 3).

As seen in Figure 3 the three nondominant subsystems include only 10 per cent of items, but make up more than 28 per cent of total occurrences. Thus the frequency of the adpositions belonging to these types is almost three times higher than the average. Besides being interesting synchronically, this phenomenon is also important diachronically — this bridge could be a possible base for shifts in the structure of the system.

On the basis of semantic properties, Estonian adpositions form four major subsystems — measure adpositions, spatial adpositions, temporal adpositions and abstract adpositions. These subsystems divide further into smaller subsystems. The largest of these classes is the class of adpositions indicating abstract relationships — 38 subclasses, the next is the class of spatial adpositions — 20 subclasses, then temporal adpositions — 8 subclasses and measurement adpositions — 7 subclasses. In the discourse, roughly four sixths of occurrences are of abstract adpositions, one sixth of spatial adpositions, and measure and temporal adpositions together make up one sixth.

If the syntactic and semantic structures are both taken into account, an interesting pattern emerges. As was shown in Figure 1, prepositions occur about 14 per cent of the total in the discourse in present-day Estonian. On this basis one could assume that the same proportion is true also for adpositions belonging to different semantic subsystems. In reality different semantic subsystems show quite remarkable differences in this respect. The chart in Figure 4 illustrates the point.

It is also interesting that amongst the 20 semantic classes of spatial adpositions, the 6 subsystems which express relationships connected with movement contribute well more than a half of the total prepositional usages of spatial adpositions (73 tokens out of 125). This means that these 6 subsystems are syntactically closer to measure and temporal adpositions than other spatial adpositions which indicate location. These differences between measure, temporal and motion adpositions on the one hand, and locative and abstract adpositions on the other hand seem to be a result of the historical formation process of the Estonian adpositions: postpositions developed mostly from nouns which are better suited to express abstract semantic relationships, whereas verbs and adverbs which tended to develop into prepositions in Baltic-Finnic languages, are likely to express meanings connected with motion or measure.

The statistical correlations described so far mirror mostly the diachronic developments which took place far beyond the availability of written records. In the next section the developments taking place in the adpositional system of Estonian during this century will be dealt with.

5. Some diachronic tendencies in the Estonian adpositional system in the 20th century

One, and probably the most surprising change in the adpositional system during this century which was revealed by our study, is the fall in overall frequency of adpositions in the texts. In this respect, the difference between Estonian in 1905 and present-day Estonian is so large that it was felt already in the sample collection process. To gain more precise specification of this difference, two additional samples of adpositions of 12,000 words were collected from newspaper texts. In the 1905 sample adpositions formed 4.4 per cent of the total of words counted, whereas in the present-day Estonian they formed only 2.43 per cent of the total. It would not be wrong to say, thus, that Estonian was more adpositional at the beginning of this century than now.

The exact cause for this fall is hard to detect from the data available, but it is quite likely that it was a consequence of the language renewal campaign. As one of the aims of J. Aavik was to replace, where possible, analytical constructions (like superlative *kõige ilusam* 'most beautiful') with synthetic forms (*ilusaim* 'most beautiful'), it might well have influenced also the frequency of adposition-

al constructions. In Estonian, there are adpositions (*peal, peale, pealt, sees, sisse, seest*) which have almost identical meaning with the six locative case endings and are actually in free variation with corresponding case forms of nouns. Besides that there are also other possibilities of expressing the same relations by means of adpositions, case endings or lexical means.

If the trend towards synthetic grammatical means has influenced the fall of adpositional frequency in the text, the adpositions like *peal, peale, pealt* should have higher frequencies in the 1905 sample than in either contemporary sample. And in fact, the frequency of *peale* has decreased almost 6 times between 1905 and 1972. It was the most frequent adposition in 1905 (618 occurrences), but has only 108 tokens in the 1972 sample where it is the 18th most frequent adposition. It must also be noted that the 10 most frequent adpositions made up 48.19 per cent of total occurrences of all adpositions in 1905, while the top 10 makes up only 34.5 per cent of occurrences in 1972. If the distribution of frequencies is to be compared, it emerges that they are more evenly distributed between adpositions in the present Estonian than in 1905. As the distribution of frequencies in 1972 is very close to that of 1992, the graph on Figure 5 can be taken as illustrating the distinction between contemporary Estonian and 1905 Estonian.

