The *that*-trace and anti-*that*-trace effects: unification and theoretical implications

Overview: English exhibits both a *that*-t effect (illustrated by *wh*-interrogatives) and an anti-*that*-t effect (illustrated by relative clauses (RCs)), as in (1) and (2) respectively.

(1) Who did you say {*that/Ø} t saw Mary? (*that*-t effect)
(2) the man {that/*Ø} t saw Mary (anti-*that*-t effect)

Both effects arise in cases of subject extraction (but not object extraction) and involve the suspension of *that/Ø* complementizer optionality. These similarities suggest that a unified analysis is desirable and that the *that* of (short subject) RCs should not be treated radically differently from complementizer *that* elsewhere. However, in (1) the only grammatical option is with *Ø*, whilst in (2) *Ø* results in ungrammaticality. Thus, in (2) the problem is not just that the *that*-t effect does not hold, but rather that its reverse holds, hence the name anti-*that*-t effect. It is also often overlooked that the *that*-t effect involves long-distance (i.e. cross-clausal) extraction whereas the anti-*that*-t effect involves short-distance extraction. This paper develops an analysis of these two effects that simultaneously captures their similarities and differences (an outstanding problem in the literature (Pesetsky, 2015)) using a split CP (Rizzi, 1997) and anti-locality (Abels, 2003; Erlewine, 2015). As a further consequence, it shows a way towards reconciling phase theory and cartographic approaches.

Background assumptions: We assume that the C domain is split into Force and Fin (Rizzi, 1997), and that *that* lexicalises Force whilst *Ø* lexicalises Fin, i.e. *that* and *Ø* are not phonological variants of the same head. This is equally true of complement clauses and RCs. Furthermore, we assume that the absence of *that* (or *wh*-relative pronouns, etc.) indicates the absence of a Force projection, i.e. *that*-clauses and *that*-RCs are ForcePs, whilst *Ø*-clauses and *Ø*-RCs are FinPs (see Bošković, 1997; Doherty, 2000; *a.o.*). Finally, we assume a matching analysis of RCs (Salzmann, 2006).

Analysis: Given our assumptions, the anti-*that*-t effect is accounted for by positing an anti-locality condition on movement from SpecTP to SpecFinP (this could be seen as Spec-to-Spec Anti-locality (Erlewine, 2014, 2015) in a split CP context; see also Ishii (2004)).

(3) Movement from SpecTP to SpecFinP is anti-local.
(4) a. the man [$_{\text{ForceP}}$ **man$_i$** Force=that [$_{\text{FinP}}$ Fin=Ø [$_{\text{TP}}$ **t$_i$** saw Mary]]]
b. *the man [$_{\text{FinP}}$ **man$_i$** Fin=Ø [$_{\text{TP}}$ **t$_i$** saw Mary]]

(3) permits (4a) but rules out (4b). (3) also permits movement to SpecFinP from a position lower than SpecTP. This derives the subject-object asymmetry. This analysis of the anti-*that*-t effect suggests a novel analysis of the *that*-t effect. Long-distance subject extraction is only grammatical without *that*, i.e. without Force. This means the complement clause is a FinP. Given (3), the subject cannot move via SpecFinP, as in (5b), instead it must cross over FinP directly, as in (5a) (see Ishii (2004) and Erlewine (2014) for derivations similar to (5a) but without a split CP).

(5) a. **Who$_i$** did you say [$_{\text{FinP}}$ Fin=Ø [$_{\text{TP}}$ **t$_i$** saw Mary]]?
b. ***Who$_i$** did you say [$_{\text{FinP}}$ **t$_i$** Fin=Ø [$_{\text{TP}}$ **t$_i$** saw Mary]]? (violates anti-locality)

Long-distance subject extraction is ungrammatical with *that*, i.e. with Force. This tells us three things. First, elements cannot move across both FinP and ForceP in one step.

(6) ***Who$_i$** did you say [$_{\text{ForceP}}$ Force=that [$_{\text{FinP}}$ Fin=Ø [$_{\text{TP}}$ **t$_i$** saw Mary]]]?

