# Multiple Spell-Out and Contraction at the Syntax-Phonology Interface

*Abstract*: This paper explores the nature of the syntax-phonology interface from a recent derivational model of syntax with a case study of contraction. Specifically, it is claimed that the Multiple Spell-Out Model of syntax proposed by Chomsky (2000, 2001, 2004, 2005) and Uriagereka (1999) allows for a straightforward characterization of the set of environments within which *wanna*-contraction, auxiliary reduction, and pronominal cliticization may apply. The proposed analysis achieves this result by allowing a sharply constrained interaction of the syntax with the external interpretive components through a restricted range of information including the Spelled-Out domain finality and the *v*P edge for the purposes of phonological and semantic interpretation. Particular details of the proposed analysis provide support for various well-motivated principles of syntax such as the economy of projection and the notion of *v*P/CP phase. The present analysis, therefore, achieves the minimalist goal of explaining linguistic phenomena solely from interface conditions.

## 1. Introduction

In this paper, I explore the nature of the syntax-phonology interface from the perspective of the recent derivational theory of syntax with a case study of English contraction. Starting with the null hypothesis about the syntax-phonology correspondence that Spelled-Out domains define the set of domains for morphophonological rule application, I propose that the Multiple Spell-Out (MSO) model of syntax

proposed in Chomsky (2000, 2001, 2004, 2005) and Uriagereka (1999) allows for a straightforward characterization of syntactic environments under which *wanna*-contraction, auxiliary reduction, and pronominal cliticization are found. The proposed analysis derives this result in tandem with independently motivated prosodic and semantic properties of certain function words in English.

The proposed analysis has several consequences for the theory of syntax and its interface with phonology. First, the analysis provides support for the notion of "economy of projection" (Fukui 1986; Chomsky 1995; Speas 1994; Bošković 1997). This is a welcome result from the perspective of the Minimalist Program (Chomsky 1995, 2000, 2001, 2004, 2005), which takes language to be a non-redundant computational system that disallows any superfluous steps or symbols in derivation and representation. Second, the current analysis suggests that a dynamically bifurcated derivational view of the syntax, such as the ones envisioned by Chomsky and Uriagereka, is more viable than a representational alternative in correctly demarcating a variety of syntactic environments under which contraction may be found. Finally, the present analysis indicates that the syntax tightly interacts with the external components by allowing restricted part of its derivational information such as the Spelled-Out domain-finality and the notion of the $v$P phase edge/border to be accessible to these components for the purposes of phonological and semantic interpretation.

The present paper is organized as follows. In the next section, I introduce two versions of the MSO model of syntax developed by Chomsky (2000, 2001, 2004, 2005) and Uriagereka (1999) and propose a hypothesis that Spelled-Out domains in this derivational model define a range of domains for morphophonological rule application. I also introduce an assumption about the syntax-phonology

correspondence concerning certain function words that becomes important in the following sections. In section 3, I demonstrate that the core distributional properties of *wanna*-contraction noted in the literature receive a straightforward explanation under the proposed derivational analysis without any additional stipulations about what phonologically empty categories are visible for the purposes of morphophonological processes at the post-syntactic component. In section 4, I show that the proposed analysis also naturally derives two well-known properties of auxiliary reduction by tightly interacting with the fine-grained prosodic system of certain function words as proposed in Selkirk (1995), Vogel (2006), and others. In section 5, I extend the proposed analysis to cases of pronominal cliticization found in verb-particle constructions, double object constructions, and verb-object constructions. I demonstrate that the environments under which pronominal cliticization is (im-) possible can be derived as the result of the interaction of the present analysis with the inherent information-structural property of simplex pronominals as providing given/old information (Diesing 1992; Holmberg 1999; Chomsky 2000).

## 2.  Multiple Spell-Out, the Syntax-Phonology Interface, and the Spelled-Out Domain Finality

MSO is the hypothesis that phonological and semantic information is transferred to the phonological and semantic components in a piecemeal fashion during the course of syntactic derivation; see Bresnan 1971a, b for an earlier antecedent. The phase theory proposed by Chomsky (2000, 2001, 2004, 2005) is one version of this hypothesis. He proposes that this information transfer occurs, not after every application of a structure building operation (as in Epstein *et al.* 1998), but instead at specific derivational cascades called *phases*, which

he takes to be headed by an occurrence of C or $v$.[1] More concretely, at the point of derivation where the $v$P and CP structures have been constructed, the complement domains of the $v$ and C, namely, VP and TP, are transferred and evaluated at the phonological and semantic components. This theory is conceptually natural in light of the fact that it significantly reduces computational complexities in that the derivation can forget about material once it has been transferred to the syntax-external interpretive systems.

Uriagereka (1999) proposes a different version of the MSO hypothesis from the viewpoint of keeping the simplest linearization procedure within Kayne's (1994) Linear Correspondence Axiom ("*If α asymmetrically c-commands β, α precedes β*."). Since this procedure functions only with particularly simplex, uniformly right-branching configurations, it cannot determine the relative ordering between the terminal nodes contained within two complex structures. To solve this problem, Uriagereka proposes that syntactic derivation Spells-Out one of the these complex structures before it merges with the other so that the relative ordering of the terminals within the Spelled-Out structure may be correctly fixed by the simple linearization procedure above. When the ordering is fixed, Uriagereka assumes, the structure attains the status of "frozen giant lexical compound" whose set-theoretic status is no different from a simple lexical item and is plugged into where it belongs in the whole derivation. This model straightforwardly derives the effects of the Condition on Extraction Domains (Huang 1982), which prohibits movement of an element from non-complement positions, as illustrated in (1a, b).

(1)  a.  *Which journal$_i$ did [$_{DP}$ a reviewer of $t_i$] see you?

     b.  *Which journal$_i$ did you go to school [$_{PP}$ after reading $t_i$]?

The effects seen in (1a, b) naturally fall out under Uriagereka's MSO model because the DP/PP that contains the *wh*-phrase *which journal*, as an internally complex left-branching structure, must be Spelled-Out early, rendering this portion a frozen lexical item, with the result that the movement of *which journal* into [Spec, CP] becomes impossible. In other words, this model includes a strong statement that left-branching, non-complement, structures (i.e. complex subjects and adjuncts) must be Spelled-Out early before they merge with another complex structure so that the relative ordering between the terminals contained within each configuration is properly fixed by the simple linearization process.[2]

Under one interpretation of the Strong Minimalist Thesis that language is an optimal solution to interface conditions (Chomsky 2000, 2001), Spelled-Out mid-derivational objects in the MSO system delimit a unit on the syntax-external systems. One immediate move in this regard, which is in fact pointed out by Uriagereka (1999: 262-265) himself, is to hypothesize that the Spelled-Out domains correspond to domains of phonological rule application at the phonological component. This is the strongest hypothesis about the syntax-phonology interface since it needs no extra assumptions at PF (see also M. Richards 2006).[3] More concretely, this hypothesis states that the VP and TP domains in Chomsky's phase theory/the complex left-branching non-complement structures in Uriagereka's model correspond to the set of domains for phonological rule application at the syntax-external phonological component. Now, if this hypothesis is correct, syntactically governed morphophonological phenomena, one classical example of which has been contraction since the early 1970s, should be explained just as a simple corollary of this hypothesis. In the following sections, I show

that the proposed hypothesis allows for a straightforward characterization of circumstances under which one finds *wanna*-contraction, auxiliary reduction, and pronominal cliticization in English.

Before moving onto the actual analysis of the contraction phenomena, I introduce here one assumption that becomes important in the following sections. I assume that a lexically specified subset of function words such as auxiliaries (e.g., *will, have, is*), infinitival *to*, and simplex pronominals (e.g., *it, him, her*) are introduced into the derivation with their ambiguous prosodic status as clitic or autonomous word underspecified; their ambiguous prosodic status is disambiguated in favor of one or the other solely by their surrounding syntactic environments. Specifically, following Selkirk (1995) and Vogel (2006) with a slight modification, I propose that those function words are realized as autonomous prosodic words/strong forms (hence with stress) in the right edge of a Spelled-Out domain and as prosodic words/weak forms (hence without stress) otherwise.

To illustrate how this syntactic characterization of certain function words works within the present syntax-phonology interface hypothesis, consider examples as in (2) (with irrelevant details omitted).

(2)   Daniel isn't combing, although [$_{TP}$ Amanda [$_{T'}$ {is/*'s} [$_{vP}$ coming]]].

It has been widely known that an auxiliary cannot contract leftward to its host when it immediately precedes the *v*P deletion site, as shown in (2). Under the present assumption about the prosodic structure of function words, *it* must be realized as an autonomous prosodic word in (2) because it is at the right edge of the Spelled-Out domain TP due to the deletion of the *v*P. Since a prosodic word is identified as a

prosodic element that has stress and a stressed item cannot be contracted, the proposed analysis correctly

accounts for the failure of contraction in (2). See section 4 for much more detailed discussion.


## 3. *Wanna*-Contraction

*Wanna*-contraction (or *to*-contraction, more broadly) has a rich history in the generative literature

since the early 1970s, starting with the observation of the contrast between (3b) and (3d) first made by

Lakoff (1970) (who attributes it to Larry Horn). In the subject control case in (3a), *wanna*-contraction is

allowed as in (3b); in the object control case in (3c), it is blocked as in (3d).


(3)  a.    Who do you want to marry?

     b.    Who do you wanna marry?

     c.    Who do you want to marry you?

     d.  *Who do you wanna marry you?


Since the early 1970s, one central question about this contraction has been what type of empty

categories/traces/copies block this contraction and, if so, why those entries, despite their phonologically

empty status, have any role to play in what appears to be essentially a morphophonological phenomenon.

However, no previous work has successfully worked out a principled solution to this question. Let us first

review some representative approaches to *wanna*-contraction.

