Comp-Trace Effects Explained Away

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1. Introduction

The goal of this paper is to challenge the industry-standard conception that *Comp-trace* (C-t) effects are narrow syntactic phenomena and counter by motivating a purely prosodic (i.e. PF-centric) characterization of the effect. We'll approach this task by investigating C-t effects in two unrelated languages, namely, English and Nupe, the latter a Niger-Congo language spoken in central Nigeria. Although this goal is simple enough, the outcome is far-reaching if correct, for it calls into question over thirty years of generative research on the phenomenon.

By way of introduction, the C-t effect is one of the quintessential subject–non-subject asymmetries. It is standardly taken to describe the outcome of certain movement operations in which subjects are displaced across overtly headed clause boundaries. As shown below, subjects, unlike objects and adjuncts, cannot be long extracted across overt complementizers in English.

(1) a. Who do you think [(*that) __ wrote the book]?
b. What do you think [(that) Bill wrote __]?
c. Why do you think [(that) Bill wrote the book __]?
d. The author [that the publisher predicts [(*that) __ will be adored]]
e. The book [that the publisher predicts [(that) the public will adore __]]

Crucially, however, subject extraction across some C^0s *is* allowed, as in matrix subject relatives and clefts. In fact, for many speakers, extraction is only possible in these cases if C^0 is overt.

(2) a. The boy [*(that) __ bottles fireflies]
b. It's my cousin [*(that) __ bottles fireflies].

Nupe shows a similar effect, as do many other languages.

(3) a. √ EXTRACTION OF AN EMBEDDED OBJECT *WH*-
Ke u: bè [ke Musa du __] na o?
what 3^{RD}.SG seem COMP Musa cook na o
'What does it seem that Musa cooked?'

b. √ RELATIVIZATION OF AN EMBEDDED OBJECT
Nakàn [na Musa kpe [gànán bagi-zì ba __]] na
meat COMP Musa know COMP man-PL cut na
'The meat that Musa knew that the men cut'

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c. * EXTRACTION OF AN EMBEDDED SUBJECT *WH*-
*Zèé u: bè [ke __ du nakàn] na o?
who 3RD.SG seem COMP cook meat na o
*'Who does it seem cooked the meat?'

d. * RELATIVIZATION OF AN EMBEDDED SUBJECT
*Bagi-zì [na Musa kpe [gànán __ ba nakàn]] na
man-PL COMP Musa know COMP cut meat na
*'The men that Musa knew cut the meat'

e. √ RELATIVIZATION OF A NON-EMBEDDED SUBJECT
Bagi [na __ ba nakàn] na
man COMP cut meat na
'The man that cut the meat.'

The C-t effect has spawned a vast literature in the generative tradition. The earliest approaches (Perlmutter 1971, Chomsky and Lasnik 1977) accounted for the effect in representational terms, culminating in the ECP-driven analyses of the GB program. In response to the recent Minimalist paradigm shift, the ECP analyses of the GB era have been largely jettisoned and replaced with derivational characterizations (cf. Deprez 1994, Szczegielniak 1999, Pesetsky and Torrego 2001, Hoge 2001, Roussou 2002, Ishii 2004, Rizzi 2004, among others). Although the character of these accounts varies somewhat, the central theme unifying them all is the view that *complementizer-trace* outputs are somehow *syntactically* ill-formed. Now, a widely held view in generative linguistics is that the computational system (i.e. the syntactic component) manifests considerably less variation comparatively speaking than other modules, for instance, phonology and morphology (i.e. the modules of the PF wing of grammar). Viewed from this perspective, the plausibility of a syntactic characterization of C-t effects is called into question by the existence of considerable inter-linguistic and intra-linguistic variation. Inter-linguistically, for example, C-t effects do not obtain in Arabic, Basque, Hausa, Serbo Croatian, and Warlpiri (Perlmutter 1971), nor do they surface in Modern Hebrew (Borer 1984, Shlonsky 1988), West Flemish (Haegeman 1992), Icelandic (Maling and Zaenen 1978), Japanese (Ishii 2004), or Hindi (Rajesh Bhatt, personal communication), among other languages. We often find considerable variation within a given language as well. For instance, although many dialects of English manifest the effect, Midwestern dialects (Sobin 1987), varieties of African American English (Pesetsky 1982), certain populations of L1 (Thornton 1990, McDaniel et. al 1995) and L2 (Gethercole and Montes 1997) learners, and some dialects of British English (Guest 2001) lack the effect. Similarly, certain dialects of Dutch (Maling and Zaenen 1978, Reuland 1983), German (Bayer 1984), and French (Pesetsky 1982), among others, show variable C-t behavior as well. At the very least, these facts encourage exploration of alternative (i.e. non-narrow syntactic) characterizations of C-t effects. Although a minority, a small body of PF-based research in this regard has persisted in the face of a syntactically dominated literature (cf. Aoun et. al 1987, Culicover 1993b, Richards 1999, Merchant 2001, to appear, and de Chene 1995, 2000, 2001).