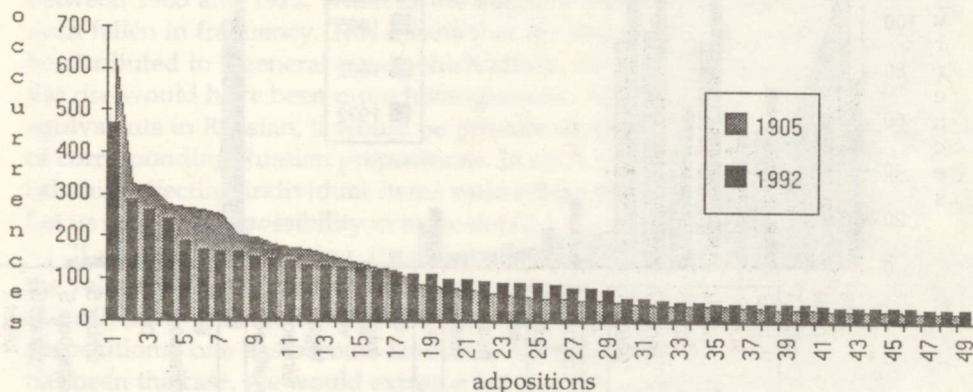


Figure 5. Distribution of frequencies between adpositions

In this graph the frequencies of the 50 most frequent adpositions in Estonian have been plotted. If the chart were to be continued, the slight superiority of 1992 values beginning from the end of the second ten would continue until the end of the graph. This suggests that more adpositions are in active use now than in 1905, but if we take into account that the overall frequency of adpositions in the discourse was 4.4 per cent in 1905, while it is 2.43 per cent in present-day Estonian, the superiority of 1992 values in the lower regions would probably be better explained by the high values of the first ten adpositions in 1905. Thus, due to the high frequency of the first ten adpositions in 1905 which contributed most towards the overall higher frequency of adpositions in 1905, the sample text remained shorter for this period. That is why the low frequency adpositions have fewer tokens in the 1905 sample than in the 1992 sample.

What the fall in the frequency of adpositional usages means, is that Estonian has become slightly more synthetic during this century, whereas some adpositions have become slightly less grammaticalised.

The second important change in the adpositional system is the rise of prepositions in the preposition-postposition ratio. This rise is expressed by the in-

creased prepositional occurrences in the 1972 sample compared to the 1905 sample. In the 1905 sample prepositions made up 8.9 per cent of all occurrences, while in 1972 they made up 16.5 per cent (see Figure 1 for graphic representation). It is, thus, a relative rise which cannot precisely express the actual rise of prepositional usages in the corresponding texts of the two states. It may be that as the total frequency of adpositions in texts was lower in 1972, the sample text had to be longer to get the required number of occurrences. As the decrease in postpositional usages counted for more of the overall decrease of adpositional frequencies in texts (the 12 most frequent adpositions in 1905 were postpositions), the longer sample text naturally contained more prepositions than the shorter one. This cannot be proved without further study, but even intuitively, it is unlikely that this can count for the total of 7 per cent rise in prepositional usages. Thus, it seems that the rise of prepositions is an actual fact, not an appearance caused by the method of sample collection.