First of all, Jaeggli (1980) and Chomsky (1986a) develop a PF adjacency-based analysis of the contrast between (3b) and (3d) whereby only Case-marked traces block contraction. According to this analysis, (3d) does not allow contraction because the Case-marked *wh*-trace intervenes between *want* and *to*. One problem with this analysis is that Case is no longer considered as having the function of making an intervening category visible for PF reasons in the minimalist framework (Chomsky 1995), as originally encoded in the Case Filter in the Government and Binding (GB) theory (Chomsky 1981, 1986a, b). Another problem is that several works within the minimalist framework as in Chomsky and Lasnik (1993) and Martin (1996, 2001) argue that PRO is in fact assigned a special case called *Null Case*. To the extent that this argument holds, Jaeggli/Chomsky-style analysis would wrongly predict not only (3d) but also (3b) to block contraction. Second, several works within the GB theory as in Aoun and Lightfoot (1984), Browning (1991), Zagona (1988), and Barss (1995) propose an alternative government-based account of the contrast between (3b) and (3d) whereby *to* may contract onto a head only when the head governs it at S-structure. This line of account, however, is untenable within the minimalist framework, which attempts to dispense with any stipulative geometric relation such as government that does not follow from the system of syntactic computation. Third, Bošković (1997) assumes that Case-assigners like null C in examples like (3d) block contraction. A problem remains in his analysis, however, as to why phonologically empty elements like null C bock this essentially morphophonological phenomenon. Finally, there is a fourth line of analysis for contraction proposed by Pesetsky (1982) and Baltin (1995), namely, that any type of empty category blocks *wanna*-contraction. The same criticism leveled against Bošković (1997) analysis applies to this analysis as well.

The proposed hypothesis that Spelled-Out domains delimit domains for morphophonoloigcal rule application provides a simple account of the difference between (3b) and (3d) that is free from this "contraction" debate (Postal and Pullum 1982). Following a reviewer's suggestion, I adopt the view along the lines of the recent Distributed Morphology framework (Halle and Marantz 1993) that the *want + to* sequence is optionally rebracketd as *wanna* as part of Spell-Out. Combined with the syntax-phonology interface hypothesis proposed above, the present analysis states that this rebracketing is only possible when *want* and *to* are in the same Spelled-Out domain. This view also applies to other cases of contraction (*usta, gonna,* etc.*)* as well as auxiliary reduction and pronominal cliticization.

Let us first consider examples like (3b) which allow *wanna*-contraction. Bošković (1997) argues, on the ground of a principle of economy of representation called *Minimal Structure Principle*, that the complement clause with PRO as in (3b) is a TP and provides evidence for this TP analysis, based on the distribution of null Cs, the possibility of scrambling of controlled complements, right node raising, gapping, and pseudoclefts. To repeat one of his arguments, Stowell (1981) claims that the distribution of null Cs can be accounted for if they are subject to the Empty Category Principle (ECP). Thus, (4a) is grammatical because the null C is governed by the verb *believe* while (4b, c) are ungrammatical because the null C is not governed.

(4)  a.   It is believed [$_{CP}$ C  [$_{TP}$ he is crazy]].

   b.  * [$_{CP}$ C  [$_{TP}$ He would buy a car]] was believed at that time.
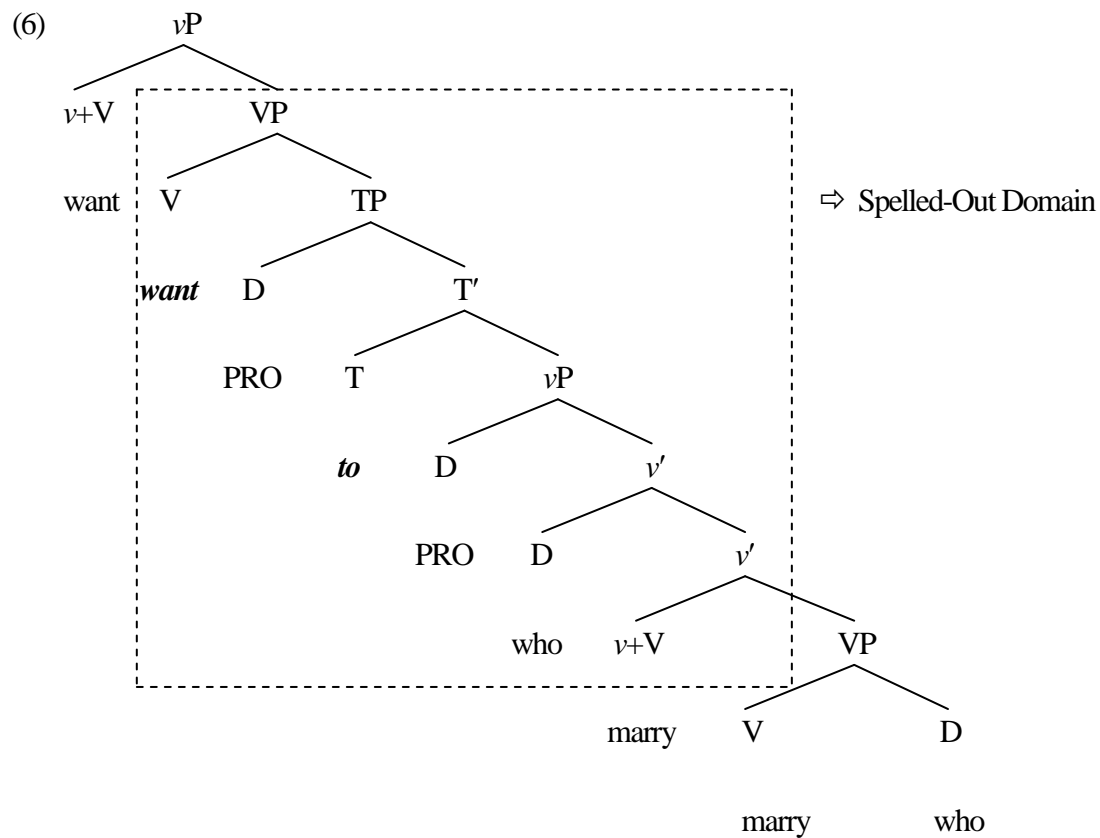
   c.  * It was believed at that time [$_{CP}$ C [$_{TP}$ you would fail her]].                   (Bošković 1997: 21)

Given Stowell's analysis, the grammaticality of (5a, b) would be unexpected under the standard CP analysis because the null C here would be not properly governed, in violation of the ECP, on a par with (4b, c). The grammaticality of (5a, b), however, naturally follows if control infinitives are TPs.[4]

(5)  a.  I tried at that time [$_{CP}$ C [$_{TP}$ PRO to fail her]].

  b.  [$_{CP}$ C [$_{TP}$ PRO to buy a car]] was desirable at that time.          (Bošković 1997: 21)

Under this TP analysis of the complements of *want*, the relevant part of the derivation for (3b) will be as in (6).
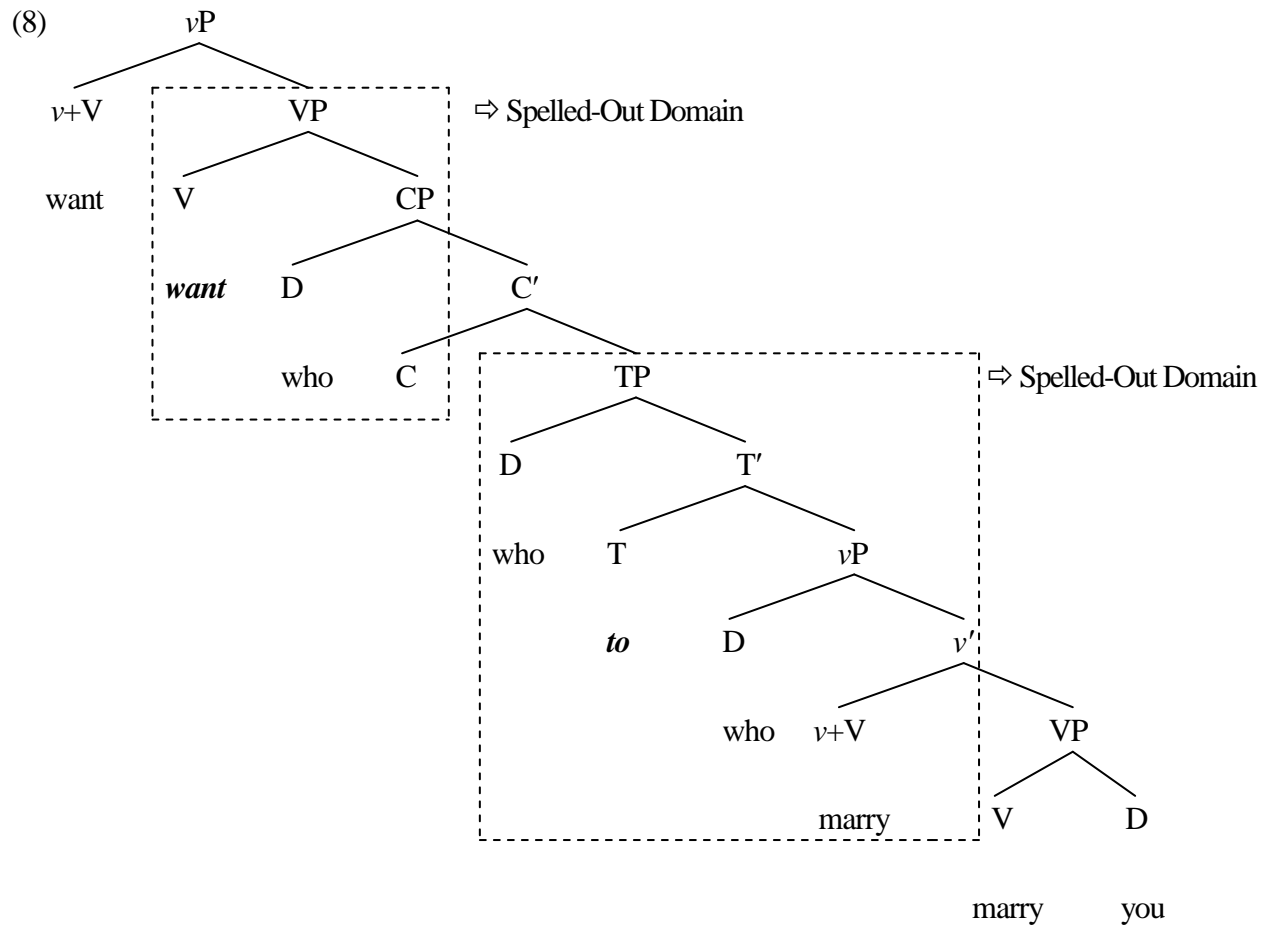
(6)

```
               vP
          /          \
    v+V  |          VP
         |      /         \
   want  |  V             TP
         | want    D            T'
         |        PRO      /         \
         |              T            vP
         |             to     D            v'
         |                   PRO    /            \
         |                        D              v'
         |                      who   v+V  |        VP
         |                           marry |      /      \
         |_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ |   V          D
                                            marry       who
```

⇨ Spelled-Out Domain

10

In this derivation, the VP domain of the higher *v*P phase contains both *want* and *to*. Note that the TP here does not separate the two elements because it is not selected by the phase head C. Furthermore, the infinitival *to* here is not located at the right edge of the Spelled-Out domain and hence is realized as a prosodic clitic in conformity with the assumption in section 2 about the syntax-sensitive classification of inherently ambiguous function words. Since the clitic *to* and its host *want* occur within the TP in (6), the *want + to* sequence can be rebracketd as *wanna* in the example in (3b).[5]

Consider now the derivation for (3d). Bresnan (1972), Chomsky (1981), Lasnik and Saito (1991), and Bošković (1997) argue that the infinitival complement in (3d) is headed by a null C that assigns Case to the subject of the complement in the same way *for* assigns Case to *him* in examples like *I want (very much) for him to leave*. This argument is supported by the contrast between (7a) and (7b) noted by Lasnik and Saito (1991: 336).