This paper follows in this PF-oriented tradition. In the spirit of de Chene 1995, 2000, 2001, we argue that the C-t effect reduces to a purely prosodic phenomenon. Moreover, we claim that the effect does not represent a homogeneous linguistic phenomenon, nor is a grand unified analysis available. Toward this goal, we first discuss C-t effects in English and then move on to the case of Nupe.

2. English *Comp-trace* Effects

2.1 Empirical Observations

Supporting evidence for the claim that the C-t effect is a prosodic/PF-oriented phenomenon in English[1] comes from the fact that the effect is mitigated/ameliorated in special prosodic circumstances.

[1] The judgments reported in this section reflect the intuitions of 25 native speakers, 15 of whom were non-linguists.

In addition to the well-known fact that C-t effects disappear when C^0 is omitted, C-t violations are lessened/voided if a monosyllabic complementizer is reduced or unstressed, as shown in (4).

(4) a. Who do you hope *for/√?**fer** __ to win?
b. The author that the editor predicts *that/√?**th't** __ will be adored

As pointed out by Merchant (2001, to appear), C-t effects are cancelled under ellipsis.

(5) John said that someone would write a new textbook, but I can't remember who ~~John said that __ would write a new textbook~~.

Moreover, as discovered by de Chene (1995, 2000, 2001), the intonational phrase break induced by Right Node Raising has a mitigating effect on the outcome of long embedded subject extraction.

(6) a. √Who does John doubt whether and Bill suspect that __ cheated on the exam?
b. √That's the president I've been hoping for and you've been petitioning for __ to be impeached.

Perhaps the most famous case of mitigation is the so-called Adverb Effect, discovered by Bresnan (1977:194), first discussed by Barss and Deprez (1986), and popularized by Culicover (1993a).

(7) a. √Who do you think that **after years and years of cheating death** __ finally died?
b. √The author that the editor predicts that **for all intents and purposes** __ will be adored?

Nuclear pitch accentation also has a mitigating effect in English (Drury 1999:208, Kandybowicz 2006). As shown in (8), intonation focus of an *embedded* verb salvages what would otherwise be a C-t violation.

(8) a. A: I didn't think that John would survive.
B: √Well then, who did you think that __ **WOULD**?
b. √/?Who do you think that __ **WROTE** Barriers (as opposed to say, *edited* it)?
c. *Who do you **THINK** that __ wrote Barriers (as opposed to say, *know*)?

Lastly, for many speakers, C^0-auxiliary contraction across a subject trace voids a C-t violation.

(9) a. √/?Who do you suppose **that'll** leave early?
b. √/?The author that the editor predicted **that'd** be adored

2.2 Analysis

What are the prosodic consequences of the phenomena previously outlined? In the case of C^0 omission, the answer is transparent. For most speakers, the most natural way to pronounce a C-less clause is without a prosodic break. Thus, the whole utterance is parsed as a single prosodic unit (i.e. an Intonation Phrase (iP)). Moreover, C^0 and trace are no longer adjacent at PF if C^0 is omitted.

(10) $[_{iP}$ Who did you claim __ discovered Antarctica]?