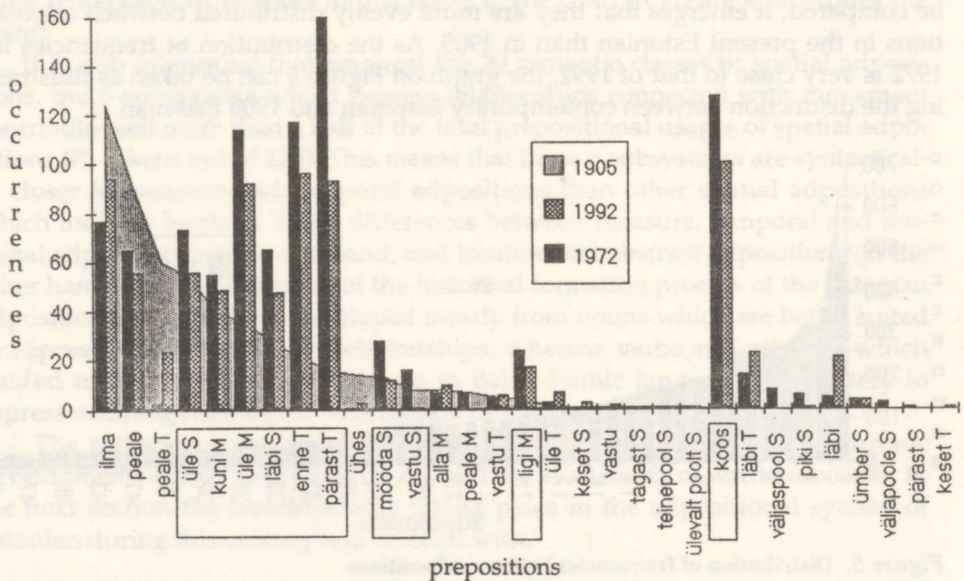


Figure 6. The dynamics of prepositions

To understand the nature of this change we should describe it in more detail, looking further at the dynamics of the frequencies of different prepositions, and the dynamics of the pairs of preposition-postposition synonyms. In the graph in Figure 6 the dynamics of prepositions in the three samples is plotted. The grey area in Figure 6 expresses the frequencies of prepositions in 1905 starting with the most frequent one (*ilma* 'without') to the least frequent one (*ülevalt poolt* 'from above'). It is represented as a continuum only for the sake of clarity. The corresponding prepositions in the 1972 and 1992 samples are represented by columns. The prepositions that do not occur in the 1905 sample but have tokens in the 1972 or the 1992 sample are represented at the right end of the graph starting from *koos* 'together'. They are in declining order of frequencies of the 1972 sample. The indexes after the labels of prepositions indicate the major semantic subsystem to which they belong: S — spatial, M — measure, T — temporal, abstract adpositions do not have an index. The boxes around some labels group together the adpositions affected by a trend which will be discussed in due course.

As can be seen, the rise of prepositions between 1905 and 1972 is not a homogeneous phenomenon. In fact, prepositions can be divided into three groups according to their dynamics. The first group includes prepositions the frequency of which has fallen during this period. This group includes the three most frequent prepositions in 1905 — *ilma* 'without', and both temporal and abstract *peale* 'on'. It also includes *ühes* 'together' which has quite a low frequency in the 1905 sample. The second group consists of prepositions which have not changed in their frequency, or have changed so slightly that it can not be regarded as statistically significant at the 5 per cent level of significance. The prepositions belonging to this group have a comparatively low frequency, except *kuni* 'until' which has been fairly frequent during the whole period. This group includes 16 prepositions. The third group consists of prepositions that have become more frequent during this century. This group includes 11 adpositions: 8 of them have tokens in all three samples (*üle* 'across', *üle* 'more', *läbi* 'through', *enne* 'before', *pärast* 'after', *mööda* 'along', spatial *vastu* 'against', and *ligi* 'about'), 3 appear only in the two latter samples (*koos* 'together', *läbi* 'during' and *läbi* 'by means of').

Thus, only one third of prepositions show a rising pattern during the period between 1905 and 1972, whereas the majority has not changed, and a few have even fallen in frequency. This means that the overall rise of prepositions can not be attributed to a general trend which affects all prepositions equally. If it were, the rise would have been more homogeneous. As all the risen prepositions have equivalents in Russian, it would be possible to attribute the rise to the influence of corresponding Russian prepositions. In such a case it would have been a lexical shift affecting individual items rather than the whole class of prepositions. Let us look at this possibility in more detail.

If a preposition is rising, it can happen due to two different reasons — either the relationship it expresses has become more talked about, or, from amongst the different grammatical possibilities expressing a certain relationship, the prepositional one has become favoured at the expense of the others. If the latter has been the case, we would expect a fall in other possibilities which express the same relationships which the rising prepositions do.

Of the 11 rising prepositions, 7 have postpositional synonyms. These seven pairs of synonyms are represented in a table in Figure 7.

Preposition	<i>ligi</i>	<i>mööda</i>	<i>pärast</i>	<i>enne</i>	<i>läbi</i>	<i>läbi</i>	<i>koos</i>
1905	4 9	12 25	16 72	21 8	0 55	0 102	0 5
1972	24 3	28 13	160 25	117 26	14 174	5 8	127 0
1992	17 1	12 5	93 44	96 26	23 118	21 11	100 1
Postposition	<i>ümber</i>	<i>mööda</i>	<i>järeel</i>	<i>eel</i>	<i>jooksul</i>	<i>läbi</i>	<i>ühes</i>

Figure 7. The dynamics of synonyms

In this table the scores for the pairs of synonyms are represented in seven boxes. Left rows stand for prepositional scores, right rows for postpositional scores. The table shows that for 5 pairs (*ligi* — *ümber* 'about', *mööda* — *mööda* 'along', *pärast* — *järeel* 'after', *läbi* — *läbi* 'by means of', *koos* — *ühes* 'together'), the rise of prepositional usages corresponds to the fall of postpositional usages; for two pairs the rise is characteristic of both members of a pair of synonyms.