(7)   a.   ?*  Joan believes $him_i$ to be to be a genius even more fervently than $Bob's_i$ mother does.

      b.   ?  Joan wants $him_i$ to be successful even more fervently than $Bob's_i$ mother does.

The ungrammaticality of (7a) shows that the embedded subject undergoes movement to the matrix clause for Case checking, causing a Condition C violation. The grammaticality of (7b), therefore, indicates that the embedded subject checks its Case against the embedded null C.

Under this CP analysis of the complement of *want* with an accusative Case, the relevant part of the derivation for (3d) will be as in (8).

(8)

```
                    vP
           _____/_____
         v+V              VP                    ⇨ Spelled-Out Domain
         |          _____/_____
        want       V              CP
               ___|___        ___/\___
              want   D        D       C′
                     |        |    ___/\___
                    who     who  C       TP           ⇨ Spelled-Out Domain
                                    _____/\_____
                                   D            T′
                                   |        ___/\___
                                  who      T       vP
                                           |     __/\__
                                           to   D      v′
                                                |    __/\__
                                               who v+V      VP
                                                    |     __/\__
                                                  marry   V      D
                                                          |      |
                                                        marry   you
```

In this derivation, *who*, base-generated in the embedded [Spec, *v*P], undergoes movement through the embedded [Spec, TP] into the embedded [Spec, CP] in a manner required by the Phase Impenetrability Condition (see note 5). I assume with the above-mentioned work that the *wh*-phrase receives/checks accusative Case against the null C in the embedded [Spec, CP]. The derivation in (8) is crucially different from the one given in (6) in that the embedded TP in the former *is* a Spelled-Out domain because it is selected by the phase head C. This means under the proposed syntax-phonology interface hypothesis that

the embedded TP and the matrix VP form two different Spelled-Out domains. The *want + to* sequence

cannot be rebracketd as *wanna* in (3d) since *want* and *to* are contained within these separate domains.

Two conclusions can be drawn at this point from the proposed analysis of the contrast between (3b) and (3d).

First, the proposed analysis crucially depends on the notion of CP phase. Uriagereka's (1999) version of the

MSO hypothesis does not derive this contrast because it does not draw any distinction between two specific

categorical nodes like CPs or TPs that would be pertinent to Spell-Out. Furthermore, since *want* would be

included in the same Spelled-Out domain as *to* in (6) and (8) under the view of Spell-Out as a Last Resort

operation that applies to an otherwise unlinearizable structure (Uriagereka 1999: 256), his model incorrectly

predicts contraction to be possible for (3d). Therefore, the contrast between (3b) and (3d) provides support for

Chomsky's Phase Theory. Second, the proposed analysis does not need any extra assumptions concerning the

visibility of empty categories/traces/copies for the purposes of phonological operations that have been made in

the majority of work on *wanna*-contraction including those reviewed earlier in this section. What we need instead

is just the syntax-phonology interface hypothesis, naturally derivable from the system of MSO, and the prosodic

status of the infinitival *to* in a non-right-edge position of the Spelled-Out domain as a clitic. This last point thus

correctly predicts contraction to be bad in examples like *I cannot talk to you right now, even though I want to.*

The proposed analysis of *wanna*-contraction makes two predictions in other cases of *to*-contraction.

First, note that, given the Minimal Structure Principle, the categorial status of the complement of *want* in

examples like (3a, b) is no different from that of bona-fide raising verbs, which select TP complements.

Therefore, we can correctly derive the observation first made by Postal and Pullum (1978: 14) that certain lexically specified raisining verbs allow *to* contraction, as shown in (9a-e).

(9)  a.  There's *gonna* be a storm.

    b.  There *hasta* be a catch to this.

    c.  There *oughta* be a law against doing it like that.

    d.  There's *gotta* be some kinda rule for these causatives.

    e.  There's *supposta* be a man on guard.           (Postal and Pullum 1978: 14)

Second, it has been shown convincingly in the recent literature (see Melvold 1991) that factive verbs obligatorily take CP complements. Since *to* and a factive verb sit in two distinct Spelled-Out domains due to the CP phase boundary, as in the derivation in (8), the proposed analysis correctly predicts that there are no instances of *to*-contraction like *forgotta* or *learnta*.

Let us now examine more complex cases of *wanna*-contraction as in (10a-g). *Wanna*-contraction is impossible in these examples. (All the examples here are from Postal and Pullum 1982:124-126 except (10g), which is from Postal and Pullum 1978: 17.)  Postal and Pullum (1978, 1982) argue that the failure of *wanna* contraction in these examples is not accounted by analyses as in Jaeggli (1980) that assume the visibility of Case-marked traces for the purposes of contraction because there is no element, Case-marked or otherwise, that intervenes between *want* and *to*.

(10) a.? I don't *want* [*to* flagellate in public] [to become standard practice in this monastery].

b.?* It seems like [to *want*] [*to* regret that one does not have].

c.  I do not want [anyone who continues to *want*] to stop wanting.

d.  One must *want* [(in order) *to* become an over-effective consumer].

e.  I *want* [*to* dance] and [to sing].

f.  I don't [need] or [*want*] *to* hear about it.

g.  I *want*, *to* be precise, a yellow four-dour De Ville convertible.

Consider first (10a-c). As pointed out by a reviewer, what these examples have in common is that the structure

that contains either *want* or *to* is an internally complex left-branching structure. Uriagereka's (1999) MSO

model correctly derives the impossibility of contraction in these cases. The derivations for (10a-c) are given in

(11), (12), and (13), respectively.

(11)



15

(12)



(13)
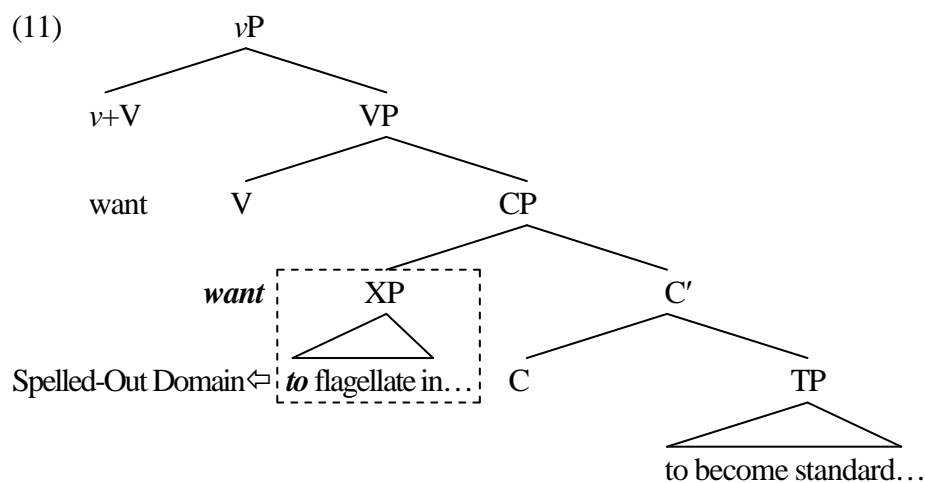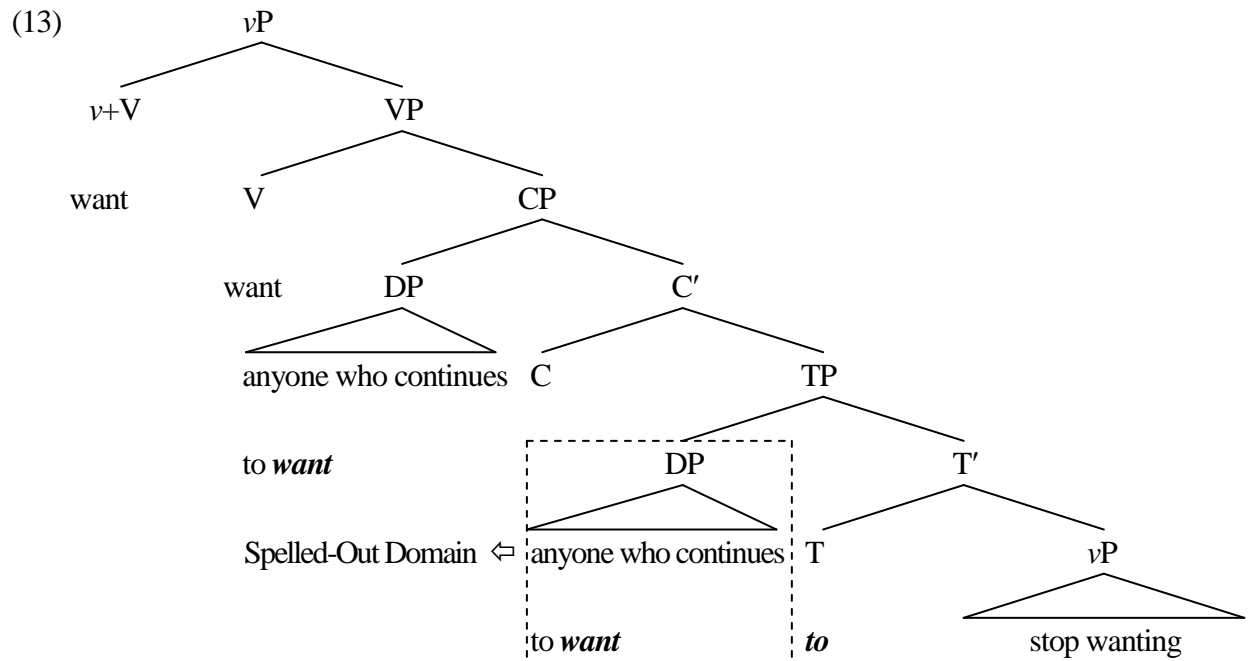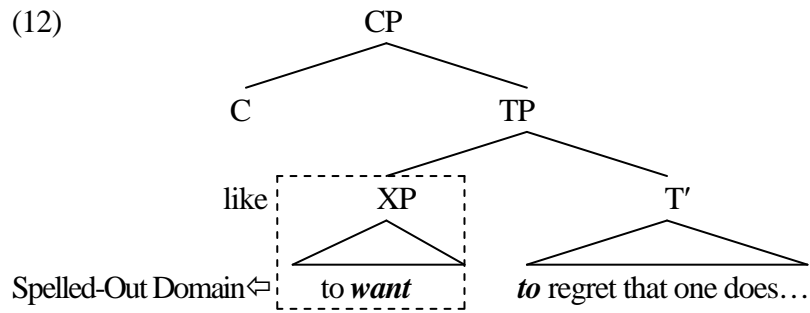


