The T-Extension Condition[1]

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1. Introduction

Chomsky (2004) proposed that the operations previously called Merge and Move are essentially identical — i.e. *external merge* and *internal merge*, respectively. Empirically, this leads us to expect the existence of phenomena that require some type of merge but do not specify the type. An example offered by Chomsky is the EPP requirement of T, which can be satisfied either by internal merge of a DP, or by external merge of an expletive. Alexiadou and Anagnostopoulou (1998), in turn, suggested a further unity among types of internal merge — that phrasal movement and head movement are essentially identical. In this paper, I argue in favor of both Chomsky's and Alexiadou and Anagnostopoulou's proposed unification of diverse phenomena. On the basis of material from Czech, I propose a *T-Extension Condition* (TEC), superficially similar to the EPP, which requires the tree to be extended past T. This extension is indifferent to the distinction between head movement and phrasal movement, and also to the distinction between internal and external merge. In addition (in contrast to the EPP), the TEC, when satisfied by external merge, is insensitive to whether T or the merging element projects. An important difference between these two concepts is the fact that the EPP provides an instruction for the derivation (e.g. "form a specifier"), while the TEC is a condition on well-formedness of syntactic structures. I leave open the question of its relation to the EPP as discussed in the literature.

Czech is a West-Slavic *pro*-drop language with fairly free word order. The unmarked order is SVO, but VSO and a variety of other possibilities are found, due to various instances of movement. As can be seen in (1), however, not every verb-initial word order is grammatical. Examples (1a-b) are improved if the finite auxiliary is preceded by another element, such as a subject, an adverb or a remnant VP, as seen in (2):

(1) a. ***Jsem**   mluvil   s   Lucií.
         AUX-PAST.1sg talked.PP   with   Lucie
         'I talked to Lucie.'
     b. ***By**   mluvil   s   Lucií.
         AUX-COND.3sg talked.PP   with   Lucie
         'He would talk to Lucie.'

(2) a. Včera   **jsem**   mluvil   s   Lucií.
         yesterday   AUX-PAST.1sg talked.PP   with   Lucie
         'Yesterday I talked to Lucie.'
     b. Petr   **by**   mluvil   s   Lucií.
         Petr   AUX-COND.3sg talked.PP   with   Lucie
         'Petr would talk to Lucie.'

c. [Jíst   čokoládu]   jsem   viděl   taky   Lucii.
   eat.Inf chocolate.Acc AUX-Past.1sg   seen.PP also   Lucie.Acc
   'I also saw Lucie eating chocolate.'

One might imagine that the ungrammaticality of (1a-b) is imposed by an EPP requirement, i.e. a requirement that T have a specifier (alternatively, that some XP checks the EPP feature on T). Surprisingly, however, as noted by Ceplová (2003), examples (1a-b) are also improved by external merge of a higher head C, as seen in (3). Note that the higher head projects, forming a normal CP:

(3) a. Petr   mu   řekl,   že   **jsem**   mluvil   s   Lucií.
       Petr   him   said   that AUX-PAST.1sg   talked.PP   with   Lucie
       'Petr told him that I talked to Lucie.'
    b. Petr   řekl, že   **by**   mluvil   s   Lucií.
       Petr   said   that AUX-COND.3sg   talked.PP   with   Lucie
       'Petr said that he would talk to Lucie.'

It is the type of contrast seen in (1) vs. (2)-(3) that motivates the TEC:

(4) **The T-Extension Condition (TEC):**
    Merger of T must be followed by further extension of the structure.

The cases considered so far show the TEC satisfied by phrasal movement (and possibly by external merge of a phrase, if the adverb in (2a) has not moved into its surface position), and by external merge of C. The missing case at this point is internal merge of a head, which is the main topic of the remainder or this paper.

The examples in (1) might lead one to believe that verb-initial sentences are uniformly excluded in Czech, but in fact the examples in (1) contrast with (5):

(5) a. **Budu**   mluvit s   Lucií.
       AUX-FUT.1sg   talk.INF with   Lucie
       'I will talk to Lucie.'
    b. **Mluvím**   s   Lucií
       talk-I   with   Lucy.
       'I talk to Lucie.'