Consider next the case of complementizer reduction (4). When C^0 is pronounced in full (i.e. when unreduced), an Intermediate Phrase (intP) boundary divides the embedded clause from the matrix clause (11a). However, when C^0 is reduced, no such Intermediate Phrase break exists (11b). In this way, sentences with reduced embedded complementizers are prosodically similar to sentences lacking embedded complementizers (cf. (10)).

(11) a. $[_{iP}$ Who do you think $[_{intP}$ that __ wrote Barriers]]?
b. $[_{iP}$ Who do you think th't __ wrote Barriers]?

The case of ellipsis (5) is relatively straightforward as well. When elided, *complementizer-trace* sequences are removed from considerations of PF/prosodic well formedness. The mitigation of *Comp-trace* effects under Right Node Raising (6) and sentential adverbial modification (7) pattern together. RNR'ed constituents and sentential adverbials are obligatorily parsed as Intonation Phrases at PF. In these cases, the complementizer and trace do not occupy the same prosodic phrase, as shown below.[2]

(12) a. [$_{intP}$ Who does John doubt whether] [$_{intP}$ and Bill suspect that] __ [$_{iP}$ cheated on the exam]?
b. [$_{intP}$ Who do you think that] [$_{iP}$ for all intents and purposes] __ [$_{intP}$ wrote Barriers]?

In the case of intonation focus (8), the embedded verb bears a nuclear pitch accent, marking the boundary of an independent IntP. As a result, C^0 and trace cease to occupy the same prosodic phrase.

(13) a. [Who did you say [$_{intP}$ that __ wrote Barriers]]? vs.
b. [Who did you say that] __ [$_{intP}$ WROTE Barriers]?

Abstracting away from these observations, a generalization appears to emerge. In English, the sequence <C^0,trace> is illicit when C^0 and trace are adjacent within the same prosodic phrase and C^0 is aligned with a prosodic phrase boundary. (The latter condition is minimally necessary to rule in sentences of the sort in (4) and (2), as we will discuss momentarily.) (In what follows, we understand traces to be copies marked for PF deletion, in line with the Copy theory of movement.)

(14) *<C^0, t> iff:
i. C^0 & t are adjacent within a prosodic phrase AND
ii. C^0 is aligned with a prosodic phrase boundary

Our proposal, essentially a PF anti-adjacency constraint on complementizers and traces, harkens back to Chomsky and Lasnik's (1977) filter-based approach. (14) systematically accounts for the data in (4)-(8), as the reader may easily verify. (Space limitations preclude a detailed explication of this.) More importantly, (14) makes a correct prediction about amelioration of C-t effects via intonation focus, namely, that focusing anything other than an embedded predicate/auxiliary will fail to mitigate a C-t effect. The reason for this is that focusing material non-adjacent to the trace will not result in the prosodic separation of the complementizer and the trace, as shown below.

(15) a. [Who did you say [$_{intP}$ that __ wrote Barriers yesterday]]?
b. [Who did you say that] __ [$_{intP}$ WROTE Barriers yesterday]]?
c. [Who did you say [$_{intP}$ that __ wrote] [$_{intP}$ BARRIERS yesterday]]?
d. [Who did you say [$_{intP}$ that __ wrote Barriers] [$_{intP}$ YESTERDAY]]?

As mentioned, this prediction is borne out. Native speaker intuitions on this point are fairly robust.

(16) a. ??/*Who did you say that __ wrote BARRIERS yesterday?
b. *Who did you say that __ wrote Barriers YESTERDAY?

The proposal in (14) also explains why C-t effects fail to obtain in cases of unembedded subject relativization and clefts (2). In these cases, no Intermediate Phrase boundary separates C^0 from the embedded clause. Thus, the complementizer is not aligned with a prosodic phrase boundary.

(17) a. [$_{iP}$ The butler that __ murdered the maid] (No intP boundary before C^0)
b. *[$_{iP}$ The butler [$_{intP}$ that __ murdered the maid]] (Non-restrictive RC only possible with *who*)
c. [$_{iP}$ It's the butler that __ murdered the maid] (No intP boundary before C^0)

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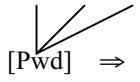
[2] Because prosodic phrasing must occur at the juncture between two prosodic words (Nespor and Vogel 1986, Schütze 1994), the traces in (12) cannot be grouped into any prosodic phrase (i.e. iP/intP).

