Complementizers and the Status of Root Sentences

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1.   In his thesis (1970), Joe Emonds suggested that transformations fall
into one of two classes: either they must be able to apply to any sentence
that meets their structural description, or they may be limited to apply
only in what Emonds called "root sentences", a notion that corresponds
roughly to main clause. Such transformations, which he called "root trans-
formations", were then restricted to non-embedded clauses; furthermore, the
theory Emonds was proposing would permit no other kinds of restrictions on
which cycles or sentences a transformation might apply in.

    In a well-known reply, in 1973, Joan Hooper and Sandra Thompson argued
that the transformations Emonds called "root" were constrained not to apply
only in main clauses, as Emonds had suggested, but rather, in sentences
whose content was being "asserted"--a notion difficult to formalize, but
more or less clear in a good number of cases. On their account, Emonds was
mislead to the conclusion that certain transformations applied only in main-
clauses because, generally speaking, main clauses are asserted, whereas only
a rather restricted set of subordinate clauses are asserted. Thus while
Emonds' strictly formal approach accounts for the difference in grammatica-
lity in (1) and (2), Hooper and Thompson urge abandoning a formal theory
for one which offers some promise of also accounting for the judgments in
(3) and (4).   (1) and (2) seem to show that "directional adverbs" can be
fronted only in main clauses; (3) and (4) show that even certain subordinate
clauses (which Hooper and Thompson call "asserted") will permit such fronting.

    (1) Over the hill rode the cavalry.
    (2) *I snapped this photo here precisely when over the hill
         rode the cavalry.
    (3) I was enjoying the quiet scenery, when--wouldn't you
         know it--over the hill rode the whole blame cavalry.
    (4) The incredible thought that across the room from me
         sat the Kilgore Trout left my mouth dry and the palms
         of my hands wet.

Of course, by the same token, a semantic analysis of this construction should
account for the differences noted in (5) and (6):

    (5)*?In the old days, across the plains rode the mighty
         bison.
    (6) Across the plain rode the solitary, courageous Pony
         Express courrier.

Hooper and Thompson offer the broad outline of an account that would deal
with the differences of judgments in (1)-(4); their account is limited in
both scope and detail, leaving quite unresolved most of the syntactic and
semantic questions raised.[2]   There is thus no adequate general account of

these "root" phenomena that Emonds pointed to, which include various
fronting transformations such as that illustrated above, topicalization,
and Tag Question Formation.

My intention in this paper is to defend Emonds' original theoretical
principle. I hope to show that if we look at a few more relevant cases--
not just the examples that Emonds raised and which have been repeated in
virtually all the subsequent literature--his 1970 proposal works remarkably
well.

What is most remarkable, perhaps, is that virtually all the evidence
he proposed at that point is now, for one reason or another, unconvincing.
However, even if Hooper and Thompson are entirely correct in their analysis
of English, these results would most naturally be interpreted as arguing
not for constraints on rule-application instead of an Emonds-type
"root" diacritic, but for a simpler picture. That is, Hooper and Thompson
will have argued that the transformations in question are syntactically
free to apply anywhere, but that their discourse and semantic effects are
incoherent in sentences which are not being asserted.

Such a result would show that Emonds' notion of "root", formally
defined, was unnecessary so far; it would not show that it was wrong. The
examples below from Igbo, Norwegian, and French present transformational
properties of the root of the sentence that are very difficult to reinter-
pret in terms of discourse function. I take these examples, therefore, to
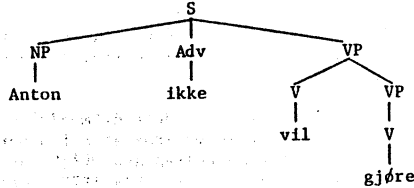support Emonds' original formal definition of root sentence.

2.   In Norwegian, there is transformational process that varies the
position of a small class of adverbs depending on whether the adverb
appears in a root clause or not. This alternation is illustrated in
(7), using ikke 'not' as an illustrative member of the class of adverbs.

(7) a. Anton vil ikke gjøre hva han ikke skulle gjøre.
         'Anton will not do what he not should do'.
     b. Inga sa, at Anton ikke vil gjøre hva han ikke skulle
         gjøre.
         'Inga said that Anton not will do what he not should do'.