In section 2, I will argue that the finite verbal forms acceptable in clause-initial position (as in (5)) occupy T by virtue of movement. In a variety of recent works (Fukui and Takano (1998), Toyoshima (2001), Mohr (2002), and Matushansky (2004)) it is argued that head movement, like phrasal movement, extends the tree (contra Chomsky (2000)). Thus, if the verbal forms in (5), have moved to T by head movement, the TEC is satisfied. In contrast, I will argue that those finite verbal forms that are excluded from clause-initial position (as in (1)) are generated as *instances of T* rather than as verbs that have moved to T. As a consequence, the TEC is not satisfied. I will call verbal forms generated as instances of T *high verbs*, and verbal forms generated lower in the structure *low verbs*[2]. Notice that the proposal made here is independent of many details of head movement. The important idea is that head movement extends the tree, which will account for the contrast between high and low verbs.

In section 3, I will show that clitic head-movement yields the same result as verbal head-movement, i.e. it satisfies the TEC by extending the tree past T. Section 4 comments on the interaction of the TEC with phonologically null material (*pro*).

Needless to say, the TEC does not restrict extension of the tree only to one Merge operation. More than one extension is possible (a clause with a subject in Spec, TP can be embedded under a complementizer). I will not be considering such examples here.

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[2] The exact initial position of a low verb is irrelevant for the purposes of this paper. I assume that a main verb is in an instance of V and a low auxiliary is merged as v taking VP complement.

2. Internal Merge to T. Case I: Verbal Head-Movement

Evidence for the distinction between high and low verbs comes from (i) negation, (ii) adverb position, and (iii) lack of a non-finite counterpart of high verbs. A list of high and low verbs is given in (6).

(6)   a. <u>High Verbal forms</u>:   b. <u>Low Verbal forms</u>:
      Conditional auxiliaries   Main finite verbs
      (*by, bychom…*)   Future auxiliary
      Past Tense auxiliaries   (*budu, bude…*)
      (*jsem, jsi…*)

2.1 Negation as Evidence that High Verbs are an Instance of T

Sentential negation in Czech is realized as a bound morpheme on a verb. If we assume that a verbal head picks up negation in the process of movement,[3] we predict a difference between high and low verbs with respect to negation. Since NegP is located lower than T, a verb merged as an instance of T will not pick up negation. In contrast, a low verb merged below NegP can be combined with negation in the process of head movement. This prediction is borne out, as can be seen in (7)-(10).

(7)   a. *Já   **ne-jsem**   plakal.   **high: Past Tense aux *jsem***
         I   not-AUX.1sg   cried
      b. Já   **jsem**   **ne**-plakal.
         I   AUX.1sg   not-cried
      'I did not cry.'

(8)   a. *Já   **ne-bych**   plakal.   **high: Conditional aux *bych***
         I   not-AUX-COND.1sg cried
      b. Já   **bych**   **ne**-plakal.
         I   AUX-COND.1sg   not-cried
      'I would not cry.'

(9)   On **ne-bude**   plakat.[4]   **low: Future aux *bude***
      he not-AUX-FUT.3sg   cry
      'He will not cry.'

(10) On **ne-pláče**.   **low: main verb *pláče***
      he   not-cries
      'He does not cry.'

Negation thus provides an argument for a difference in the initial position of a high verb and a low verb. A high verb is base generated above NegP, while a low verb is base generated below NegP.

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3 Another option is to assume that a verb comes from lexicon already negated. For negation to be licensed, there has to be a point in derivation when it would be c-commanded by NegP. This hypothesis makes the same predictions for distribution of negation as the one given in the main text.
4 The minimal pair example 'On bude ne-plakat.' is also possible but it has a different meaning. The difference lies in the scope of negation and corresponds to the difference between constituent and sentential negation.

2.2 Position of Adverbs as Evidence for the High/Low Verb Distinction

It has been argued in the literature (Veselovská (1995)) that the movement to T of what I am calling low verbs is optional. The hypothesis that low verbs can optionally move to T and that high verbs are base generated as T makes certain predictions. First, since a high verb always occupies T (or it is higher), it must precede low material, such as low adverbs. Second, a verb merged below T may follow a low adverb — or precede it, if optional v-to-T movement takes place. On the other hand, no difference between low and high verbs with respect to high adverbs (i.e. adverbs above T) is expected. Both predictions are borne out.

As the examples in (11) and (12) demonstrate, a low verb can freely follow or precede low adverbs. On the other hand, a high verb is more restricted, as can be seen in (13) and (14). A high verb may precede a low adverb but cannot follow it unless the adverb is focused.