Additionally, (14) provides a way of understanding the contraction facts previously laid out in (9). On the assumption that contraction in this case reflects the fact that the auxiliary has encliticized onto C^0, one way to account for the acceptability of C-t configurations in the presence of C^0-Aux contraction would be to assume that for speakers that find the resulting sentences acceptable, contraction renders the trace word-internal, that is, internal to C^0. In this case, C^0 and the trace, although still in the same prosodic phrase, would no longer count as prosodically adjacent, given that the two are word-internal.

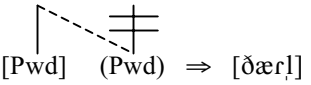
(18) … [$_{INTP}$ that ~~who~~ will leave early]



[Pwd] ⇒ [ðæɾ̩l]

By contrast, suppose that for speakers who do not report contraction-based improvements in C-t violations, contraction is analyzed differently. That is, suppose that for these speakers the auxiliary has encliticized onto C^0 to the exclusion of the trace, as in (19) below. Then, as predicted by (14), the resulting output will be prosodically ill-formed because C^0 and trace will be adjacent, phrase-internal, and aligned with a prosodic boundary.

(19) … [$_{INTP}$ that ~~who~~ will leave early]



[Pwd] (Pwd) ⇒ [ðæɾ̩l]

In conclusion, the English C-t effect is a PF anti-adjacency phenomenon. In other words, C-t effects in English are violations of a prosodic requirement that C^0 and trace fail to be adjacent whenever they occupy the same prosodic phrase and are situated at the phrase's left edge. At this stage of the research, we should think of (14) as a descriptive generalization, rather than as a deep explanation of the facts. Moreover, we can view (14) either as a PF interface condition that is evaluated following Prosodic Mapping or as an OT constraint. Cross-linguistic and intra-linguistic variation with respect to the C-t effect could then be accounted for by either parameterization of (14) or by appealing to differences in constraint ranking.

3. Nupe *Comp-trace* Effects

3.1 Empirical Observations

As shown in (3), extraction out of embedded clauses in Nupe exhibits an English-like asymmetry, however, some of the details vary. For instance, omitting C^0 does not salvage a C-t violation in Nupe.

(20) a. *Zèé u: bè [__ du nakàn] na o?
who 3RD.SG seem cook meat na o
*'Who does it seem cooked the meat?'

b. *Bagi [na Musa kpe [__ ba nakàn]] na
man COMP Musa know cut meat na
*'The man Musa knew that cut the meat'

Nonetheless, a range of options exists in the language for salvaging derivations involving long subject extraction across embedded complementizers. For one, extraction of an embedded subject across the complementizer *gànán* is possible when *gànán* surfaces in its reduced form *'án*.[3]

[3] *Gànán* is historically related to the verb *gàn* 'say', as in many West African languages. The form *gànán*, then, can be analyzed as a composite morpheme comprised of the verb 'say' together with a C^0 element (e.g. *gàn*$_V$ + *án*$_C$). When reduced, then, only the C^0 element surfaces. This repair strategy does not improve C-t violations involving complementizers other than *gànán* in the language because all other complementizers in Nupe are monosyllabic and phonologically irreducible.

(21) REDUCTION OF A MULTISYLLABIC C^0 MITIGATES C-T EFFECTS

a. Zèé Musa gàn [**'án** __ nì enyà] o?
who Musa say COMP beat drum o
'Who did Musa say beat the drum?'

b. Bagi [na Musa kpe [**'án** __ ba nakàn]] na
man COMP Musa know COMP cut meat na
'The man that Musa knew cut the meat'

A second way C-t effects can be mitigated in Nupe is by insertion of TP-adjoined adverbials. Similar to the English Adverb Effect, embedded subject extraction becomes possible when an adverbial expression intervenes between the complementizer and the trace (i.e. when it attaches to TP). This is illustrated below for the adverbial *pányi lèé*, which Kandybowicz (2006) argues is a TP adjunct.

