

On the “Surprising” *That*-Trace Effect and an Issue on Data Treatment

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This paper re-examines three cases of the (non-)*that*-trace effect in English and Japanese, and considers what the results suggest. The three cases are shown in (1-3).

- (1) The *That*-Subject Trace Effect
 - a. Who do you think [Amy saw *t*]?
 - b. Who do you think [*t* saw Amy]?
 - c. Who do you think [that Amy saw *t*]?
 - d. * Who do you think [that *t* saw Amy]?

- (2) The *That*-Adjunct Trace Effect
 - a. Why did Fay say [the boat sank *t*]?
 - b. * Why did Fay say [that the boat sank *t*]?
(AHLW (1987))

- (3) The Non-*That*-Adjunct Trace Effect
Bill-wa [John-ga naze kubi-ni natta to] itta no?
-Top -Nom why was.fired C said Q
'Why did Bill say John was fired?'
(L&S (1984))

First, (1d) is a typical case of the *that*-subject trace effect. Second, according to AHLW (1987), while (2a) is OK, (2b) is out. We call this the *that*-adjunct trace effect. This effect seems to be observed in a variety of English, but not the others. Third, according to L&S (1984), *naze* 'why' in the embedded clause can be interpreted at the matrix [+Q] COMP, and does not show the *that*-adjunct trace effect.

First, given the grammaticality judgments on the examples in (1), it will be expected that the pattern in (1d) is worse than the patterns in (1a-c), which are equally acceptable. To our knowledge, no linguist has ever questioned it. In this study, we tested whether this prediction was really correct by using the Visual Analogue Scaling evaluation method. A total of 39 native speakers of English participated in this study. We used 8 test sentences for each of patterns (1a-d). We made two questionnaires, each of which contained 50 sentences in total, with 16 test sentences and 34 fillers, and a counterbalanced design was used. We used the scale (100 mm long) in (4).

- (4) Totally unnatural | _____ | Completely natural
as English as English

The average scores on the 4 patterns are shown in (5).

(5) The Average Scores on the 4 Patterns

Pattern	Average	SD
a. object trace without <i>that</i>	96.66	6.56
b. subject trace without <i>that</i>	96.40	8.53

c.	object trace with <i>that</i>	71.94	22.06
d.	subject trace with <i>that</i>	44.90	27.76

We conducted a 1x4 ANOVA, and found a statistically significant difference among the 4 patterns ($F(3,36)=44.90, p<.05$). We then conducted multiple comparisons (Bonferroni), and found statistically significant differences among (5a-b) >* (5c) >* (5d) (*statistical significance threshold, $p<.05$). The finding that (5a-b) >* (5c-d) indicates a “surprising” *that*-trace effect: extraction of a wh-phrase from a clause headed by *that* is worse than that from a clause headed by a null complementizer, whether or not the wh-phrase originates from the subject or the object position.

Second, this unexpected *that*-trace effect, however, may represent a psychological state of the native speaker of English, which does not directly appear in the grammaticality judgment scale based on the dichotomy between OK and *. Although AHLW (1987) do not provide any comparison between pattern (5a) and pattern (5c), if the “surprising” *that*-trace effect is a reflection of the native speaker’s psychological state, it will give an automatic explanation for the ungrammaticality of (2b), a case of the *that*-adjunct trace effect, in the variety of English which AHLW (1987) deal with.

Third, the fact that (2b) is out in a variety of English makes us re-consider the status of (3) in (a variety of) Japanese. The simple sentence with *naze* ‘why,’ such as (6a), is given an answer such as (6b).

- (6) a. John-wa naze kubi-ni natta no?
 -Top why was.fired Q
 ‘Why was John fired?’
 b. Jooshi-no okane-o nusunda kara (desu).
 boss-Gen money-Acc stole because be
 ‘(It is) because he stole his boss’ money.’

However, a careful examination of (3) indicates that it cannot be given the answer in (6b). Other examples such as (7) also show the same point: (7a) cannot be given the answer in (7b).

- (7) a. Kimi-wa [John-ga naze taihosareta to]
 you-Top -Nom why was.arrested C
 shuchooshiteru/shinjiteru/omotteru no?
 claim/believe/think Q
 ‘Why do you claim/believe/think John was fired?’
 b. Kaki-o nusunda kara (desu).
 persimmon-Acc stole because be
 ‘(It is) because he stole persimmons.’

This will be made clearer, if we take into account cleft sentences with *naze* ‘why.’ Consider (8).

- (8) * Bill-ga [John-ga *t* kubi-ni natta to] itta no-wa naze desu ka?
 -Nom -Nom was.fired C said NO-Top why be Q
 ‘Why is it that Bill said John was fired?’

(8), which is considered to involve long-distance movement of some sort, just like *naze* ‘why’ in-situ in (3), is actually ungrammatical. Therefore, the non-*that*-adjunct trace effect in

Japanese has turned out to fall under the “surprising” *that*-trace effect in (a variety of) Japanese.

The present paper has thus shown that one cannot be too careful when examining and drawing conclusions from linguistic data.