In these three derivations, the boxed DPs, each being a left-branching configuration, undergo early Spell-Out under Uriagereka's MSO model. Since *want* and *to* are located within two different Spelled-Out domains in these derivations, rebracketing of the *want* + *to* sequence as *wanna* is impossible in (10a-c).[6]

Consider next how the present analysis applies to (10d). This sentence blocks *wanna*-contraction when it is interpreted as a purpose clause: if one is to become an over-effective consumer, he/she needs to want.

Jones (1991: ch. 2) provides evidence based on the semantic and syntactic optionality of purpose clauses that phrases like *(in order) to become an over-effective user* in (10d) is a TP/VP-level adjunct.[7] Under this analysis, the relevant part of the derivation for (10d) will be as in (14).

(14)
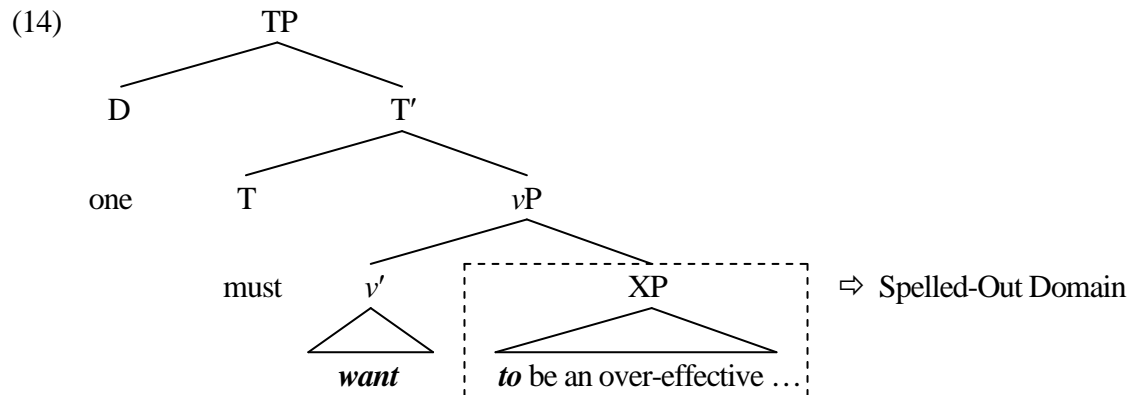


This derivation correctly blocks *wanna*-contraction because the XP forms an independent Spelled-Out domain that excludes the host verb *want*. Note that the same analysis also directly accounts for the unavailability of *gonna*-contraction in examples like *He says he's not going to annoy me* under the purpose reading (Postal and Pullum 1978: 17).[8]

Consider finally why contraction is bad in (10e-g). The account for (10e, f) is straightforward under Uriagereka's system if, following a reviewer's suggestion, we adopt the asymmetric view of coordination whereby the first and second conjuncts occupy the specifier and complement of the conjunction head, respectively (Munn 1993). Under this view, the first conjunct, *to dance* in (10e) and *need or want* in (10f), are contained within a left-branching structure that forms an independent Spelled-Out domain that

excludes *want* in (10e) or *to* in (10f), thereby correctly blocking contraction. Note that Chomsky's phase theory does not account for the examples in (10e, f) because their derivation would be similar to that shown in (6), incorrectly allowing contraction in these cases. Thus, examples like (10e, f) provide support for Uriagereka's MSO model. Finally, the unavailability of contraction in (10g) is explained if parenthetical clauses like *to be precise* are in a different plane/derivational cascade from the main derivational workspace for constructing the main clause along the lines proposed by Guimarães (2004).

## 4. Auxiliary Reduction

Like *wanna*-contraction, auxiliary reduction, as illustrated in (15), has received significant attention in the generative literature since Zwicky (1970), Lakoff (1970), King (1970), and Bresnan (1971b).[9]

(15)   Who do you think*'s* outside?

There are two major generalizations in the literature that any analysis of auxiliary reduction must capture. The relevant generalizations are stated in (16) and (17), with some representative examples.

(16)  Auxiliary reduction can apply if there is a trace position between an auxiliary and its host (Zwicky 1970) [10]

    a.  How much wine do you think ___*'s* in the bottle?

    b.  The woman you saw ___*'s* is my sister.

(17) Auxiliary reduction cannot apply if an auxiliary is immediately followed by a gap created by

transformations or VP deletion (King 1970)

    a.  Murphy's taller than {Gabe is/*Gabe's} ___.

    b.  I am wondering where {Mary is/Mary's} ___.

Consider first the generalization in (16). The Minimal Structure Principle introduced in section 3

requires that the complement of *think* in (16a) be a TP. Bošković (1997) provides arguments for this

TP analysis, based on the lack of C-trace effects, topicalization, and extraction patterns in American

Sign Language. To repeat his argument from topicalization, it has been widely known that, unlike

matrix topicalization, embedded topicalization requires *that* as an overt C, as shown in (18a-c).
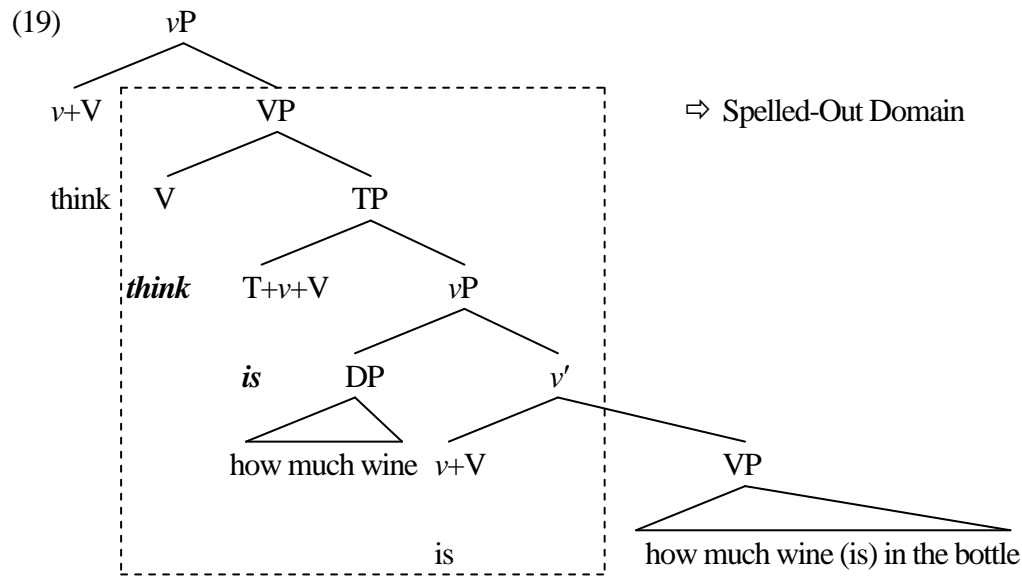
(18) a.  [$_{TP}$ Mary, [$_{TP}$ John likes]].

    b.  Peter doesn't believe that [$_{TP}$ Mary, [$_{TP}$ John likes]].

    c.* Peter doesn't believe [$_{TP}$ Mary, [$_{TP}$ John likes]].           (Bošković 1997: 30)

The contrast here falls out from the TP analysis under the assumption (Chomsky 1986b) that adjunction to an

argument is barred. (18c) is ungrammatical because *Mary* is adjoined to the argumental TP. (18b) is grammatical,

however, because *Mary* is adjoined to the non-argumental TP.[11]

    Under this TP analysis, then, the relevant part of the derivation for (16a) will be as in (19).

(19)
```
                    vP
        ┌────────────┴────────────┐
      v+V    ┌─────────────────────────────┐
             │      VP                      │         ⇨ Spelled-Out Domain
      think  │   ┌──┴──────┐                │
             │   V        TP                │
             │ think  ┌────┴─────┐          │
             │       T+v+V      vP          │
             │              ┌────┴───┐      │
             │             is  ┌─────┴────┐ │
             │                DP          v′│
             │               ╱  ╲      ╱    ╲
             │      how much wine  v+V      VP
             │                          ╱      ╲
             └──────────────is──────────┘ how much wine (is) in the bottle
```

In this derivation, the (non-final hence) clitic auxiliary *is* and the host verb *think* occur in the higher VP domain, so auxiliary contraction is correctly predicted to be grammatical.

Note that the proposed account of (16a) crucially relies on the assumption that there is no CP phase boundary between *think* and *is*. Thus, the current analysis makes an explicit prediction that a clitic auxiliary should not be able to contract onto a factive verb because the CP phase boundary separates the two lexical items. This prediction is confirmed by the contrast between (20a) and (20b).[12]

(20) a.  ?Who did you forget will be there?

    b.  *Who did you forget'll be there?

Consider in this connection examples as in (21a) and (22b). Kaisse (1979) proposes to reduce the unacceptability of auxiliary reduction in pseudoclefts like (21a) to the generalization in (17), namely, the inhibitory effect of its immediately following deletion site created by a transformation of some sort which she attributes to the unpublished work by Peters and Bach (1968) . This transformation is used to derive (21a) from the underlying structure in (21b). Pullum (1991: 35) observes, however, that this account is untenable in light of examples like (22a) because reduction is blocked even when the subject is pseudo-clefted so that the deletion site does not immediately follow the auxiliary, as shown in (22b).