(22) INSERTION OF TP-ADJOINED ADVERBIALS MITIGATES C-T EFFECTS

a. Zèé Musa gàn [gànán **pányi lèé** __ nì enyà] o?
who Musa say COMP before PST beat drum o
'Who did Musa say that a long time ago beat the drum?'

b. Bagi [na Musa kpe [gànán **pányi lèé** __ ba nakàn]] na
man COMP Musa know COMP before PST cut meat na
'The man that Musa knew cut the meat a long time ago'

Subject extraction across C^0 can also proceed if the moved element (i.e. the lower copy of the subject) is spelled-out as a resumptive pronoun, provided that it agrees in number with the head of the chain.

(23) LOWER COPY RESUMPTION OF THE SUBJECT MITIGATES C-T EFFECTS

a. Zèé$_i$ u: bè [ke **u:**$_i$/*a:$_i$/*zèé$_i$ du nakàn] na o?
who 3^{RD}.SG seem COMP 3^{RD}.SG/3^{RD}.PL/who cook meat na o
'Who does it seem cooked the meat?'

b. Bagi-zì$_i$ [na Musa kpe [gànán **a:**$_i$/*u:$_i$/*bagi-zì$_i$ ba nakàn]] na
man-PL COMP Musa know COMP 3^{RD}.PL/3^{RD}.SG/man-PL cut meat na
'The men Musa knew that cut the meat'

Lastly, C-t effects in Nupe fail to arise whenever embedded T^0 is phonetically realized. In all the Nupe examples thus far, embedded T^0 was phonetically null (the exponent of the past tense morpheme in the language). As illustrated below, long extraction of an embedded subject across overt C^0 becomes acceptable when T^0 is spelled-out (even without lower subject resumption or TP-adverbial adjunction).

(24) SPELLING OUT EMBEDDED CLAUSE T^0 MITIGATES C-T EFFECTS

a. Zèé Musa gàn [gànán __ *∅/√**è/à** nì enyà] o?
who Musa say COMP PST/PRS/FUT beat drum o
'Who did Musa say is beating/will beat the drum?'

b. Bagi [na Musa kpe [gànán __ *∅/√**è/à** ni enyà]] na.
man COMP Musa know COMP PST/PRS/FUT beat drum na
'The man Musa knows that is beating/will beat the drum'

3.2 Analysis

Looking back over the data in the previous subsection, a generalization emerges. Long extraction of embedded subjects is possible whenever the output of the derivation is one in which the "edge" of

the embedded TP projection (i.e. either a daughter of TP or T^0) is realized at PF. Mitigating adverbial expressions like *pányi lèé* occupy a TP edge (adjoined) position, as do resumptive lower copies in Spec, T and tense markers in T^0. Whenever the embedded TP edge is phonetically empty (i.e. whenever the tail of a non-trivial chain is deleted at PF and neither a TP adverbial nor tense marker is pronounced), the output of long subject extraction is illicit. What underlies this generalization? In the discussion that follows, we provide an answer to this question.

The key fact around which everything will turn is a prosodic one. In Nupe, embedded unreduced/non-relative complementizers (e.g. *gànán*, *ke*) mark the right boundaries of Intermediate Phrases. As such, the complement of embedded C^0 in the language is itself an independent prosodic domain. That is, fully propositional embedded TPs are obligatorily parsed as separate Intermediate Phrases in Nupe. In contrast, embedded TPs following reduced complementizers (e.g. *'án*) are not parsed as separate intPs in the language. The evidence that full non-relative embedded complementizers mark the juncture of two prosodic domains in Nupe comes from a number of observations. For one thing, a small pause separates C^0 from material in the embedded TP. Second, pre-pausal lengthening can be detected. That is, the complementizer is slightly lengthened when it occurs in an embedded position. A third line of evidence concerns the fact that following the phonetic realization of C^0, pitch is reset. The fourth and most compelling piece of evidence comes from the fact that otherwise regular phonological processes are blocked when C^0 introduces a complement clause. This is illustrated below for regressive assimilation and hiatus resolution.