In the first example, the first ikke appears after the finite verb in the
main clause, but before it in the second, embedded clause. Note that there
are no auxiliary verbs from a syntactic point of view in Norwegian; modal
verbs like vil, skulle, and so forth, behave syntactically like such verbs
as gjøre 'do', tenke 'think', and so forth, except that they are followed
by a null complementizer. Note that the position of ikke is before the
finite verb in (7b).

Even with only as limited a set of data as (7) provides, the formal
approach to root sentences provides an unambiguous analysis, and a number
of predictions. The analysis includes a pre-verbal position for ikke in
deep structure, as in (8), and a root-transformation permuting the verb
and ikke just in root sentences, of course, as the rule (9) shows.

(8)

```
                           S
            ┌──────────────┼──────────────┐
           NP             Adv            VP
            │              │          ┌───┴───┐
          Anton          ikke         V      VP
                                      │       │
                                     vil      V
                                              │
                                            gjøre
```

(9) Ikke-extraposition (Root S only)

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        Adv. ikke   V
            1    2    →
            Ø    2+1
```
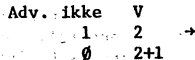
We would then expect to find, as we do, that in relative clauses and adverbial clauses the adverb ikke appears before the finite verb. Thus the criterion for application of ikke-extraposition is strictly formal; there are no verbs, in fact, to my knowledge, which permit ikke to behave in their complements as if it were in a main clause. That is, all verbs put the same constraints on ikke as si 'say' does in (10).

```
(10)  Hun sa   (at)   han (ikke) vil  (*ikke) komme igjen.
      She said (that) he  (not)  will         come  back.
```

Notice that this is true independent of whether at 'that' is present.

As we would then expect, in relative clauses as well, ikke-extraposition does not apply, as we see in sentences like (11).

```
(11)  En mann som  (ikke) kunne (*ikke) snakke norsk    var her.
      A   man  that (not)  could         speak  Norwegian was here.
```

More interesting still is that in sentences that are indeed root S's in Emonds' formal sense but which are not main or asserted clauses by any stretch of the linguistic imagination, the root rule (9) of ikke-extraposition applies. Emonds defines as a root S any S dominated only by other S's. Thus certain S's preposed to the front of the main clause are themselves root S's. In Norwegian, (12) may be said, paraphrasing (13).[3]
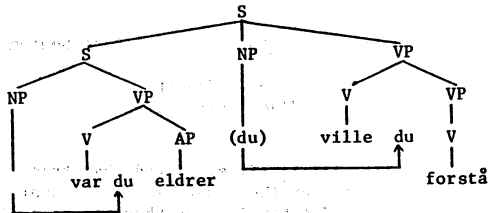
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(12)  Var du eldrer, ville du forstå.
      'Were you older, would you understand'.
(13)  Du ville forstå hvis du var eldrer.
      'You would understand if you were older'.
```

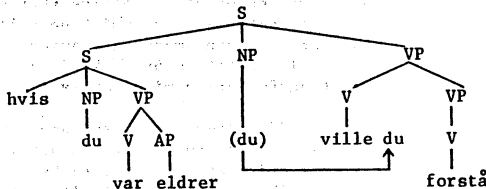The derivation of (12) passes through a stage similar to (14).

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(14)  Hvis du var eldre, ville du forstå.
```

The structures of (12) and (14) are as in (15) and (16), respectively:

(15)

```
                              S
         ┌────────────────────┼──────────────────┐
         S                    NP                  VP
   ┌─────┴─────┐              │            ┌──────┴──────┐
   NP          VP            (du)          V             VP
   │      ┌────┴────┐                  ville  du         V
   V      V         AP                    └────┐          │
   │      │         │                                  forstå
  var     du     eldrer
   └───────────────┘
```

(16)