(21) a.  *What he wondered's whether there was any beer.

    b.    What he wondered is ~~he wondered~~ whether there was any beer.

(22) a.  *What is bothering {Bob is/*Bob's} your attitude.

    b.    What is bothering Bob is your attitude ~~is bothering him~~.

Whatever the proper account of pseudo-clefts might be, the impossibility of auxiliary reduction here receives a simple account under the proposed derivational analysis as long as the subject here is associated with the CP structure. To take (21a), for example, the subject *what he wondered* is a CP structure. This means that the complement domain TP that contains *wondered* undergoes Spell-Out. The proposed analysis correctly blocks auxiliary reduction here because this domain does not contain the clitic *is*. The same analysis applies to the example in (22a): *Bob* and *is* are separated by the CP phase boundary.

A reviewer asks how the present analysis derives contrast between (21a)/(22a) and (16b). Here again, the proposed analysis derives this result naturally under the Minimal Structure Principle coupled with Chomsky's Phase Theory. The economy principle requires that null operator relatives be TPs. For example, Bošković (1997 )provides evidence for this position from short zero-subject relatives in (23a).

(23) a.  * the man [$_{TP}$ Op$_i$  [$_{TP}$ t$_i$ likes Mary]]

    b.  * I think that [$_{TP}$ John$_i$ , [$_{TP}$ t$_i$ likes Mary]]    (Bošković 1997: 26)

The account of (23a) is straightforward under the TP analysis because it involves clause-internal TP adjunction, which is independently known to be illicit, as the ungrammaticality of (23b) shows. Under this TP analysis, then, the relative clause *that you saw* in (16b) must be a TP, as shown in (24). [13]

(24)



⇨ Spelled-Out Domain

22
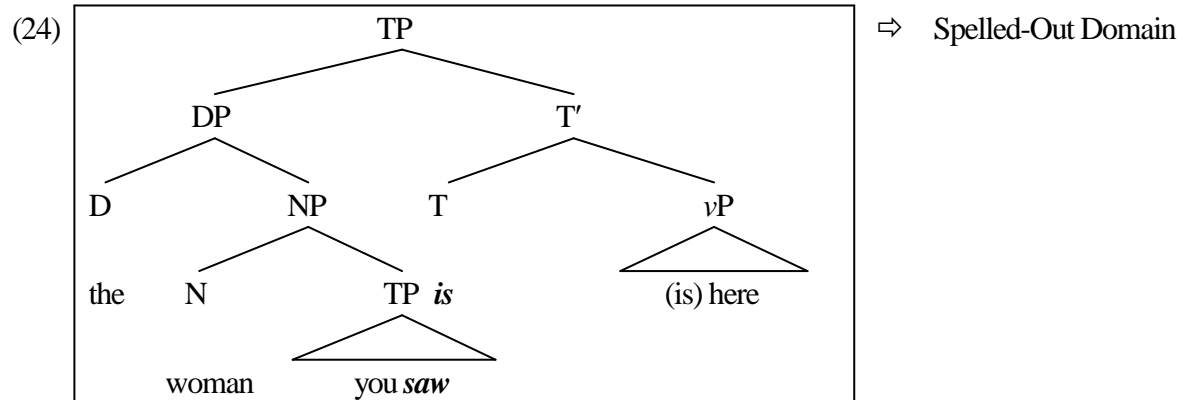
In this derivation, *is* and *saw* occur within the same Spelled-Out domain. Thus, reduction is allowed in (16b), in contrast to (21a)/(22a) that includes CP phases within their complex subjects. Note also that the proposed analysis predicts that auxiliary reduction should be blocked in contexts like (16b) when the CP projection is forced by an overt complementizer because the CP phase boundary would separate the host and auxiliary. That examples like (25) sound less acceptable than (16b) with reduction shows that this prediction is indeed borne out.[14]

(25)    The woman that you {saw is/*? saw 's} my sister.

How about the generalization in (17)? Recall our assumption in section 2 that certain lexically specified function words are realized as autonomous prosodic words in the right edge of a Spelled-Out domain as part of Spell-Out. With this in mind, consider the relevant part of the derivation for (17a) after *v*P deletion given in (26).

(26)
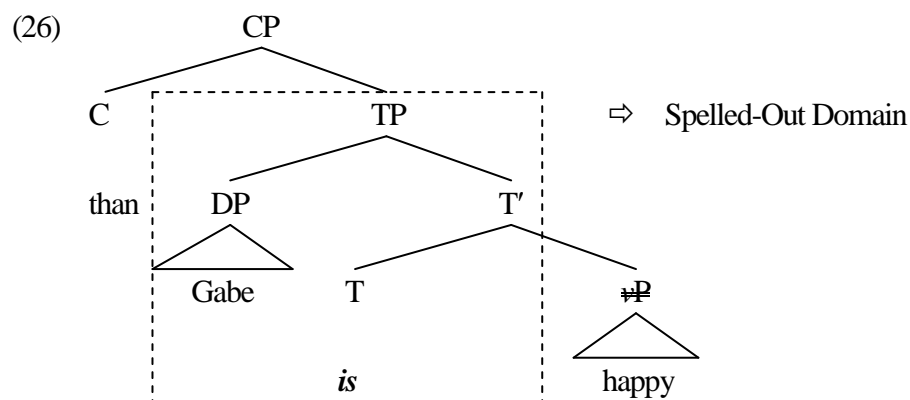


⇨    Spelled-Out Domain

In this derivation, the TP as the complement of the phase head C becomes a Spelled-Out domain. The *v*P deletion here leaves the auxiliary *is* at the right edge of this Spelled-Out domain. This syntactic information results in *is* being realized as an autonomous prosodic word. Selkirk (1995) provides independent evidence for the autonomous word status of phrase-final function words from the phenomenon of intrusive "-r" in Eastern Massachusetts dialects. McCarthy (1991, 1993) shows that the prosodic word-final position defines the locus of this "–r", as shown by (27a-c). Examples like (27d) with intrusive "-r", therefore, indicate that the phrase-final function word is preceded by a prosodic word.

(27)  a.  He put the tuna-*r* on the table.

b.  I said I was gonna-*r* and I did.

c.  He shoulda eaten already.    [ʃʊdə(*r)   ijtən]

d.  It's more scary than a subpoena-*r* is.                    (Selkirk 1995: 454, 455)

At the same time, however, it has been widely acknowledged in the literature (Baker 1971, Selkirk 1984, and references cited therein) that phrase-final auxiliaries in (17a, b) bear (non-low) stress. Under the theory of prosodic hierarchy of Selkirk (1978, 1984, 1995), represented in (28), the presence of stress on an item means that it is at least a prosodic word because a stressed syllable is the head of a foot/minimal stress-bearing entry and every foot must be dominated by a prosodic word.

(28)    The Prosodic Hierarchy (from Selkirk 1995: 442)

        Utt         Utterance

        IP          intonational Phrase

        PPh         phonological Phrase

        PWd         prosodic Word

        Ft          foot

        σ           syllable

This observation, together with the evidence from intrusive "-r", therefore, shows that the Spelled-Out domain final auxiliary is an autonomous prosodic word. Given this word status, then, the failure of contraction in contexts like (17a, b) are naturally explained by the general phonological condition that prohibits cliticization of an independent word onto another (as in *John'it Mary, where *it = hit*)). [15]

## 5.  Pronominal Cliticization

Compared with *wanna*-contraction and auxiliary reduction, the nature of the so-called pronominal cliticization has not been seriously investigated in the literature, much less from the perspective of the interaction between syntax and the external interpretive components. The purpose of this section is to show that the MSO approach to the syntax-phonology interface can naturally accommodate the recurrent pattern of

pronominal cliticization in tandem with independently motivated assumptions about the information-structural

characteristic of pronominals as providing old information (Diesing 1992; Holmberg 1999; Chomsky 2001).

5.1. *Verb-Particle /*Make-Out *ECM Constructions*

The effect of pronominal cliticization can be observed in the contrast between (29a, b) and (30a, b).

(29) a.    Mikey looked the reference up.

   b.    Mikey looked up the reference.

(30) a.    Mikey looked it up.

   b.  * Mikey looked up it.                    (Johnson 1991: 594)

The contrast here shows that the full DP object of the particle can appear either before or after the particle whereas

the pronominal object of the particle can only appear before the particle. Johnson (1991) notes that this contrast is

similar to the one that characterizes the phenomenon of Object Shift in the Scandinavian languages (Holmberg

1986), as in (31a, b) and (32a, b) in Icelandic, taken from Johnson (1991: 606) with a minor modification.

(31) a.  …   að   Jón   keypti  ekki    bókina.

            that   John  bought  not     book-the

            'that John didn't buy the book.'

b. … að    Jón    keypti  bókina   ekki.

   that   John   bought  book-the  not

   'that John didn't buy the book.'

(32)a. *… að    Jón    keypti  ekki    hann.

   that   John   bought  not     it

   'that John didn't buy it.'

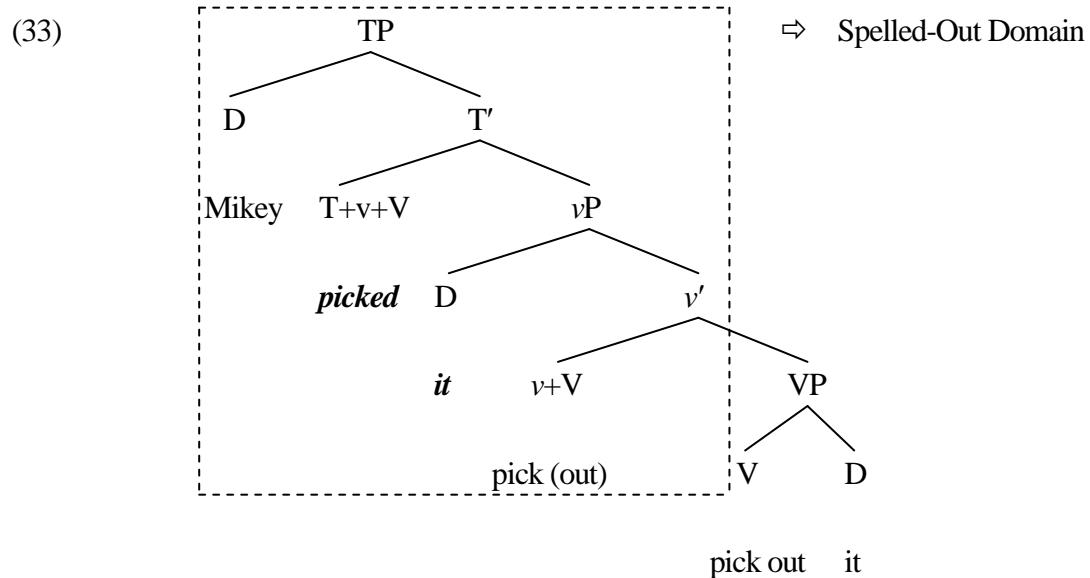b.   … að    Jón    keypti  hann    ekki.

   that  John    bought  it      not

   'that John didn't buy it.'