(11) a. Marie   **často**   **NEPLÁČE**.   **low: main verb**
     Mary   often   not-cries
   b. Marie   **NEPLÁČE**   **často**.
     Mary   not-cries   often
     'Marie does not often cry.

(12) a. Marie   **často**   **NEBUDE**   plakat.   **low: Future auxiliary**
     Mary   often   not-AUX-FUT.3sg   cry
   b. Marie   **NEBUDE**   **často**   plakat.
     Mary   not-AUX-FUT.3sg   often   cry
     'Mary will not often cry.'

(13) a. *Já   **často**   **JSEM**   neplakala.   **high: Past Tense aux**
     I   often   AUX.1sg   not-cried
   b. ***Často** **JSEM**   neplakala.
     often   AUX.1sg   not-cried
   c. Já   **JSEM**   **často**   neplakala.
     I   AUX.1sg   often   not-cried
     'I did not often cry.'

(14) a. *Marie **často**   **BY**   neplakala.   **high: Conditional aux**
     Mary   often   AUX-COND.3sg   not-cried
   b. ***Často** **BY**   neplakala.
     often   AUX-COND.3sg   not-cried
   c. Marie   **BY**   **často** neplakala.
     Mary   AUX-COND.3sg   often   not-cried
     'Mary would not often cry.'

This difference is predicted if we assume that the high verb is base generated above the position of low adverbials.

The unacceptability of (13b) and (14b) is a not a result of any *adverb+Aux* filter. With a high adverb the effect disappears, as can be seen in (15).

(15) a. **Zřejmě** **JSEM**   neplakala.   **high: Past Tense aux**
     evidently AUX.1sg   not-cried
   b. **Zřejmě** **BY**   neplakala.   **high: Conditional aux**
     evidently COND.3sg   not-cried
     'I evidently didn't cry.'

In addition, as the examples in (16)-(19) illustrate, there are no restrictions on the relative position of finite verbal forms with respect to high adverbs.

(16) a. **Zřejmě** **VIDÍM** Marii.   **low: main verb**
        evidently see.1sg Mary.Acc
      b. **VIDÍM** **zřejmě** Marii.
        see-1.sg. evidently Mary.Acc
        'I evidently see Mary.'

(17) a. **Zřejmě** **BUDE**   plakat.   **low: Future aux**
        evidently AUX-FUT.3sg to-cry
      b. **BUDE**   **zřejmě**   plakat.
        AUX-FUT.3sg   evidently   cry

(18) a. **Zřejmě** **JSEM**   neplakala.   **high: Past Tense aux**
        evidently AUX.1sg   not-cried
      b. Já   **JSEM**   **zřejmě**   neplakala.
        I   AUX.1sg   evidently   not-cried

(19) a. **Zřejmě** **BY**   neplakala.   **high: Conditional aux**
        evidently AUX-COND.3sg   not-cried
      b. Marie   **BY**   **zřejmě**   neplakala.
        Mary   AUX-COND.3sg   evidently   not-cried

The absence of differences between high and low verbs with respect to high adverbs (in contrast to the situation with low adverbs) is unsurprising — given the difference in original position of high and low verbs. In this way, comparison of the surface position of the verb with respect to high and low adverbs provides additional evidence in favor of the hypothesis that the original position of high and low verbs is different.

2.3 Non-Finite vs. Finite Verbal Forms

The evidence provided so far shows a positional difference between high verbs and low verbs. I have not pinpointed T as the exact location of high verbs, which must be the case if the contrasts discussed are due to the TEC. I do not have compelling evidence that bears on this precise point, but suggestive evidence that high verbs are instances of T comes from the following fact. High verbs occur only in finite forms. No non-finite form is available for a high verb. This is expected if we assume that high verbs are crucially Tense-dependent. In contrast, low verbs, including low generated auxiliaries, are Tense *in*dependent. Therefore, they are attested in non-finite forms as well. Notice that in this respect, Czech high verbs are similar to English modals, which are merged as T and also lack non-finite forms (in contrast to the auxiliaries *have* and *be*).

3. Internal Merge to T. Case II: Clitic Movement

In the previous section we have seen that the TEC is satisfied if the tree can be extended past T by verb movement. If this is due to extension of the tree by head movement, we predict that any kind of head movement to T will improve the examples in (1) — not just verb movement to T. This prediction is borne out, as can be seen in (20), where a high verb is attached to a reflexive clitic.