```
                              S
         ┌────────────────────┼──────────────────┐
         S                    NP                  VP
   ┌─────┼─────┐              │            ┌──────┴──────┐
  hvis  NP     VP            (du)          V             VP
         │   ┌──┴──┐                    ville  du        V
         du  V     AP                      └────┐         │
             │     │                                   forstå
            var  eldrer
```

In (15) and (16), the conditional clauses <u>var du eldrer</u> 'were you older' and <u>hvis du var eldrer</u> 'if you were older' are root S's in the formal sense: they are S's dominated only by other S nodes.[4]

Assuming now that (15) is derived by <u>hvis</u>-deletion (or contains a null complementizer) and subsequent subject-verb inversion,[5] we may note that adverbs like <u>ikke</u> are obligatorily subject to the root rule of <u>ikke</u>-extraposition in cases like (15). Thus the formal approach to defining root S-nodes makes the surprising, and apparently correct prediction that the subordinate clause in (15) is subject to the root rule (9). We will see below why it would not apply in (16), for we have not yet developed any reason to treat these two cases differently.

(17) Var du ikke så ung, ville du forstå.
      *Ikke var du så ung, ville du forstå.
      'Were you not so young, would you understand'.
(18) Hvis du ikke var så ung, ville du forstå.
      *Hvis du var ikke så ung, ville du forstå.
      'If you were not so young, would you understand'.

3. The second example of a root quite unaffected by degree of assertion is drawn from Igbo, a Kwa language of Nigeria with no recent genetic affiliation to any Indo-European language.[6] Igbo is an SVO, highly tonal language (cf. Goldsmith 1976b). Thus a typical sentence might be (19).

(19) Chàlí   fùlù ṳnọ̀.
      Charlie saw house.

Sentences with pronominal subject show a peculiarity in the 1st person

singular form; consider the following independent sentences:

(20)   Singular   Plural

1st   Á fùlùm únò.   Ányị fùlù únò.

2nd   Ị fùlù únò.   Únù fùlù únò.

3rd   Ọ́ fùlù únò.   Fá fùlù únò.

Indef   Á fùlù únò.

The peculiarity is the presence of the m̲ following the verb in the first-
person singular. It quite regularly follows all suffixes (such as lu̲ in
(20)). The a̲-prefix in the 1st person singular form may well be related
in some way to the "indefinite subject", but this is not clear.

To accept (20) as underlying forms violates several otherwise quite
plausible principles of Igbo morphology, if we view the m̲ as a verbal
suffix, or of the syntax, if we view the m̲ as a noun or NP following the
verb. The morphological analysis would require setting up a category
(with only one member) of suffixes that must̲ be final; it would have the
further peculiar property of being the only verbal suffix̲ to mark subject
person and number in this, an SVO language.

If the m̲ were generated by the phrase-structure rules, as in (21),
again we arrive at peculiar conclusions regarding the structure of Igbo.

(21)
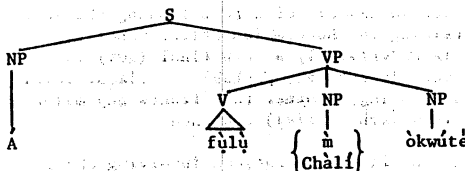
There is little doubt that some̲ post-verbal m̲'s are generated much
as in (21); these, however, correspond to indirect objects. That is,
Igbo quite generally permits double object constructions, as in 'John threw
Charlie/me the rock' Jóhn tùọlù Chàlí/m̀ òkwúte. But that the phrase
structure rule NP→V NP NP cannot be the source of the two post verbal