(25) a. INTRA-PHRASAL REGRESSIVE ASSIMILATION:
/[gànán + u:]/ → [g**ùnún** u:]

b. ASSIMILATION BLOCKED WHEN C^0 INTRODUCES A COMPLEMENT CLAUSE:
[$_{\text{INTP}}$ Zèé Musa gàn gànán/***gùnún**] [$_{\text{INTP}}$ u: du nakàn na o]?
who Musa say COMP 3^{RD}.SG cook meat na o
'Who did Musa say cooked the meat?'

(26) a. INTRA-PHRASAL HIATUS RESOLUTION VIA GLIDE FORMATION:
/[ke + u:]/ → [k**j**u:]

b. GLIDE FORMATION BLOCKED WHEN C^0 INTRODUCES A COMPLEMENT CLAUSE:
[$_{\text{INTP}}$ Zèé u: bè ke/***kj**] [$_{\text{INTP}}$ u: du nakàn na o]?
who 3^{RD}.SG seem COMP 3^{RD}.SG cook meat na o
'Who does it seem cooked the meat?'

Therefore, unreduced/non-relative complementizers and traces will never appear adjacent within the same prosodic phrase in Nupe. Contrary to both (14) and what we observe in English, C-t effects still obtain. The problem with C-t sequences in Nupe must thus lie elsewhere.

Let us build on this observation. According to Nespor and Vogel (1986:190), Intonation Phrases are isomorphic with syntactic phrases that are obligatorily parsed as iPs. Suppose the same were true for obligatory Intermediate Phrases. Then, the left edge of a fully propositional embedded TP (an obligatorily parsed intP in the language) must be aligned with the left edge of intP in Nupe. This is illustrated graphically below.

(27) Syntactic structure: … V [$_{\text{CP}}$ C [$_{\text{TP}}$ …
Prosodic structure: ……] [$_{\text{INTP}}$ …

Given that iP/intP phrasing must occur at the juncture between two prosodic words (Nespor and Vogel 1986, Schütze 1994), intP will fail to align with TP if the edge of TP is phonetically unrealized because in that case the edge would lack a prosodic word and thus fail to be a potential boundary site. We understand "edge" in the Minimalist sense of the word (Chomsky 2001): given a projection ZP, the edge positions of ZP include ZP's daughters (adjunct(s) and specifier(s)) and Z^0 (the projecting

head). Given this, we can understand C-t effects in Nupe as cases where an intP and embedded T projection fail to align as a consequence of the fact that the TP edge is phonetically unrealized when the subject occurrence is displaced and its copy is deleted at PF. When the TP edge is phonetically unrealized, the first prosodic word encountered in the parse of the embedded TP will be a verbal element residing in v^0. In this case, intP will align with the v projection, a syntactic phrase that is *not* obligatorily parsed as an intP in the language. This is schematized in (28) below.

(28) a. PROSODICALLY WELL-FORMED (Mitigation by TP modification)
Syntactic structure: … gàn [$_{CP}$ gànán **[$_{TP}$** pányi lèé [$_{TP}$ ~~zèé~~ [$_{T}$ …
√ Prosodic structure: ……..] **[$_{intP}$** …

b. PROSODICALLY WELL-FORMED (Mitigation by subject resumption)
Syntactic structure: … gàn [$_{CP}$ gànán **[$_{TP}$** u: [$_{T}$…
√ Prosodic structure: ……..] **[$_{intP}$** …

c. PROSODICALLY WELL-FORMED (Mitigation by spelling-out T^0)
Syntactic structure: … gàn [$_{CP}$ gànán [$_{TP}$ ~~zèé~~ **[$_{T}$** è …
√ Prosodic structure: ……..] **[$_{intP}$** …

d. PROSODICALLY ILL-FORMED (∅ TP modifier, ∅ PF subject, ∅ T^0)
Syntactic structure: … gàn [$_{CP}$ gànán [$_{TP}$ ~~zèé~~ **[$_{T}$** ∅ [$_{vP}$ ~~zèé~~ [$_{v}$ nì …
* Prosodic structure: ……..] **[$_{intP}$** …

Stepping back, a broader generalization can be surmised. Namely, the edge of an obligatorily parsed prosodic phrase must be phonetically realized. This observation was first made by An (2006).