(20) a. ?jsem   **se**   tam   nudil
        AUX.1sg. **REFL**   there   bored
        'I was bored there.'
      b. ?bych   **se**   tam   nudil
        AUX.1sg. **REFL**   there   bored
        'I would be bored there.'

The reflexive clitic seen in (20) is a second-position clitic. Crucially, however, not every second position clitic improves a verb-initial clause with a high verb, as can be seen by comparing (20a) with (21).

(21) *jsem   **ho**   tam   nudil   **Non-reflexive clitic *ho***
       AUX.1sg.   **him**   there   bored
       'I was boring for him there.'

I will argue that the contrast illustrated by (20a) and (21) follows from structural differences between reflexive and non-reflexive nominal clitics. Only the reflexive clitics are heads adjoined to T. Consequently, only a reflexive clitic extends the tree past T and satisfies the TEC.[5] In contrast, non-reflexive clitics are located below T[6]. Therefore, merge of a non-reflexive clitic does not extend the tree past T and does not satisfy the TEC. The structural differences between non-reflexive and reflexive clitics are schematized in (22).

(22)   a. *Reflexive clitics (20a)*:   b. *Non-Reflexive clitics (21)*:
        [$_{TP}$ jsem   **se**   [$_{vP}$ ...]]   [$_{TP}$ jsem   [$_{vP}$ **ho** ...]]
                  AUX   REFL   AUX   him

I note in passing that high auxiliaries are also sometimes viewed as second position clitics (Franks 1998, Bošković 2001 among others). The contrast between (20a) and (21) shows clearly that the clitic status is irrelevant here.

The next subsections provide evidence for the proposed structural difference between reflexive and non-reflexive clitics. The evidence considered in this paper comes from (i) word order differences between reflexive clitics and non-reflexive clitics, and (ii) differences in behavior under VP-ellipsis. Further evidence (omitted for reasons of space in this paper) comes from contraction properties and case properties of nominal clitics.

3.1 Reflexive Clitics, Non-Reflexive Clitics and Word Order

When a cluster of nominal clitics is uniform in type, i.e. contains only reflexive or only non-reflexive clitics, linear order within the cluster is determined by the morphological case of the clitics in the cluster: a dative clitic precedes an accusative clitic. However, when the cluster is mixed in type, a reflexive clitic always precedes a non-reflexive clitic (cf. Franks (1998), among others). This suggests that reflexive clitics are structurally higher than non-reflexive clitics. This conclusion in turn supports the hypothesis that reflexive clitics are adjoined to T, while non-reflexive clitics are located lower in the structure.

Dative and Accusative Non-reflexive Clitics:
(23) a. Petr   **mu**   **ho**   ukázal.
         Petr   him-**Dat** him-**Acc**   showed
      b. *Petr   **ho**   **mu**   ukázal.
         Petr   him-**Acc**   him-**Dat**   showed
         'Peter showed him to him.'

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[5] The theory proposed in this paper predicts that sentences with a high verb followed by a reflexive clitic should be fully grammatical. In fact, they are slightly degraded, a fact for which I do not have an explanation. One possible approach might treat reflexive clitics, like high verbs, as instances of T. This is suggested, for example, by their deficient structural Case properties. If this is so, then a structure that contains both a high verb and a reflexive clitic would contain two heads occupying the same position. This might be a source of the lesser acceptability of (20). However, there is still a sharp contrast between (20) and (21) that the present theory explains.

[6] The exact location is irrelevant here. Non-reflexive clitics might be adjoined to vP or to a higher functional projection. What is crucial is that they are merged below T.

Dative and Accusative Reflexive Clitics:

(24) a. Petr **si** **se** nelíbil.
Petr REFL-**Dat** REFL-**Acc** not-liked

b. *Petr **se** **si** nelíbil.
Petr REFL-**Acc** REFL-**Dat** not-liked

'Peter didn't like himself.'

Sequence of Reflexive and Non-Reflexive Clitics:

(25) a. Petr **se** **mu** nelíbil.
Petr REFL-**Acc** him-**Dat** not-liked

b. *Petr **mu** **se** nelíbil.
Petr him-**Dat** REFL-**Acc** not-liked

'He didn't like Petr.'

