Phonological Approach to Complementizer-Trace Effects

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1. Introduction

In non-relative constructions, the presence of an overt complementizer blocks the extraction of a subject out of the embedded clause. This fact is shown in the following examples in (1):

(1) a. Who do you think came?
   b. * Who do you think that came?

It has widely been assumed in the literature that the sentences in (1) have the following structures respectively:

(2) a. Who, do you think [CP ti C] [IP ti came]
   b. * Who, do you think [CP t that [IP ti came]]

However, complementizer-trace ordering is completely acceptable in some languages. To see this, consider the following examples from French and West Flemish:

(3) a. L’homme [OP que [je pense [t’que [Jean croit [t’ qui [t viendra]]]]]]
   ‘The man that I think that John believes that will come.’
   (French : Rizzi(1990))

(4) Den vent [OP da [Pol peinst [t die [t gekomen ist]]]]
   ‘The man that Pol thinks that come is’
   (West Flemish : Haegueman)

Furthermore, complementizer-trace ordering is all right for some speakers of German, although it is not unanimously accepted by all speakers of that language.

(5) Wer hat sie gesagt [t dass [t gekommen ist]] (German)
   ‘Who has she said [that [came is]]’

In accurate terms, English may also belong to this last category, as some people feel that such sentences as (1b) is totally acceptable.

In this paper, I will claim that complementizer-trace phenomenon is a matter that should be handled in the field of phonology. In particular, I will here assume, following Yamashita (1995), that an overt complementizer cannot license a trace unless it has a relative stress. In other words, if a complementizer does not bear a stress, a sentence with complementizer-trace ordering would be excluded on the same grounds that (6b) is ungrammatical.
(6) a. He told me to pay the charges, and pay the charges I WILL t.
   b. * He told me to pay the charges, and pay the charges I'll t.

In (6b) the trace is preceded by an unstressed word, and this has led to the negative judgement of the sentence. The same applies for English complementizer-trace ordering, as we can see from the following structural representation.

(7) a. Who do you think that came
   b. * Who do you think [CP t] that [t came]

Here, the trace of who is preceded by an overt complementizer that, which is widely believed to have no stress in English.

2. Complementizer-Trace Effects and Stress

In Yamashita (1995), it has been claimed that AGRS raises to C only in languages that has strong AGRS. I have also stressed there that this movement voids the barrierhood of AGRSP, enabling C to head govern the subject trace. We can now account for why complementizer-trace effects are missing in such languages as French, German, West Flemish, and Icelandic, while present in English. The members of the former group of languages have strong AGRS, while English-type languages do not.

First, let us re-cast some of the representative data we have seen in the previous section:

(8) a. L'homme [OP que [je pense [t que [Jean croit [t qui [t viendra]]]]]]'
    'The man that I think that John believes that will come.'
    (French: Rizzi (1990))

(9) Den vent [OP da [Pol peinst [t die [t gekomen ist]]]]
    'The man that Pol thinks that come is'
    (West Flemish)

(10) Wer hat sie gesagt [t dass [t gekommen ist]] (German)
    'Who has she said that came is'

(11) * Who do you think [t that [t came]] (English)

In the upper three languages, AGRS is strong and as a result it can raise to C. Note that in French, an overt complementizer has a special form when a subject is Wh-extracted, further indicating that AGRS has raised to C. In West Flemish, the overt complementizer changes its forms according to what the subject is, strongly reenforcing our claim that AGRS raises to C. This is not true in English, which does not own strong AGRS.

Although this approach works pretty well in accounting for those cross-linguistic variations, there is at least one problem that cannot be solved in my approach. In German, some speakers strongly reject complementizer-trace ordering, although the majority of the people accept it.

In French and West Flemish, there seems to be no such variation among speakers as far as this ordering is concerned. I have never seen someone claiming in the literature that such examples as
(8) and (9) are ungrammatical.

In Standard English, examples like (11) are systematically excluded by most of the writers that I have consulted with.

In some dialects of English, however, such examples as (11) are acceptable for at least some speakers of those dialects. Sobin (1987) points out that in such dialects, spoken mainly by the members of the minority groups, about thirty percent of those surveyed responded that (11) is either positively or partially acceptable. Since V cannot overtly raise to AGRS and thus AGRS cannot raise to C either in those dialects, we wrongly predict that (11) is completely unacceptable in those dialects as well.

The question that we must answer here is why such a language internal variation appears in some languages, while missing in others.

A recent report observes that the overt complementizer in such English dialects that allow complementizer-trace ordering is rather stressed, compared to that in Standard English. Here, we will tentatively assume that the following condition must be met in order to allow complementizer-trace ordering.

(12) The complementizer must be rather stressed if it is immediately followed by a trace of an extracted subject.