(29) INTONATIONAL PHRASE EDGE GENERALIZATION (IPEG - An 2006)
The edge of an intonational phrase cannot be phonetically empty.

Nupe C-t effects thus reduce to a violation of the IPEG. Because embedded reduced complementizers do not mark the right boundaries of Intermediate Phrases in Nupe (as mentioned at the outset of this section), extraction of embedded subjects across such complementizers will never trigger an IPEG violation. Hence, we derive the amelioration of *Comp-trace* effects by C^0 reduction (cf. (21)). Furthermore, relative clause complementizers in the language (e.g. *na*) mark the *left* edge of intP in Nupe, unlike the other complementizers in the language. For this reason, subject extraction across a relative C^0 will never incur a violation of the IPEG: regardless of the PF realization of the relative TP following the complementizer, the edge of the relative clause will always be phonetically realized by the relative C^0 (whose omission is always illicit). For this reason, relativization of non-embedded subjects (cf. (3e)) does not engender a *Comp-trace* effect in the language.

4. Closing Remarks

We have seen fairly substantial evidence that C-t effects are sensitive to prosodic well formedness conditions. As such, they fall under the domain of the syntax-phonology interface, rather than the narrow syntactic umbrella. Given that C-t effects in unrelated languages can be blamed on unrelated prosodic factors, as we have seen, we have reason to believe that there is no universal C-t effect, only language-specific differences in prosodic mapping/structure. Consequently, there can be no grand unified analysis of the effect, as has been the dream for over thirty years.

References

Aoun, Josef, Norbert Hornstein, David Lightfoot, & Amy Weinberg. 1987. Two Types of Locality. *LI* 18: 537-577.
An, Duk-Ho. 2006. Clauses in Noncanonical Positions in PF. To appear in *Syntax*.
Bayer, Josef. 1984. Comp in Bavarian Syntax. *Linguistic Review* 3: 209-274.