(26) a. Petr **si** **ho** namaloval.
Petr REFL-**Dat** him-**Acc** painted

b. *Petr **ho** **si** namaloval.
Petr him-**Acc** REFL-**Dat** painted

'Petr made a picture of him.'

3.2 Clitics and VP-Ellipsis

The fact that a reflexive clitic is higher than a non-reflexive clitic does not entail, of course, that it is definitely adjoined to T. Evidence bearing more directly on this question comes from the interaction of clitics with VP-ellipsis. VP-ellipsis[7] in Czech does not motivate anything like *do*-support. In other words, T does not require an overt morphological realization. Nonetheless, the type of auxiliary that is prohibited in the clause initial position (a high verb) may be a remnant of VP-ellipsis (though the result is slightly degraded). If a reflexive clitic is adjoined to T, we predict that the reflexive clitic will form part of the pronounced remnant, together with the high verb auxiliary. On the other hand, if a non-reflexive clitic is located lower in the structure, it should be elided even if the high verb is pronounced. This is correct, as shown in (27)-(30):

(27) Já **jsem** **se** viděl v televizi
I AUX REFL seen in TV

'I saw myself on TV.'

(28) a. …a ty taky.
and you too

b. *…a TY **jsi** taky
and you AUX too

c. ?…a TY **jsi** **se** taky
and you AUX REFL too

'…and you did as well.'

(29) Já jsem ho viděl v televizi
I AUX him seen in TV

'I saw him on TV.'

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[7] I am using the term VP-ellipsis as a shortcut. The elided structure may be bigger: vP or TP. The actual size of the ellipsis is irrelevant for the current discussion.

(30) a. …a   ty   taky.
      and   you   too
   b. ?…a   TY   **jsi**   taky
       and   you   AUX   too
   c. *…a   TY   **jsi**   **ho**   taky
       and   you   AUX   him   too
     '…and you did as well.'

The structural difference between a reflexive and non-reflexive clitic with respect to VP-ellipsis is schematically given in (31). Since a reflexive clitic is a part of T, it can escape the ellipsis (as in (31a)). In contrast, a non-reflexive clitic, located below T, is trapped in the elided part of the structure (as in (31b)).

(31)   a. *Reflexive clitics (28c):*   b. *Non-Reflexive clitics (30b):*
       [$_{TP}$ jsi **se** [$_{vP}$ ~~viděl v televizi~~]]   [$_{TP}$ jsi [$_{vP}$ **~~ho~~** ~~viděl v televizi~~]]

3.3 Summary

Clitic head-movement thus provides another piece of evidence for the TEC (assuming that head-movement extends the tree). The argument is based on the observation that a reflexive clitic — but not a non-reflexive clitic — improves the grammaticality of otherwise impossible high-verb initial sentences. I have proposed that this effect arises from a structural difference between reflexive and non-reflexive clitics. Only the former is a head adjoined to T. Therefore, only merge of a reflexive clitic extends the tree and satisfies the TEC. Since non-reflexive clitics are adjoined below T, they do not extend the tree past T and thus they do not satisfy the TEC.

4. Note about *pro*

A question that arises is why the TEC cannot be satisfied by *pro*. If the condition is syntactic, merge of *pro* as Spec, TP should count as tree extension as well. It might be the case that *pro* does not move to Spec, TP but remains in its θ-position. Since Czech is a scrambling language, feature checking, including Case assignment, can be accomplished by means of long-distance Agree (or a similar checking mechanism). In such a language, overt movement of a DP affects information structure of the utterance. Consequently, there is no need for *pro* to move from its argument position. A similar argument has been made for example by Cardinaletti (1994) for Italian (contra Ceplová (2003) for Czech).

Alternatively, one might imagine a version of the TEC that is sensitive to phonological realization, requiring that the element that extends the tree phonologically precedes T. In fact, however, the behavior of reflexive clitics shows that this proposal cannot be correct. The second-position property of these reflexive clitics causes them to follow T in examples such as (20). Consequently, I will assume that the TEC is a well-formedness condition on syntax, not on phonological realization of syntactic structures, and that the special property of *pro* follows from other factors.

5. Conclusion

This paper has argued for a condition on well-formedness of syntactic structures requiring that merger of T must be followed by further extension of the structure (TEC). Since, as was shown in the previous sections, any external or internal Merge of a head or of a phrase yields a well-formed structure, the condition must be stated in this general way.

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