The table also shows that the rise in prepositional usages is not exactly equal to the fall of postpositional usages in the five pairs where it occurs. If the rise of

prepositional usages were due to the influence of corresponding Russian prepositions, we would expect the rise and fall to be balanced, so that the overall number of usages would remain approximately unchanged. In fact, none of these five pairs shows such balance, and if we are to look at the dynamics of all 72 semantic subsystems in the period of 1905–1972, we would find the balance only in 31 per cent of cases.

One reason for this is that the samples reflect only adpositional possibilities of expressing certain meanings, and all other possibilities provided by the case system or lexical means have not been recorded. For example, *üle* 'across', *läbi* 'through' and many other adpositions have corresponding homonymous adverbs which can be used with the same meanings. For some cases, such as *koos* 'together', the balance between its rise and the fall of its synonym is not even relevant. As both *koos* and *ühes* assign comitative case which carries the same meaning as both the adpositions, the latter are optional and have purely emphatic purpose. Thus, the sharp rise of *koos* need not to be accompanied by a similar fall of *ühes*. The same is true for *ilma* 'without' which is also optional.

Thus, with some reservations we would say that the rise of prepositions between 1905 and 1972 is due to the preference of these prepositions over other possibilities for expressing the same meanings. As all of them have Russian equivalents, it would be natural to attribute their rise to Russian influence. However, things are not so straightforward. First, the three prepositions which have fallen in frequency also have Russian equivalents. It is hard to explain why they show the opposite pattern. It may be that as the postposition *peale* was extremely frequent in 1905, it might have influenced the frequency of both the abstract and temporal prepositions *peale*, and when the postposition *peale* fell in frequency, so did its homonymous prepositions. There is no similar explanation available for the fall of *ilma*. As it has a similar syntactic behaviour as *koos*, i.e. it is optional, it would also have to be expected to show similar dynamics, as they both have equivalents in Russian. Yet, *koos* has risen, but *ilma* has fallen.

Be this as it may, the Russian influence explanation has even stronger counter-arguments. From the total of 11 prepositions which show the rising pattern in 1905–1972, 9 show the falling pattern in 1972–1992. The other two which are still rising (temporal and instrumental *läbi*), form a separate case and will be dealt with in the next section. In the graph in Figure 6 the 9 falling prepositions are indicated by boxes drawn around their labels. As can be seen, the fall is quite proportional: the more frequent prepositions have fallen slightly more than the less frequent ones. It may be a coincidence, but from the three prepositions which fell in between 1905 and 1972, two have actually risen again between 1972 and 1992. There seems to be no apparent explanation for these two phenomena on the basis of the data available to me, but at least, as the changes between 1905 and 1972 seem to be comparatively independent, the changes in between 1972 and 1992 look more like manifestations of a single trend. Though the cause of this trend is unknown, the trend itself is certainly incompatible with the rough Russian-influence explanation for the rise of prepositions in the second half of this century. This evidence suggests that in language evolution there can indeed be factors which can reduce or even eliminate an apparent foreign language influence.

In the final section of this paper I will provide an explanation for the change of the instrumental postposition *läbi* to the preposition, showing how the stability is lost and the change made inevitable when the control parameter reaches the critical value.

6. The change of *läbi* to a preposition

This change, currently in progress in Estonian is a very minor one. The syntactic subsystem where it occurs consists of a set of four homonymous adpositions *läbi*. Each of them has different meanings which I will represent by links in the graphs below to different semantic subsystems. Two of them are postpositions, two prepositions. Together with the frequency values which are indicated by boldness of the node, the structure for the 1905 state of this system is presented in Figure 8.

As the boldness of the nodes indicates, the most frequent from amongst the four homonyms in 1905 was the instrumental postposition *läbi* (102 tokens), the causal one was also frequent (62 tokens), but the spatial and temporal ones had only 27 and 5 tokens respectively. If the postpositional and prepositional occurrences are counted without taking meanings into account, it appears that the postpositional occurrences of *läbi* were more than 5 times more frequent than the prepositional ones in 1905.

In present-day Estonian, a new unit has appeared in this system — the instrumental preposition *läbi*. This change was at its very early stage in 1972 (only 5 tokens). If we omit it from the representation of the dynamic structure of the 1972 state, we get a picture which should quite closely resemble the state where the change was initiated. I will call it the pre-change state. It is represented in Figure 9.