nouns in (21) is clear, for we find the post-verbal pronoun m̲ even when
followed by two more NP objects (e.g., Á fùlùm Chàlí òkwúte).

In short, the post-verbal m̲'s are anomalous from a syntactic point of
view as well. Where morphology and base rule fail, however, there a non-
structure preserving transformation does the trick, as in (22).

(22)   m̲-extraposition

m   V
1   2   →
a   2+1

The relevance of this discussion of Igbo--and the motivation of a (local)
transformation there--derives from the fact that (22) m̲-extraposition is
a formal root rule, whose domain of application is unaffected by discourse
factors. Thus we find alternations like in (23), (24).

(23) Á fụ̀lụ̀m ụ́nọ̀.
      saw-I a house.

      Ọ́ sị̀lị̀ nà ⎰ ḿ fụ̀lụ̀ ụ́nọ̀.
      he said that ⎱ I saw house
                   ⎰*á fụ̀lụ̀m ụ́nọ̀.
                   ⎱ saw-I house

(24) Á fụ̀lụ̀m ụ́nọ̀ ị́ lụ̀lụ̀ nà Bóstọ̀n.
      saw-I house you built in Boston.

      ị̀ fụ̀lụ̀ ụ́nọ̀ ⎰ ḿ lụ̀lụ̀ nà Bóstọ̀n.
      you saw house ⎱ I built in Boston.
                    ⎰*á lụ̀lụ̀m nà Bóstọ̀n.
                    ⎱

      Á lụ̀lụ̀m ụ́nọ̀ nà Bóstọ̀n.
      built-I house in Boston.

Thus (22) shows itself to be a formal root rule; any verb would have
functioned like si 'say' in (23).

4.   French contains yet another formal root transformation, as noted by
Dubuisson and Goldsmith (1975), and Emonds (1976), based on Kayne's (1972)
analysis. Thus rule, Subject Clitic Inversion, is given in (25).

(25) Subject Clitic Inversion (Root S only)

              Pronoun   V
              1   2   →
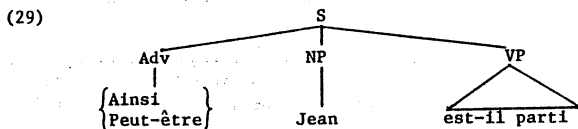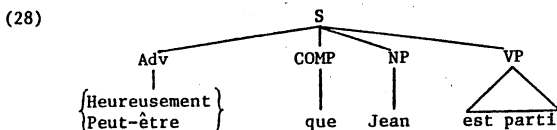   ∅   2+1

Subject Clitic Inversion can apply optionally in main clauses, and
when it does, it is interpreted semantically, in most cases, as a direct
yes/no question: Jean est-il parti? 'Has John left?' Another interpreta-
tion is available, however, in certain cases where the yes/no question
interpretation would make no sense (cf. Dubuisson and Goldsmith 1975).
After a certain class of adverbs which may prepose to the front of the
(root) sentence immediately without following pause, subject-clitic
inversion may apply in the clause without the yes/no question interpreta-
tion. Thus while (26) is a question, (27) is a statement.[7]

(26) Jean est-il déjà   parti?
      John is-he already left?
(27) Peut-être Jean est-il déjà   parti.
      Maybe   John is-he already left.

However, as noted in Dubuisson and Goldsmith, sentence adverbs of this
sort, that may be anteposed without being surrounded by commas (or pause),

fall into three classes: (1) those like <u>ainsi</u> and <u>toujours</u> that are never
followed by the complementizer <u>que</u> 'that'; (2) those like <u>heureusement</u> (cf.
Grevisse §180) which require a following <u>que</u>; and those like <u>peut-être</u>
which may optionally be followed by <u>que</u>. Wh-words (whords) fall into
category (1) in standard French, and into category (2) in many dialects.

Despite lexical and dialectal variation, though, one generalization
holds throughout: subject-clitic inversion occurs only when no <u>que</u> is
present. More data supporting this generalization is presented in Dubuisson
and Goldsmith. This observation, though very much consistent with the view
that subject-clitic inversion is a root process, does not follow from it;
even a sentence like that in (28) is a root by Emonds' definition, and does
not differ in any crucial way from (29), where subject clitic inversion <u>can</u>
apply.

(28)