I adopt Johnson's (1991) analysis of verb-particle construction updated within the phase theory. Holmberg

(1999) proposes that Object Shift is best characterized as an operation in the component of grammar he calls

"Stylistic Syntax" where it is driven by the information-structural [± Foc (us)] property of the shifted object.

The paradigm illustrated in (31a, b) and (32a, b) follows, since pronouns are obligatorily specified as [-Foc]

whereas full DPs are specified either as [+Foc] or [-Foc] (see also Diesing 1992 for much relevant discussion;

cf. note 17). Chomsky (2001) provides a revision of Holmberg's observations in formal terms. He proposes

that the "phonological border" of *v*P receives the interpretive complex *Int'* (new, focus, non-specific, indefinite,

etc.) while the element that moves to the edge of the *v*P to satisfy the EPP feature receives the complementary

semantics *Int* (old, specific, definite, etc.).[16] Under this view, a non-shifting pronoun will yield a gibberish

outcome, for it would be interpreted as new information despite its lexically old/discourse-given property.

When we combine Chomsky's (2001) phase-theoretic view with the original analysis of verb-particle constructions proposed by Johnson (1991), the relevant part of the derivation for (30a, b) will be as in (33) (with irrelevant details, including the merger of the external argument and its movement, omitted).

(33)     ⇨     Spelled-Out Domain

```
                    TP
                   /  \
                  D    T′
                 /    /  \
              Mikey T+v+V   vP
                   /       /  \
               picked    D    v′
                        /    /   \
                      it   v+V     VP
                                  /  \
                           pick (out) V   D

                                  pick out   it
```

In this derivation, the complex verb *pick up* is base-generated within the VP (see Johnson 1991: 590-592 for arguments that these particles verbs are a single lexical item). Following Johnson (1991: 602), I assume that when head movement adjoins a verb to a head that hosts an inflectional morphology like tense, the moved element cannot carry the particle to T due to an independent restriction that forces bound morphology to attach only to the verbal part of the verb-particle combination (as in *looked up* vs. *look uped*). In other words, the particle verb in (33) must strand the particle either in the *v* or V positions on its way to T. The pronominal *it* undergoes EPP-driven

movement to the edge of *v*P and is interpreted at the interface as old//discourse-given. This series of derivational

steps yields (30a). Since the pronominal and the verb are within the same Spelled-Out domain in (33), the former

can be clitciized to the latter. (30b) is ill-formed, however, for semantic reasons because the unshifted pronoun (as

can be seen from the relative order of *it* with respect to *up*) receives the *Int'* complex (new information) despite its

inherently old information status that is only compatible with the interpretive outcome of being in the edge of *v*P.

 The proposed analysis also provides a natural account of the generalization brought up by a reviewer

(see also Bolinger 1971) that a non-cliticized form of the object pronoun is not permissible *unless* it is

contrastively focused. Consider examples in (34) pointed out by the same reviewer. (Acute accent marks

presence of pitch accent (and stress), grave accent marks word stress in the absence of pitch accent.)


(34) a. He pícked ùp BÉN$_F$  a'. He pícked ùp THÉM$_F$  (contrastive focus)

 b. He pícked ùp Bén  b'. *He pícked ùp them.  (neutral)

 c. He pìcked úp Bèn$_G$  c'. *He pìcked úp them.  (discourse-given)

 d.  − − − − −  d'. *He pìcked úp 'm/them.  (pronominal cliticization)


(34a-d) show that the full DP *Ben* appears in three possible realizations, each corresponding to a different

information structure: contrastive focus (realized with pitch accent), neutral (realized with a pitch accent), and

discourse given (realized without pitch accent). In all these cases, *Ben* bears word stress. In the case of an object

pronoun, however, (34a'-d') show that unless it is not a contrastive focused element, it cannot appear in the

sentence-final position. The proposed analysis derives this information structure-sensitive distribution of pronominal

objects in sentence-final contexts once we adopt the rather natural assumption that contrastive focus on an element

has the effect of introducing the element as a kind of new information. Since pronouns are most typically discourse-

given, they must move to the *v*P edge to evade the *Int'* interpretive complex. Thus, (34b'-d') are correctly excluded

at the interface because their derivation yields a contradictory interpretive outcome. Choi (1996), however, provides

arguments based on scrambling in Korean that contrastive focus are composed of the feature matrix [+new,

+prominent]). If so, the in situ contrastively focused pronominal is compatible with the *Int'* complex assigned to the

phonological border of *v*P. Then, (34a') is correctly predicted to be the only case that allows a string-final

pronominal because the contrastive focus information is a type of new information hence compatible with the *Int'*

complex assigned to the base position of the pronoun. Importantly, the same strategy also serves to suspend the

otherwise obligatory pronoun shift in Icelandic as in (35), taken from Johnson (1991:606) with a slight change. [17, 18]


(35)  … að   Jón   keypti  ekki   HANN

         that   John  bought  not     it

         'that John didn't buy IT.'


    Johnson (1991) also notes that the same distributional constraint on sentence-final pronominals also holds

for *make-out* constructions. As comparison of (36a, b) and (37a-c) illustrates, a full DP can appear on either

side of *out*, unlike a simplex pronoun, which must appear before the particle unless it is contrastively focused.

(36) a.    Mikey made George out to be a liar.
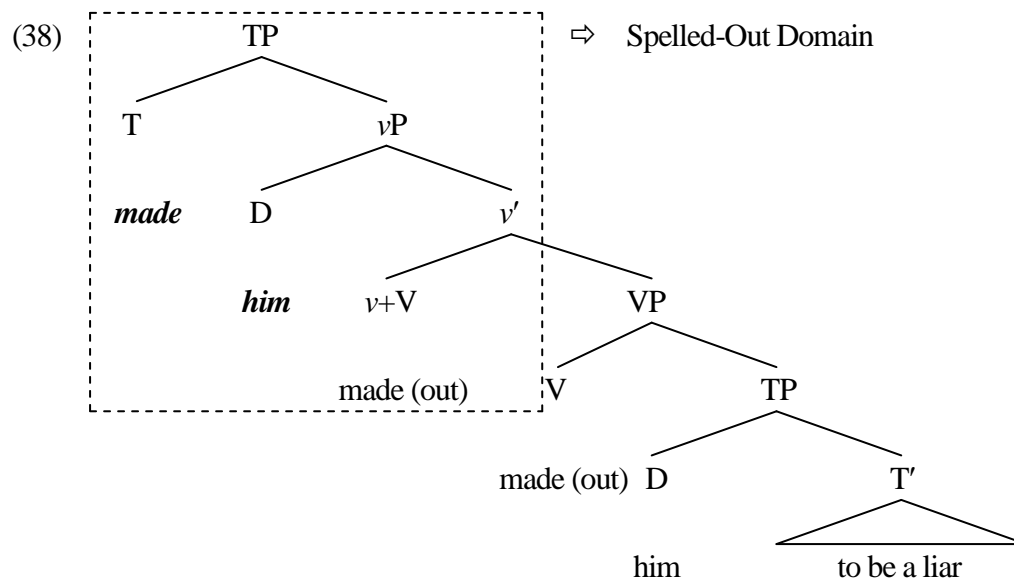
   b.    Mikey made out George to be a liar.

(37) a.    Mikey made him out to be a liar.

   b.  * Mikey made out him to be a liar.

   c.    Mikey made out THEM to be liars.                    (Johnson 1991: 595)

This paradigm is amenable to the same account proposed earlier. The derivation for (37a, b) is given in

(38) (with irrelevant details, including the merger of the external argument and its movement, omitted).

(38)  [Tree diagram]

  TP                              ⇨   Spelled-Out Domain
  ├── T
  │   *made*
  └── vP
      ├── D
      │   *him*
      └── v′
          ├── v+V
          │   made (out)
          └── VP
              ├── V
              │   made (out)
              └── TP
                  ├── D
                  │   him
                  └── T′
                      to be a liar

In this derivation, the particle verb moves to T, stranding the particle either in the *v* or V positions. The

pronominal subject moves to the *v*P edge for the *Int* complex interpretation. This derivation yields (37a). (37b)

is ungrammatical because the unshifted pronoun is interpreted as providing new information, which contradicts with its inherent given status. (36c) is fine because the contrastive semantics gives rise to a new information for the pronoun at the interface that is compatible with the *Int'* complex assigned to a DP in situ.

This subsection has shown that the proposed MSO approach to the syntax-phonology interface tightly interacts with the information-theoretic property of simplex pronominals (i.e. old information) as reflected in the *v*P edge so that the pronominal cliticization may properly ensue within the same Spelled-Out domain. This analysis, therefore, provides support for *v*P phases and the general derivational approach proposed in this paper.