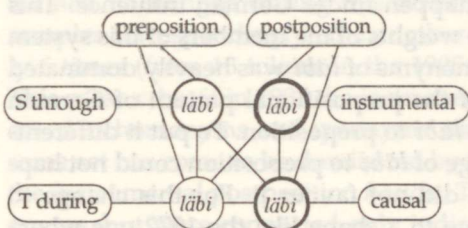


Figure 8. The weight of the homonyms of *läbi* in 1905

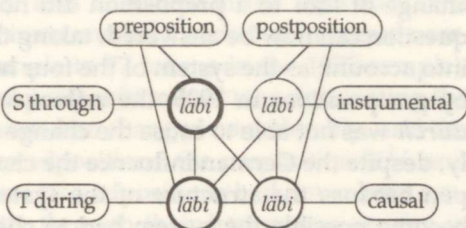


Figure 9. The weight of the homonyms of *läbi* in 1972

As the graph shows, the weights of the members of this system have changed considerably compared to the 1905 state. The frequency of spatial *läbi* has risen from 27 to 65 tokens, temporal *läbi* has risen from 5 to 28 tokens. Together, this means the rise of prepositional usages of *läbi* by about 2.9 times. The weights of postpositional homonyms have fallen during this period: the instrumental *läbi* from 102 to 8 tokens, and the causal *läbi* from 62 to 14 tokens. This makes the overall fall of postpositional usages about 7.5 times. The overall frequency of all homonyms of *läbi* has fallen about 40 per cent — from 199 tokens in the 1905 sample to 120 tokens in the 1992 sample. The result of these changes is that prepositional usages have become more than 4.2 times more frequent than postpositional usages, which is almost the mirror image of that of the 1905 distribution.

As already discussed in connection with fluctuations and fields (section 3), frequency plays an important role in determining the nature of fluctuations. The more frequent a unit is, the more heavily it dominates the other units to which it has links. To express this in psycholinguistic terms — it needs less activation to be processed and executed than its competitors. This is the reason why the more frequent forms are also more likely to occur erratically.

Taking the 1905 system, it is hard to expect the fluctuations similar to these

which have initiated the change of *läbi* to a preposition in present-day Estonian, because the prepositional pattern in 1905 was too infrequent for this to happen. This does not mean that they were impossible in principle, but the opposite fluctuations where the meaning of spatial 'through' or temporal 'during' was expressed by a postpositional *läbi* would have been more probable in a system like the 1905 one. And, in fact, there are two such occurrences in my 1905 sample. I repeat them here under (3):

- (3) *ta vaatab liig musta prillide läbi*
 he look-PR too black&G glasses&PLG through
 'He looks (at things) through too black glasses'
kuna Luenna aknakese läbi mängu pealt jälgis
 as Luenna window&G through play&P on observed-PF
 'As Luenna observed the play through the window'

In both of the sentences in (3), *läbi* is used spatially meaning 'through'. In Estonian, this meaning is normally expressed by the prepositional *läbi*. In these two sentences, however, it is expressed by postpositional *läbi*. The fact that there are 2 such occurrences in the 1905 sample, but none in the 1972 and 1992 samples, suggests that they were caused by the strong dominance of postpositional *läbi* in the 1905 system. Erratic usages of prepositional *läbi*, on the other hand, are probable in a system like the 1972 one, which is dominated by prepositional homonyms of *läbi*.

One of the questions asked at the beginning of this paper was why the change of *läbi* to a preposition did not happen under German influence. This question can now be answered, taking the weights of the members of this system into account: as the system of the four homonyms of *läbi* was heavily dominated by postpositions in 1905, the influence of the prepositional pattern of German *durch* was not able to cause the change of *läbi* to preposition. To put it differently, despite the German influence the change of *läbi* to preposition could not happen because the structure of the system did not favour it. For this change to become possible the system had to change to a shape like the 1972 one where prepositional homonyms of *läbi* dominated.

Though the 1972 system is much more favorable to the change of instrumental *läbi* from postposition to preposition, the change itself can not be explained by the differences in the structure of the system. If it were, the structure of the 1905 system must have been the cause for the opposite change which, as we know, never happened. To account for this difference, we have to show how the present system has lost its stability, whereas nothing similar happened in 1905. For this, the changes in the set of synonyms of the instrumental postposition *läbi* need to be taken into account.