Borer, Hagit. 1984. *Parametric Syntax*. Dordrecht: Foris.
Bresnan, Joan. 1977. Variables in the Theory of Transformations. In Peter Culicover, Thomas Wasow, & Adrien Akmajian (eds.), *Formal Syntax*, 157-196. New York: Academic Press.
Chomsky, Noam. 2001. Derivation by Phase. In Michael Kenstowicz (ed.), *Ken Hale: A Life in Language*, 1-52. Cambridge, MA: MIT Press.
Chomsky, Noam & Howard Lasnik. 1977. Filters and Control. *LI* 8: 425-504.
Culicover, Peter. 1993a. Evidence Against ECP Accounts of *That-t* Effect. *LI* 24: 557-561.
Culicover, Peter. 1993b. Focus and Grammar. In Peter Ackema & Maaiki Schoorlemmer (eds.), *Proceedings of the Workshop on the Semantic and Syntactic Analysis of Focus*, 1-19. OTS Working Papers, Utrecht.
de Chene, Brent. 1995. *Complementizer-trace* Effects and the ECP. *Geneva Generative Papers* 3.1:1-4. Département de Linguistique Générale, Université de Genève.
de Chene, Brent. 2000. Prosody and Subject Traces. Ms. Waseda University.
de Chene, Brent. 2001. Prosody and Trace-Licensing: *Complementizer-trace* Effects and Beyond. Poster presented at the Workshop on Prosody in Processing. Utrecht University, OTS. July 6.
Deprez, Viviane. 1994. A Minimal Account of the *That-t* Effect. In Guglielmo Cinque, Jan Koster, Jean-Yves Pollock, Luigi Rizzi, & Raffaella Zanuttini (eds.), *Paths Towards Universal Grammar. Studies in Honor of Richard S. Kayne*, 121-135. Washington, D.C: Georgetown University Press.
Drury, John. 1999. The Mechanics of π-Derivations: An Alternative "Direction" for Syntactic Theory. In *University of Maryland Working Papers in Linguistics Volume 8*, 180-212.
Gathercole, Virginia C. & Cecilia Montes. 1997. *That-trace* Effects in Spanish- and English- speaking Monolinguals and Bilinguals. In Ana Teresa Pérez-Leroux & William R. Glass (eds.), *Contemporary Perspectives on the Acquisition of Spanish*, 75-95. Somerville, MA: Cascadilla Press.
Guest, Haley. 2001. *The CTP and the Effect of 'Appropriately' Placed Adverbs in British English*. Baccalaureate dissertation, University of Wales, Bangor.
Haegeman, Liliane. 1992. *Theory and Description in Generative Syntax: A Case Study of West Flemish*. Cambridge: Cambridge University Press.
Hoge, Kerstin. 2001. *That-t* Effects in English and Yiddish. In Galina M. Alexandrova & Olga Arnaudova (eds.), *The Minimalist Parameter*, 233-248.
Ishii, Toru. 2004. The Phase Impenetrability Condition, the Vacuous Movement Hypothesis, and *That-t* Effect. *Lingua* 114: 183-215.
Kandybowicz, Jason. 2006. *Conditions on Multiple Copy Spell-Out and the Syntax-Phonology Interface*. Ph.D dissertation, UCLA.
Maling, Joan & Annie Zaenen. 1978. The Non-Universality of a Surface Filter. *LI* 9: 475-497.
Merchant, Jason. 2001. *The Syntax of Silence*: *Sluicing, Islands, and the Theory of Ellipsis*. Oxford: Oxford University Press.
Merchant, Jason. To appear. Variable Island Repair Under Ellipsis. In Kyle Johnson (ed.), *Topics in Ellipsis*. Cambridge: Cambridge University Press.
McDaniel, Dana, Bonnie Chiu, & Thomas Maxfield. 1995. Parameters for *wh*- Movement Types: Evidence from Child Language. *NLLT* 13: 709-753.
Nespor, Marina & Irene Vogel. 1986. *Prosodic Phonology*. Dordrecht: Foris.
Perlmutter, David. 1971. *Deep and Surface Structure Constraints in Syntax*. New York: Holt, Rinehart, and Winston.
Pesetsky, David. 1982. *Complementizer-trace* Phenomena and the Nominative Island Condition. *The Linguistic Review* 1: 297-343.
Pesetsky, David & Esther Torrego. 2001. T-to-C Movement: Causes and Consequences. In Michael Kenstowicz (ed.), *Ken Hale: A Life in Language*, 355-426. Cambridge, MA: MIT Press.
Reuland, Eric. 1983. Movement Versus Merger: Relations between Inflection and Verb. Paper presented at the 13th meeting of the Northeast Linguistics Society, Université du Québec à Montréal.
Richards, Norvin. 1999. Pied-piping and Islands: the *That-trace* Effect. *GLOW 40 Newsletter*: 44-45.
Rizzi, Luigi. 2004. On the Form of Chains: Criterial Positions and ECP Effects. Ms. University of Siena.
Roussou, Anna. 2002. C, T, and the Subject: *That-t* Phenomena Revisited. *Lingua* 112: 13-52.
Schütze, Carson. 1994. Serbo-Croatian Second Position Clitic Placement and the Phonology-Syntax Interface. In *Papers in Phonology and Morphology*, 373-473. MITWPL 21. Cambridge, MA: MITWPL.
Selkirk, Elisabeth. 1984. *Phonology and Syntax: the Relation between Sound and Structure*. Cambridge, MA: MIT Press.
Shlonsky, Ur. 1988. Complementizer-cliticization in Hebrew and the Empty Category Principle. *NLLT* 6:191-205.
Sobin, Nicholas. 1987. The Variable Status of *Comp-trace* Phenomena. *NLLT* 5: 33-60.
Szczegielniak, Adam. 1999. '*That-t* Effects' Crosslinguistically and Successive Cyclic Movement. In *Papers on Morphology and Syntax, Cycle One*, 369-393. MITWPL 33. Cambridge, MA: MITWPL.
Thornton, Rosalind. 1990. *Adventures in Long-distance Moving: the Acquisition of* wh- *Questions*. Ph.D. dissertation, University of Connecticut.

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