5.2. *Double Object Constructions*

Akmajian and Heny (1975) and Soames and Perlmutter (1979) observe that the same prohibition observed in verb-particle constructions holds for double object constructions. A pronoun cannot appear in sentence-final position unless it is contrastively stressed, as illustrated in the contrast between (39a, b) and (40a-c).
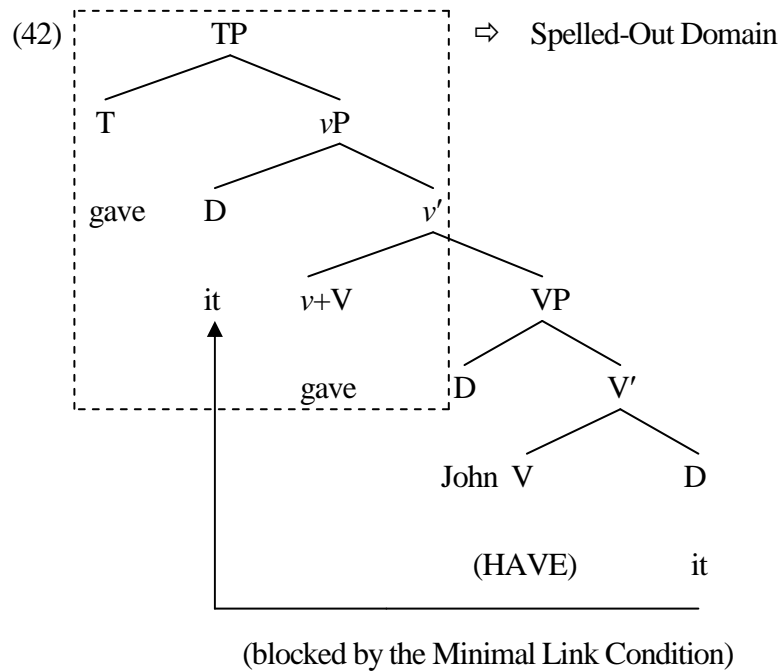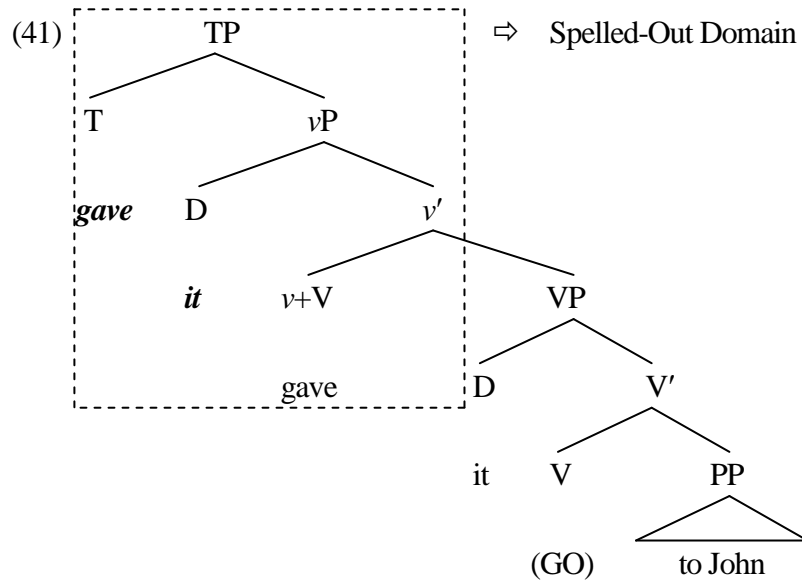
(39) a.    Mary gave a present to John.

    b.    Mary gave John a present.

(40) a.    Mary gave it to John.

    b.  * Mary gave John it.

    c.    Mary gave John IT!

Pesetsky (1995), Harley (1995, 2003), Pylkkänen (2002), Beck and Johnson (2004) show that the examples in

(39a) and (39b) are not related transformationallly but represent two separate derivations. Then, the pertinent part

of the derivations for (40a, b) will be as in (41) and (42), respectively (again, with irrelevant details omitted).
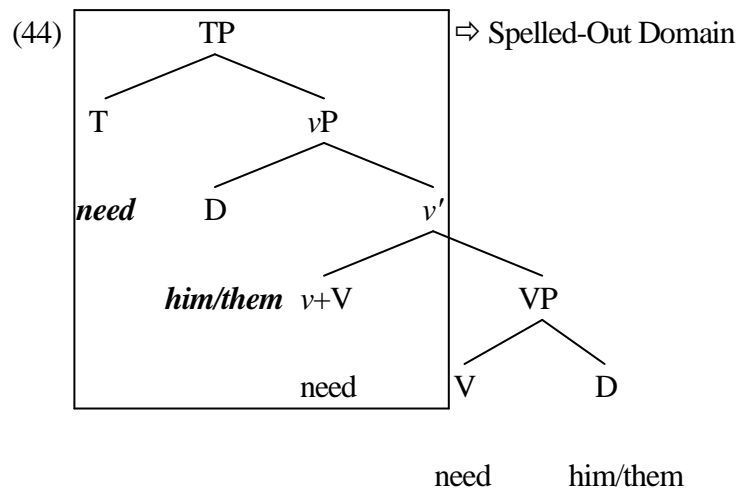
(41)  TP      ⇨    Spelled-Out Domain

T        *v*P

*gave*   D        *v*′

*it*   *v*+V      VP

gave   D        V′

it    V       PP

(GO)    to John

(42)  TP      ⇨    Spelled-Out Domain

T        *v*P

gave   D        *v*′

it    *v*+V      VP

gave   D        V′

John  V        D

(HAVE)       it

(blocked by the Minimal Link Condition)

In (41), *gave* undergoes movement from V through *v* to T. The pronominal object *it* undergoes movement into the *v*P edge and interpreted there as old information. Since *it* and *gave* are within the same Spelled-Out domain, the former undergoes cliticization to the latter. In (42), the required movement of the theme object into the *v*P edge violates the Minimal Link Condition (Chomsky 1995) due to the closer goal argument. (40b), thus, is ungrammatical because the condition traps the pronoun in situ, yielding the now familiar interpretive problem. The only way to save this sentence is to contrastively focus the in-situ pronoun as in (40c) because this strategy makes it contribute new information that is compatible with the *Int'* complex assigned in the base position.[19]

## 5.3. *Pronoun Incorporation*

Finally, the proposed analysis can be extended to account for the best case of pronominal cliticization that occurs in transitive clauses as in (43). The relevant part of the derivation for (43) is in (44).

(43)   We need'm.     (= 'need him/them')

(44)                    TP              ⇨ Spelled-Out Domain

         T                    *v*P

    ***need***      D                    *v'*

              ***him/them***  *v*+V              VP

                          need        V        D


                                    need        him/them

In this derivation, the pronoun undergoes EPP-driven movement into the *v*P edge so that it may be interpreted in the semantic interface as old information. Since the host and the pronoun occur in the same Spelled-Out domain, the present analysis correcly predicts that cliticization is possible in contexts like (43). [20]

## 6. Conclusions

The recent MSO model of syntax allows for a straightforward characterization of environments under which *wanna*-contraction, auxiliary reduction, and pronominal cliticization are found. This analysis achieves this result by allowing a sharply constrained interaction between the syntax and the interpretive components via certain restricted part of the derivational information such as the Spelled-Out domain finality and the *v*P edge for the purposes of phonological and semantic interpretation. To the extent that the proposed analysis holds, it provides syntax-external evidence for various known principles of syntax such as the economy of projection and the notion of CP/*v*P phase. The results reported here, therefore, indicate that a dynamically bifurcated view of syntactic computation achieves the minimalist desideratum of explaining linguistic phenomena solely in terms of interface conditions.

[1] Chomsky assumes that only those verbs that instantiate "full argument structure" (transitive and experiencer constructions) have strong phase heads, as indicated by $v^*$. In this paper, however, I assume that every instance of $v$ is a strong phase. See Legate (2003) for several phonological and semantic arguments that non-transitive $v$ is a strong phase.

[2] A reviewer notes that Chomsky's and Uriagereka's proposals have the same computational consequences, with the only difference being that Chomsky uses the notion of reduced computational complexity as the sole motivation for his phase theory. We will see in sections 3-5, however, that when applied to *wanna*-contraction, auxiliary reduction, and pronominal cliticization the two versions make different predictions about environments under which these morphophonological operations are possible.

[3] Other researchers have independently come to similar conclusions, applied to a different set of data. Kahnemuyipour (2004) provides a reformulation of nuclear stress rules within the Phase Theory that states that nuclear stress falls on the highest element within the complement domains of the CP and $v^*$P (which he terms SPELLEE). Dobashi (2003) proposes a similar hypothesis for phonological phrasing. Uriagereka (1999: 262-265) argues that the interface hypothesis of this sort receives empirical support from pauses/parenthetical expressions, phonological association of certain function words to their governing lexical heads. Johnson (2003) also develops a similar idea from focus spreading within his revised version of Uriagereka's MSO model.

[4] The Minimal Structure Principle is defined as in (i).


(i) *The Minimal Structure Principle* (Bošković 1997: 25)

Provided that lexical requirements of relevant elements are satisfied, if two representations have the same lexical structure and serve the same function, then the representation that has fewer projections is to be chosen as the syntactic representation serving that function.

This principle requires that every functional projection be motivated by the satisfaction of lexical (i.e. s-/l-selectional) requirements. As Bošković (1997: 37) notes, several works such as Law (1991), Grimshaw (1997), Safir (1993), Speas (1994), and Radford (1996), and Chomsky (1995) independently proposed principles akin to (i). In fact, as a reviewer notes, Fukui (1986) predates the Minimal Structure Principle. He proposes a relativized phrase structure theory whereby a projection never gets closed off in Japanese to derives his observation that it entirely lacks functional categories such as C, T, and D. The rational behind his theory is that no superfluous representations must be admitted into the phrase structure in natural language in the same way that Bošković's Minimal Structure Principle dictates.

The same reviewer points out that Bošković (1997)'s system does not fully resolve the issue of the 'comparison set'. Specifically, under the assumption (Chomsky 1995) that a set of derivations can only be compared when they are based on the same numeration, two derivations, one with the CP and the other without it, cannot be evaluated against one another. In addressing this issue, Bošković (1997: 38) proposes to redefine the notion of numeration and reference set on lexical items only, with functional elements being introduced into the syntactic derivation via repeated access to the lexicon when their introduction is required to satisfy l-/s-selectional requirements of lexical items. This revision, thus, allows us to replace representational principles like (i) with a derivational approach to lexical insertion and numeration.

[5] One might wonder whether *want* is located in the same Spelled-Out domain as *to* in (6) because at the point the matrix VP is Spelled-Out, *want* must have already moved into the matrix *v* head position at the CP phase, according to the Phase Impenetrability Condition (Chomsky 2000, 2001, 2004, 2005) to the effect that the complement domain of a phase becomes inaccessible to operations to a later phase. In this paper, I take the operation of Spell-Out to be a derivational point that activates the relevant domains for the purposes of phonological operations within syntactic computation. Under

this view, when the matrix VP is Spelled-Out, the PF component reads the information relevant to contraction (i.e. *want* and *to* occur in the same Spelled-Out domain) and stores/records this information in some phonological storage point external to the computational system. In a similar vein, Fox and Pesetsky (2005) propose that the linearization statement established in an earlier Spelled-Out domain may not be contradicted by the statement established in a later phase. This Law of Order Preservation crucially requires the syntax to examine the contents of earlier Spelled-Out domains (as they relate to linearization) but the system still preserves a certain encapsulation of the domains as in Chomsky's phase-theoretic argument for reduced complexity in the sense that later cycles can only access previously stored information of an earlier phase, not the phase itself. See also Boeckx (2006) for the related claim that Spell-Out is better understood as a point of "interface invasion" which is quite compatible and close in spirit to what is assumed here about Spell-Out. Thanks to a reviewer for bringing my attention to the relevance of Fox and Pesetsky (2005) in the present context.