There is some strong evidence to believe that (12) is on the right track. To see this, consider first the following examples:

(13) a. I will go.
   b. I'll go.

Such auxiliaries as will are normally unstressed and it can freely take a contracted form. However, when something that immediately follows the auxiliary is extracted or deleted, it is usually stressed and contracted forms can never appear.

(14) a. He told me to pay the charges, and pay the charges I WILL t.
   b. * He told me to pay the charges, and pay the charges I'll t.

In (14b) the trace is preceded by an unstressed word (= the reduced form of will), and this has led to the negative judgement of the sentence.

The general condition, from which (12) follows, can thus be stated as follows:

(12') Traces cannot be immediately preceded by an unstressed element.

Let us take this phonological analysis seriously and try to extend it to complementizer-trace cases in various languages and dialects. Here we will start off with cases concerning French and West Flemish. In those languages, complementizer changes their forms under certain circumstances; eg., when a subject is extracted or relativized. This fact can be seen from the ungrammaticality of the following French sentence.

(15) * L'homme [OP que [je pense [t' que [Jean croit [t' que [t viendra]]]]]]

'The man that I think that John believes that will come.'
Here, the underlined complementizer must be *qui* instead of *que*. We naturally expect that in cases where some element changes its form, such an element is more stressed compared to those which does not change forms. As the trace of the subject is preceded by a stressed complementizer, (8) and (9), repeated here as (16) and (17), do not violate (12) and we correctly expect that complementizer-trace ordering is allowed in these languages.

(16) a. L'homme [OP que [je pense [t' que [Jean croit [t' qui [t viendra]]]]]]

'The man that I think that John believes that will come.'

(17) Den vent [OP da [Pol peinst [t' die [t gekomen ist]]]]

'The man that Pol thinks that came came. (Subject extraction)

(West Flemish)

In Standard English, the form of the complementizer does not change, meaning that they are less stressed. Therefore, complementizer-trace effects do appear, as we can see from the example in (11), repeated here as (18).

(18) * Who do you think [t' that [t came]] (Standard English)

Here, the trace of the moved wh-subject is immediately preceded by an unstressed element, violating the condition in (12). Therefore, we correctly predict that (18) is ruled out in Standard English.¹

It is sometimes said that those who accept (18) tend to put stress on the overt complementizer even in such sentences as (19).

(19) I think that John is honest.

Such sentences as (18) do not violate (12) for these people and we naturally expect that they are all right for them. We now have accounts for language-internal variation concerning the acceptability of *that*-*t* ordering in English.

Before we conclude our discussion here, let us make sure that our approach works for other cases involving wh-extractions. First, consider the following examples involving subject extraction from an embedded clause without an overt complementizer:

(20) Who do you think [ [t kissed Mary]]

The subject trace is preceded by a stressed element ( = the matrix verb *think*), satisfying (12). Note that verbs are usually stressed. Here, we correctly predict that (20) is unanimously accepted.

Exactly the same reasoning holds for object extractions.

(21) Who do you think [ (that) [Mary killed t]]

The object trace here is preceded by a stressed element ( = the embedded verb *kill*), satisfying (12). Here too, we correctly predict that (21) is completely grammatical.
We have seen here that (12) can account for language-internal/cross-linguistic variations concerning complementizer-trace ordering. German cases still remain a mystery, but I am afraid I do not have sufficient data to make any comments on it here. I will leave the matter open here instead.

3. Concluding Remarks
We have seen in this paper that what is often called complementizer-trace effects are something that should be handled in the field of phonology. The condition in (12), which simply stipulates that an empty category cannot be preceded by an unstressed element, can not only give explanation to the cross-linguistic variations of the acceptability of complementizer-trace ordering but it can also account for why there exists a variation among the dialects of the same language.

This condition can also account for why there exists no language-internal variation in judgement in cases where subject is extracted out of the embedded clause without an overt complementizer or where an object of a verb is extracted.

Notes
1) It is a well-known fact that when something intervenes between that and a trace, the sentence becomes perfectly acceptable even for those who usually reject that-t ordering.
   i) Which doctor i do you think that under such circumstance t rushes to the hospital?

   The condition in (12) can handle this type of casts as well. Here, the noun circumstances can license the trace properly.

2) Relatives may seem to pose a problem to our approach at first glance.
   ii) The book [CP Op, that [IP t i was written by him]]

   Here, the trace is immediately preceded by an unstressed word (ie, that) and we wrongly predict that ii) is ungrammatical. However, I believe, following Saito and Yamashita (2001), that the structures for such relative sentences as ii) would be as in iii, rather than as in ii.

   iii) The book [IP that was Written by him]

   Here there exists no trace and thus we have no ECP violation.

Main References

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