The closest synonym to the instrumental *läbi* is the postposition *kaudu*. The differences between them are very slight — both mean mostly 'by', but can also mean 'via' in an instrumental sense. Slightly different from *kaudu* and *läbi* is *abil* 'by; by the help of'. The main difference between them is that *abil* can be understood in some contexts as indicating an active helper rather than a passive tool which is not the case with *kaudu* and *läbi*. In other contexts *abil*, *läbi* and *kaudu* are mutually replaceable. The rest of the adpositions belonging to the semantic subsystem "instrumental" have quite a narrow meaning which does not allow them freely to replace *läbi*, *kaudu* and *abil* in the discourse. They all are listed in Appendix, but as they are redundant in respect of this change, I shall not describe them in more detail here.

Like the instrumental *läbi*, *kaudu* also has a homonym, which is used in spa-

tial sense meaning 'through'. The fact that both *kaudu* and *läbi* have homonyms belonging to the same semantic class indicates the relative closeness of the distribution of these two adpositions, and as we will see shortly, this similarity is crucial in understanding the change of *läbi*. Graphically, the interrelated set of homonyms of *läbi* and *kaudu* could be represented as in Figure 10.

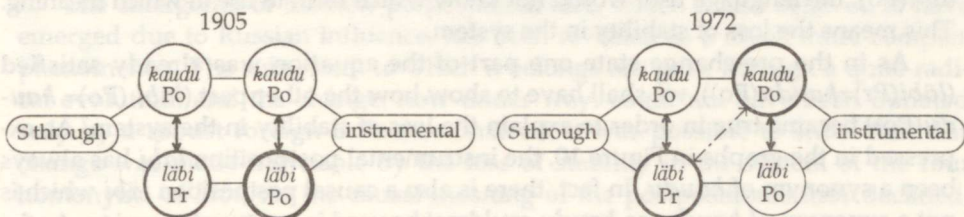


Figure 10. The synonyms of *läbi*

The 1972 state I give here again as the representative for the pre-change state. As the symbols (Pr and Po) in Figure 10 show, the *kaudu*-pair, unlike the two homonyms of *läbi*, occurs exclusively postpositionally. The dynamics of *kaudu* has also been different from that of *läbi*. In the 1905 sample both the spatial and instrumental *kaudu* had fairly low and even number of occurrences (11 and 13 tokens correspondingly). While the frequency of spatial *kaudu* has remained unchanged during this century (9 and 12 tokens in the 1905 and 1992 samples correspondingly), the number of instrumental *kaudu* has increased nearly 6 times (from 13 tokens in the 1905 sample to 77 tokens in the 1972 sample). This means that if in 1905 the instrumental postposition *läbi* was dominating the set of its homonyms and synonyms, the state has changed considerably, and the same set has come to be dominated by two adpositions: the preposition *läbi*, and the instrumental postposition *kaudu*. These two adpositions had never been synonyms, but were connected only indirectly through their homonyms as seen in the graph. When both of them become dominant in the pre-change state of this system, fluctuations started to appear, whereby the preposition *läbi* was used as a synonym of the instrumental *kaudu*. The double headed dashed arrow in the graph in Figure 10 indicates these usages.

Now we have seen how the 1905 state of the system where postpositional fluctuations tended to occur has evolved to the pre-change state where prepositional fluctuations become possible. As already mentioned, the presence of a certain kind of fluctuation is not sufficient itself for a corresponding change. Only when the control parameter of the system has reached the critical value and the system loses its stability, does the change become inevitable. How this happened in this system will be discussed next.

It is reasonable to assume that the change of *läbi* to preposition was initiated when the distinction between the prepositional and postpositional usages of *läbi* became obscure. This was the point of bifurcation. To know what made this distinction obscure means knowing the cause of this change. The answer for this question seems to be hidden among the complex semantic relationships of the homonyms of *läbi* and *kaudu*.

In the pre-change state we had a situation where the preposition *läbi* and instrumental *kaudu* started occasionally to be felt as synonyms. To put it differently, one could say that $läbi(Pr)=kaudu(Po)$. If the postposition *läbi* could be shown to be a synonym of *kaudu* we could also say that $läbi(Po)=kaudu(Po)$. In

a situation where both the preposition and the postposition *läbi* are synonyms of *kaudu*, the preposition and postposition *läbi* themselves could be considered as synonyms. Thus, $läbi(Pr)=läbi(Po)$. But for the system of prepositional and postpositional *läbi* to be stable they have to be different from each other. When the distinction between both homonyms *läbi* becomes obscure, i.e. when $läbi(Pr)=läbi(Po)$, the language user would not know which form to use in which meaning. This means the loss of stability in the system.