```
                              S
          ┌──────────┬────────┴──────┬────────┐
        Adv         COMP            NP        VP
         │            │             │      ╱────╲
   ⎰Heureusement⎱     │            │    est parti
   ⎱Peut-être   ⎰    que         Jean
```

(29)

```
                         S
          ┌──────────────┼──────────────┐
        Adv              NP             VP
         │                │          ╱──────╲
   ⎰Ainsi   ⎱           Jean      est-il parti
   ⎱Peut-être⎱
```

Thus we propose a further (necessary) condition for an S to be a formal
root sentence: Condition (30), the No-Complementizer Condition.

(30) No-Complementizer Condition (NCC)

Rule R...may not apply to an S headed by a
complementizer.

Thus subject-clitic inversion cannot apply in (28) because the S is headed
by a complementizer. Such a condition now explains, in a loose sense,
perhaps, why <u>ikke</u>-extraposition did not apply in (18) above, the <u>if</u>-
clause headed by <u>hvis</u> 'if' in Norwegian. The clause thus is headed by a
complementizer and is not a formal root S.

5. Further uses of the No-Complementizer Condition.

Two other cases briefly noted by Emonds (1976, pp. 23-25) seem to make
reference to the No-Complementizer Condition; these cases seem to revolve
around rules slipping out of the category of formal root rule into some
more general condition. The first case is subject-auxiliary inversion in
English; the second is verb-fronting in German.

As is well-known, subject-aux inversion occurs in standard English in

direct questions but not indirect questions (cf. (31)).

(31) a. Did John leave?
      b. I wonder ⎰⎱whether⎰ John left.
                   ⎱if   ⎰
                   ⎰*∅   ⎱
                   *whether did John leave.
                   *if did John leave.

However, for many speakers, another structure is becoming more and more popular--the form in (32).

(32) a. I wonder did John leave.
      b. I asked him did John leave.
      c. I asked Bill did he (=Bill) borrow my book.

For these innovative speakers, it is still true, I believe, that the starred forms in (31b) are ungrammatical.

Thus while subject-aux inversion is for these innovative speakers loosing its status as a formal root transformation, it is still subject to the No-Complementizer Condition. While this persistence suggests strongly that the condition has a substantial linguistic reality, just why it should linger on when a rule is no longer a root rule is unclear to me. It is clear, of course, that the No-Complementizer Condition is not a general condition on transformational rules.

A second example of a rule loosing the status of a formal root rule but retaining the No-Complementizer Condition is verb-fronting in German. German is underlyingly a verb-final (SOV) language; in main clauses, the finite verb is fronted, probably to clause-initial position. Subsequent to this fronting, another rule fronts any major constituent to the front of the (now verb-initial) sentence.

Thus we find alternations involving change of verb position as in (33).

(33) Der Hans hat das Buch gelesen.
      Heinrich sagte, dass der Hans das Buch gelesen habe.
      Der NP, der das Subjekt früher war, ist spurlos verschwunden.

(cf. Der NP war früher das Subjekt)

However, as Emonds (1976) notes, verb fronting may occur after certain verbs of saying such as sagen 'to say':

(34) Hans sagte, er habe Hunger.

This extention of verb fronting occurs only when the complementizer dass 'that' has deleted. Similarly, when ob 'if' can delete (under extremely restricted conditions), verb fronting again can occur in a non-root sentence:

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(35)   Hans sehe aus,   als ob er krank wäre.
       Hans   seems,   as   if he sick   were.
                   *als ob er wäre krank.
                   als wäre er krank.

(Here verb fronting seems to have applied without subsequent topicalization.)

     Thus it seems that we can say more generally that Verb-fronting is not
inherently a root transformation, as Emonds suggested, but is rather subject
to the No-Complementizer Condition; meanwhile, Complementizer deletion in
German is largely (though not completely, as we have seen) limited to Root
sentences. In those few cases where the complementizer deletes in non-root
sentences, verb fronting does apply, suggesting it is not, in fact, actually
a root transformation.

     A similar conclusion, interestingly, can be drawn for the French
subject-clitic inversion, but with much less justification, for we have
no cases in French where the complementizer deletes in embedded sentences
(as we do in German). Thus while we could say Subject-Clitic Inversion
is not a root rule in French, we have no clear positive evidence for that
move.

     On the other hand, it is clear we cannot make the move of saying that
ikke-extraposition is non-root and subject to the No-Complementizer Condi-
tion in Norwegian, since the presence or absence of ikke is irrelevant to
the application of the rule (cf. (10)).

6.   Residual Questions. Three points remain to comment upon. The first
concerns the overwhelming similarity in form (though not function) of the
four rules, Subject-Clitic Inversion in French, ikke-extraposition in
Norwegian, m-extraposition in Igbo, and Subject-aux Inversion in English.
These are all local rules in Emonds' sense; they do not involve variables,
they permute adjacent terms, and they do not involve more than one major