This suggests that the presence of Force requires elements to transit through an intermediate landing site. The second point is that this intermediate landing site cannot be SpecForceP.

(7) ***Who$_i$** did you say [$_{\text{ForceP}}$ **t$_i$** Force=that [$_{\text{FinP}}$ Fin=Ø [$_{\text{TP}}$ **t$_i$** saw Mary]]]?

If it were SpecForceP, we would not expect a subject-object asymmetry in the *that*-t effect (recall from (4a) that the subject may move from SpecTP to SpecForceP). The third point, then, is that the intermediate landing site must be SpecFinP. In other words, Force requires successive cyclic movement via SpecFinP. For subjects in SpecTP, this would force an anti-locality violation, as in (8a). Elements moving from positions lower than SpecTP, however, can move via SpecFinP without violating anti-locality, as in (8b). This derives the subject-object asymmetry.

(8) a. ***Who$_i$** did you say [$_{\text{ForceP}}$ Force=that [$_{\text{FinP}}$ **t$_i$** Fin=Ø [$_{\text{TP}}$ **t$_i$** saw Mary]]]?
b. **Who$_i$** did you say [$_{\text{ForceP}}$ Force=that [$_{\text{FinP}}$ **t$_i$** Fin=Ø [$_{\text{TP}}$ John saw **t$_i$**]]]?

We have thus arrived at the following postulates, which together with our assumptions about clause structure yield a unified analysis of the *that*-t and anti-*that*-t effects:

(9) Movement from SpecTP to SpecFinP is anti-local. (= (3))
(10) Movement across FinP is fine.
(11) Movement across both FinP and ForceP in one step is banned.
(12) SpecForceP is not available as an intermediate landing site.
(13) Successive cyclic movement is forced via SpecFinP iff Force is present.

Deriving these postulates from deeper principles is clearly desirable and has several implications for phase theory in a more cartographic context.

Discussion and implications: First, (10) and (11) imply that Force is a phase head but Fin is not. Movement across a non-phase boundary, i.e. FinP, is permitted, as in (10), but movement across a phase boundary, i.e. ForceP, without transiting through the phase's escape hatch is banned, as in (11).

Second, (12) and (13) imply that the phase edge, i.e. SpecForceP and Force, is completely distinct from the phase escape hatch, i.e. SpecFinP, contrary to standard assumptions where the phase escape hatch is (and, in fact, can only be) part of the phase edge. This is conceptually neat as it suggests a strict division between final and intermediate landing sites (see Richards, 2001): the phase edge is dedicated to criterial interpretations, i.e. the phase edge hosts final landing sites, whilst the phase escape hatch is not and hence can serve as an intermediate landing site. But why should the phase escape hatch be the specifier of the phase head's complement? I propose combining Chomsky's (2000, *et seq.*) idea that the phase head triggers spellout of its complement with Fox & Pesetsky's (2005) idea for deriving 'edge' (more properly, escape hatch) effects in which spellout means linearization. In essence, the phase head Force triggers spellout (i.e. linearization) of its complement FinP. It follows that elements being extracted from within FinP must move to SpecFinP to be extracted without triggering ordering contradictions.

Finally, the postulate in (9) could be seen as an instantiation of Spec-to-Spec Anti-locality (Erlewine, 2014, 2015). A tentative proposal for deriving this condition runs as follows. Adopting Chomsky's (2013) recent idea that TP is more properly labelled φ (the features shared by the subject and T) but dropping the proposal that this results in freezing, Fin would effectively take φ as its complement. Internally merging the subject to Fin (equivalent to moving it from SpecTP to SpecFinP) would look as if Fin had merged with the same φ-bearing element twice (once as its complement and once as its specifier). This configuration is thus non-distinct from Comp-to-Spec Anti-locality (Abels, 2003). However, the presence of a *wh*-feature on the extracting subject raises questions concerning the calculus of (non-)distinctness, issues that also arise in feature-based accounts of Relativised Minimality. Thus, [wh,φ] and [φ] are distinct but not distinct enough to both be merged with Fin.

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