As in the pre-change state one part of the equation was already satisfied ($läbi(Pr)=kaudu(Po)$), we shall have to show how the other part ($läbi(Po)=kaudu(Po)$) became true in order to explain the loss of stability in the system. As expressed in the graphs in Figure 10, the instrumental postposition *läbi* has always been a synonym of *kaudu*. In fact, there is also a causal postposition *läbi* which is not a synonym of *kaudu*, as *kaudu* could not be used in an causal meaning. As the difference between the causal and instrumental *läbi* is very slight, the separation of the instrumental and the causal *läbi* is very often hard and needs a conscious analysis. For that reason the postposition *läbi* could not be equated with *kaudu*, unless *kaudu* has acquired a causal meaning or the postposition *läbi* has lost it.

The semantics of *kaudu* has not changed during this century, but as already mentioned, the ratio of causal *läbi* has decreased steadily throughout the century (see Figures 8 and 9). In 1905 it has 62 tokens, in 1972 14 tokens, and in 1992 only 7 tokens in the sample. This means that the causal flavour of postpositional *läbi*, once so apparent, has declined almost to nonexistence during this century. Since *kaudu* cannot be used in the causal meaning, the postpositional *läbi* could not be equated with *kaudu* when its causal meaning was still apparent. When the frequency of the causal *läbi* fell below a certain level the postpositional *läbi* become equalised with *kaudu* ($läbi(Po)=kaudu(Po)$). This caused the distinction between the prepositional and the postpositional *läbi* to become obscure ($läbi(Po)=läbi(Pr)$), and the system to lose its stability. In order to reach a new stable state the system had to change.

According to this analysis the control parameter for this change was the causal *läbi*. At some point in its decline during this century it reached the critical value where the distinction between the prepositional and the postpositional *läbi* could not be maintained. What its exact value was at this point, and when it happened is hard to estimate, since we know the dynamics of the emergence of the new *läbi* only approximately — there are 5 tokens of the new *läbi* in the 1972 sample and 21 in the 1992 sample. If the rise of the prepositional *läbi* is a linear process, the bifurcation point should have been somewhere in the late sixties. If it follows the s-curve pattern, the exact point when fluctuations became a change is even harder to detect — the sharp rise at least should have happened later, probably in the eighties. In present-day Estonian it seems to be well on its way. As some younger native speakers already consider the postposition *läbi* as archaic, it is possible that the change is heading towards the exclusively prepositional usage of *läbi*.

7. Conclusion

In this paper I have discussed some changes which have happened or are currently happening in the Estonian adpositional system. During this century the overall frequency of adpositions has fallen considerably. In 1905 adpositional constructions were used noticeably more often than in contemporary Estonian. Despite the overall frequency fall, the frequency of prepositions has risen be-

tween 1905 and 1972. Interestingly, their frequency has subsequently fallen between 1972 and 1992, though in 1992 they are still more frequent than in 1905. This evidence has brought into question the belief that the rise of prepositions in Estonian has been caused by an increasing Russian influence in the second half of this century.

The emergence of the new prepositional *läbi*, which is also believed to have emerged due to Russian influence, has been revealed as a much more complex phenomenon. The subsystem to which it belongs has gone through a quite radical evolution, and the change, now under way, could not have been initiated only by a robust foreign influence. Instead, it was possible to show that this change was made inevitable by the loss of stability in the system of the four homonyms of *läbi*. As the causal meaning of the postpositional *läbi* declined, the analogy of *kaudu*, the synonym of both spatial and instrumental *läbi*, become the source of instability in the distinction of prepositional and postpositional *läbi*. This state was intolerable and the system had to choose a new stable state. At this point the Russian influence might well have played its role in determining the particular outcome of this situation.

The evidence presented in this paper suggests that foreign language influence need not always be as straightforward and decisive as it often appears. This does not mean that I deny the need for language maintenance and purification in Estonian — the way we feel about our language is a question of ideology and need not necessarily be bound to the truth, whereas the way it really changes is a scientific question which should be approached independently from our ideological considerations. This paper is an attempt to provide an explanation for the changes currently happening in Estonian from the point of view of a language as an open self-organising system.