category. Furthermore, they all affect the first and finite verb--as does
the rule of German verb-fronting. Just how this remarkable coincidence is
to be accounted for I must leave open.

     The second point that must be touched on is the precise formulation of
the rule of that/que/at/hvis/dass-deletion. I have not formulated a rule
of complementizer-deletion for want of a satisfactory approach. English
(and Norwegian) have a rather free attitude towards liquidating their
complementizers, as Chomsky and Lasnik (1977) have recently noted. However,
their approach of employing a syntactically unrestricted rule of complemen-
tizer deletion works only under unsatisfactorily restricted conditions in
English, and does not appear to be extendable to the French or German data
considered here, for example.

     The problem, of course, is that the account of that and que (French)
deletion that is suggested by Emonds' framework is a especially simple
formal root rule, roughly without any further context. However, the No-
Complementizer Condition says a root rule cannot apply to a sentence headed
by a complementizer, which would make a root-rule that deletes the comple-
mentizer nowhere applicable! One could make the No-Complementizer Condition
inapplicable to just that one root rule; or one could modify the No-

Complementizer Condition to say that a root rule may not apply to a sentence headed by a complementizer preceded by other lexical material. Neither solution is satisfying, and the second makes the wrong prediction for some cases in French discussed in Dubuisson and Goldsmith. Again, we shall leave open the resolution of this relatively minor problem.

Lastly, we might note that the No-Complementizer Condition clearly does not consider whords placed in sentence-initial position by Wh-movement as "complementizers" in the relevant sense (such wh-words act, rather, like the preposed sentence adverbs in French). Whether this is because the whords are not in fact dominated by a COMP-node or because the No-Complementizer Condition must specifically refer to the category complementizer (which, presumably, whords are not) is a third question I will leave open. The resolution of this question clearly rests on further work distinguishing the syntagmatic and paradigmatic sense of COMP as used in current syntactic research.

Footnotes

1. This paper is a portion of a larger paper now in progress. I would like to thank all those whose comments have improved this paper, and especially Colette Dubuisson, my conversations in 1975 with whom led to this paper.

2. The only examinations I know of are unpublished (Goldsmith & Woisetschlaeger 1975; Goldsmith 1976a)—but see also, for some parallel observations on French, Atkinson (1973).

3. The inversion of subject and finite verb in (12), (14), etc., is the effect of the verb-second constraint in Norwegian. The subject NP, that is, quite regularly inverts with the finite verb whenever material is transformationally preposed before the finite verb.

Adverbs like ikke are often, it may be noted, in third position, as James Gee pointed out in discussion following the presentation. However, since the subordinating complementizer is optional (cf. (10) above), this principle cannot be the appropriate one.

4. I am not distinguishing here between these. Clearly the $\bar{S}$ status of a sentence, or the corresponding category in some other theory of English constituency, is relevant here precisely because the $\bar{S}$ node is motivated by the appearance of the 'complementizer' hvis. One might very well be tempted to define a root S as an S dominated only by other $\bar{S}$'s, not $\bar{S}$'s. This neat formulation is frankly more attractive in terms of elegance than the proposal made below, but the evidence from French seems to preclude it, unfortunately.

5. The crucial assumption here is that the rule operating in the subordinate clause in (15) cannot be written so as to simply move the verb to the front of the clause, over the subject and an optional adverb. In reviewing a number of similar syntactic rules (including those discussed in Igbo—cf. Goldsmith (1976b, chapter 2)—all are "local", in Emonds' sense. If the Norwegian subject-verb inversion is local, no formulation of the rule could permit the inversion over ikke; hence ikke-extraposition must have applied. A plausible principle guaranteeing the local nature of subject-verb inversion would be that all non-local rules are either structure-

preserving or unbounded; or, with much the same effect, to simply eliminate the use of parenthesized material in syntactic rules.

6. The data is from my own work with Charles Ukwu on his dialect, a typical Northern dialect, that of the city of Enugu. Although I have found no discussion of this phenomenon in the extant grammars of Igbo, the texts provided by Green and Igwe, for example, for Ohuhu, a Southern dialect, largely support the present analysis. The phenomenon is more complicated, understandably, when further tenses are considered, but the point of the text remains valid.

7. This inversion after adverbs, is nowadays only a feature of rather marked speech, though quite common in written French (certain fixed expressions aside, such as toujours est-il que...). The fact that this rule is no longer a part of the central or totally living grammar makes it difficult to decide whether inversion should be considered optional or obligatory here.

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