Appendix

Adposition *läbi*

Meaning	Position	Case	Example	Total		
				1905	1972	1992
S through	post	elat	kasarmutest mööda ehk <i>metsast läbi</i> sõitmisega peab ettevaatlik olema	1	0	0
S through	post	gen	kuna Luenna tuulelehvitaja <i>aknakese läbi</i> mängu uudishimulikult pealt jälgis	2	0	0
S through	prep	elat	juhtis ülikooli <i>läbi</i> kriitilistest <i>aastatest</i>	0	0	1
S through	prep	gen	asjaajamine käis siis veel <i>läbi Moskva</i>	27	65	47
T during	post	gen	pidas sünnipäeva terve <i>aasta läbi</i>	5	2	1
T during	post	nom	laste jaoks kestab <i>päev läbi</i> suur karneval	0	12	3
T during	prep	gen	eesti luulet <i>läbi aegade</i>	0	14	23
causal	post	gen	kogukond kuivas <i>emigratsiooni läbi</i> kokku	62	14	7
instrumental	post	gen	N Liit sõprade <i>silmade läbi</i>	102	8	11
instrumental	prep	gen	NSV Liidu suhted välismaailmaga algasid <i>läbi Eesti</i>	0	5	21
				199	120	114

Adposition *kaudu*

Meaning	Position	Case	Example	Total		
				1905	1972	1992
S through	post	gen	arvuteid ostetakse <i>Soome kaudu</i>	10	9	12
S through	post	part	teist <i>teed kaudu</i> minema	1	0	0
instrumental	post	gen	<i>ajakirjanduse kaudu</i> elu mõjutama	13	77	89
				24	86	101

Meaning: instrumental

Adposition	Position	Case	Example	Total		
				1905	1972	1992
<i>abil</i>	post	gen	ajaloo koostamine <i>rahvahuule abil</i>	40	89	45
<i>arvel</i>	post	gen	struktuuri muutumine hierarhia <i>muutumise arvel</i>	0	1	0
<i>kaudu</i>	post	gen	<i>ajakirjanduse kaudu</i> elu mõjutama	13	77	89
<i>korras</i>	post	gen	<i>humanitaarabi korras</i> jahu saama	0	5	11
<i>käes</i>	post	gen	röövli <i>kuulide käes</i> otsa leidma	1	2	0
<i>läbi</i>	post	gen	N Liit sõprade <i>silmade läbi</i>	102	8	11
<i>läbi</i>	prep	gen	NSV Liidu suhted välismaailmaga algasid <i>läbi Eesti</i>	0	5	21
<i>näol</i>	post	gen	vajadus tööjõu järele on esitatud <i>skeemi näol</i>	0	7	0
<i>peal</i>	post	gen	kandsid dueti kahe <i>klarneti peal</i> ette	3	0	0
<i>pealt</i>	post	gen	valitsus ei saa meie <i>ettevalmistuste pealt</i> hakkama	0	0	1
<i>pidi</i>	post	part	ametlikke <i>teid pidi</i> taotlema	3	1	6
<i>teel</i>	post	gen	aktsiate <i>müügi teel</i>	7	36	15
<i>varal</i>	post	gen	kirjeldas uute <i>mõistete varal</i>	12	13	3
				181	244	202

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МАРТИН ЭХАЛА (Таллинн—Кембридж)

ВЛИЯНИЕ РУССКОГО ЯЗЫКА И ИЗМЕНЕНИЕ В СИСТЕМЕ ЭСТОНСКИХ ПРЕДЛОГОВ И ПОСЛЕЛОГОВ

В статье рассматриваются некоторые изменения, уже состоявшиеся или происходящие в настоящее время в употреблении эстонских предлогов и послелогов. Автор исходит из того, что язык представляет собой открытую самоорганизующуюся систему.

В текущем столетии частотность употребления предлогов и послелогов в эстонском языке в целом значительно сократилась. Однако частотность употребления предлогов в 1972 году была выше, чем в 1905, и хотя к 1992 году по сравнению с 1972 уменьшилась, относительно 1905 года она остается все же высокой. Встает вопрос: не является ли более широкое употребление послелогов результатом возросшего во второй поло-

вине столетия влияния русского языка, ведь эстонскому языку больше присуще использование послелогов.

Анализируя новый предлог *läbi*, появление которого тоже связывается с влиянием русского языка, автор приходит к выводу, что подсистема, в которую входит *läbi*, претерпела достаточно радикальное развитие и происходящее изменение только непосредственным влиянием со стороны объяснить нельзя. Можно показать, что неизбежным это изменение сделала утрата стабильности системой предлога *läbi*, состоящей из четырех омонимов, что привело к поискам новой стабильности, а в связи с этим могло, конечно, проявить себя и влияние русского языка.