[6] A reviewer and Juan Uriagereka (p.c.) independently note that Guimarães (1998) has counterevidence from French liaison that, in limited conditions, can involve a left branching structure. In fact, Uriagereka (1999) himself noted some counterexamples of the relevant sort from the cliticization of determiners to their preceding heads in Galician. Unfortunately, Guimarães (1998) was not available to me at the present stage of my research. Detailed examination of the data reported there as well as the cliticization data in Galician goes beyond the scope of this paper.

[7] Specifically, Jones (1991) provides evidence based on preposing, negative polarity licensing, pseudocletfs, the relative order of *to-* and *in order to-* purpose clauses, VP deletion and conjunction that *to*-purpose clauses are attached to VPs whereas *in order to*-clauses can attach either to VPs or TPs. Details on the attachment site of and the categorial label of

these purposes clauses do not affect the content of the present analysis as long as these purpose clauses are adjuncts. I am grateful to a reviewer for bringing my attention to Jones (1991).

[8] One consequence of the analysis presented here, then, is that Hornstein's (2001) sideward movement analysis of leftward extraction out of adjunct infinitival clauses cannot be maintained in its original form, since the adjunct is construed in a separate derivational cascade.  As a reviewer points out, however, Jones (1991) (see also Browning 1987)  pointed out examples as in (ia), suggesting that sideward movement from within an adjunct should be allowed as a possibility. The grammaticality of examples as in (ib), however, shows that extraction of an adjunct from the *in-order-to* clause results in ungrammaticality.

(i)  a.  Who$_i$ did you go to England [in order to meet t$_i$]?

   b.* How$_i$ did John go to the garage [in order to fix the car t$_i$]?          (Jones 1991: 29, 77)

An extension of the Multiple Spell-Out + sideward movement approach to ECP/island effects proposed by Nunes and Uriagereka (2000) might be able to accommodate this contrast. Nevertheless, I leave this issue open for reasons of space.

[9]  As a reviewer observes, what has been called auxiliary reduction in the literature is actually auxiliary contraction, as can been seen most notably in the spelling -*'s* for *is* in (15), where the auxiliary appears attached to the item on its left. While acknowledging this observation, I continue to use the traditional term due to its greater familiarity in the literature.

[10] Jaeggli (1980)/Chomsky (1986a)'s adjacency-based analysis of contraction fails to account for the examples in (16a, b) because the Case-marked *wh*-traces that intervenes between *is* and *think* should block reduction.

[11] The same conceptual argument made in note 4 for/against the Minimal Structure Principle applies here too. In particular, the idea that the complement of *that*-less finite complement is a TP is controversial. For example, one problem that arises with the TP analysis is where the declarative force comes from without CP projections under the standard assumption that C specifies an illocutionary force of a clause (interrogative, declarative, etc.). However, as Bošković (1997: 187) notes, it is possible to get around this problem by assuming that "declarative is the default interpretation of clauses".

[12] Thanks to a reviewer for making this point and to Heidi Harley (p.c.) for providing the examples in (20a, b). The example in (20a) is degraded somewhat due to the factive island effect; see Melvold (1991) for detailed discussion.

[13] I assume that the root TP is Spelled-Out as a default without being selected by a phase head C, a rather natural assumption.

[14] Consider examples in (ia, b) pointed out by a reviewer. The present analysis predicts that (ia) and (ib) should be both ungrammatical because the host and the auxiliary are separated by the CP phase boundary.

(i)  a.  What he saw's whether there was any beer.

     b.  The thing that he saw's whether there was any beer.

Indeed, all the language consultants reported that they do not accept either example with contraction, though the example in (ia) sounds slightly better than the example in (ib) for reasons that might have to do with the fact that some speakers allow the headless relative clause interpretation for the complex *wh*-subject in (ia), which, Kaisse 1979 notes, allow auxiliary reduction.

[15] A reviewer asks how the determination of the prosodic status of a function word interacts with the treatment of auxiliary reduction as rebracketing if both operations are presumed to occur as part of Spell-Out. I assume in this paper

that the prosodic status is determined before it serves as input for rebrakecting. Under this assumption, a function word is not eligible for rebracketing when it is realized as an autonomous word at the right edge of a Spelled-Out domain; if it is realized as a clitic, it undergoes optional bracketing as part of Spell-Out.

[16] Chomsky (2001: 34) defines the phonological border of HP as "a position not c-commanded by phonological material within HP." He proposes (p.33) that the interpretive complex *Int* is assigned to the edge of the *v*\*P but for reasons mentioned in note 1, I assume that this assignment holds for all types of *v*P phases, including passive and unaccusative configurations.

[17] One issue that remains is the grammaticality of (34c): *He pícked ùp BÉN$_F$.* If *Ben* is discourse-given like a pronominal, it should move to the *v*P edge. Since the verb moves up to the T head leaving the particle in the *v* or V positions, the example would be incorrectly blocked. It is worthwhile to note that in Object Shift languages like German, Icelandic, and Danish, the movement of the definite object is optional, as shown in (ia-c), taken from M. Richards (2006: 161) with a slight modification.

(i) a. Der  Student  las    (es/das Buch)    nicht  (das Buch/*es)   [German]

      the   student  read (it/the book)    not    (the book/it)

  b. Nemandinn  las    (hana/bókina)  ekki  (bókina/hana)   [Icelnadic]

      student       read (it/the book)    not    (the book/it)

  c. Studenten    læste  (den/*bogen) ikke  (bogen/*den)   [Danish]

      student       read   (it/the book)  not    (the book/it)

     'The student didn't read it/the book.'

Thus, the grammaticality of the example in (34c) as well as (ia-c) with unshifted objects shows that an DP can be interpreted in situ, even when they are interpreted as discourse-given. I leave more detailed discussion of the proper licensing mechanism for unshifted objects in those cases for another occasion.

[18] As a reviewer points out, an alternative approach to the particle pronoun prohibition would parallel the account of auxiliary reduction- "it" resists stress, but would be assigned stress in the Spelled-Out domain final position. Under the proposed analysis, however, sentence-final pronominals receive stress for a reason that is different from the reason sentence-final auxiliaries receive stress. The former receive stress due to their contrastive focus while the latter receive stress due to their prosodic character as a word that dominates a foot. I take this difference to indicate that the parallel approach to the stress-sensitive behavior of auxiliary reduction and pronominal cliticization does not correctly reflect these distinct sources of stress.

[19] A reviewer asks whether the proposed analysis would not incorrectly block naturally occurring examples like (ia) on a par with examples like (ib) since it is intended to derive the generalization that the sentence-final pronoun is impermissible unless it has contrastive focus. Since the account in section 5.1 applies to (ib), the question is why (ia) is better than (ib).

(i)  a.  ??  I was expecting that from my parents, and they gave me it Sunday.

    b.  *   I was expecting that from my parents, and they tossed up it Sunday.

As Heidi Harley (p.c.) points out, examples like (ia) are grammatical only in British English (BE). It has been widely acknowledged in the literature that there are a couple of differences between American English (AM) and BE (see Oehrle

1976, Hudson 1992, and McCawley 1988, for example). Indeed, one well-known difference is precisely that the theme object of the double object construction may be a pronoun in British English but not in American English, as in (iia, b).

(ii) a.  John gave Mary it.  (OK in BE, *in AE)

  (cf. John gave it to Mary.    (OK both in BE and in AE))

 b.  John sent Mary them.   (OK in BE, * in AE)

  (cf. John sent them to Mary.  (OK both in BE and in AE))          (Ura 1996:  269)

Ura 2000 shows that this and other differences between AE and BE are derived naturally by proposing two parametric differences between the two dialects of English: a) the Agr IO is always strong in AE while it is optionally strong in BE and b) the Agr IO and Agr DO can license multiple specifiers in BE, neither of the functional projections has this ability in AE. Adopting this Agr-based theory of Case checking to the present context, I assume that the *v*P can host more than one edge in BE but not in AE. Under this assumption, examples like (iia) are grammatical in BE because this option allows the convergent derivation where the movement of the higher goal pronoun moves into the edge of *v*P, followed by the tucking-in movement of the lower theme pronoun into the lower edge of the same head (N. Richards 1997).

[20] Chomsky (1995) makes a similar proposal in a different context to the effect that a simple pronoun incorporates into its selecting verb for the purposes of the Linear Correspondence Axiom proposed by Kayne (1994) (see also Selkirk 1995 for a related proposal). In the simple configuration [$_{VP}$ V D], the relative order between the two terminals cannot be fixed by this axiom because there is no asymmetric c-command relation between them (see section 2). Chomsky

thus suggests that the D head incorporates to the verb post-syntactically so that the structure is interpreted as a single

phonological word for the purposes of LCA that applies at PF. This analysis is consistent with the analysis proposed in

the present section. I leave the choice between the two analyses open for reasons of space. See Chomsky (1995: 337,

338) for a fuller discussion of contexts that leads him to this particular analysis.

## References

AKMAJIAN, A. & F. HENY. 1975. *An introduction to the principles of transformational syntax*. Cambridge, Mass.: MIT Press.

AOUN, J. & D. LIGHTFOOT. 1984. Government and contraction. *Linguistic Inquiry* 15: 465-473.

BAKER, C. L. 1971. Stress level and auxiliary behavior in English. *Linguistic Inquiry* 2: 167-181.

BALTIN, M. 1995. Floating quantifiers, PRO, and predication. *Linguistic Inquiry* 26: 199-248.

BARSS, A. 1995. Extraction and contraction. *Linguistic Inquiry* 26: 681-694.

BECK, S. & K. JOHNSON. 2004. Double objects again. *Linguistic Inquiry* 35: 97-124.

BOLINGER, D. 1971. *The phrasal verb in English*. Cambridge, Mass.: Harvard University Press.

BOŠKOVIĆ, Ž. 1997. *The syntax of nonfinite complementation: An economy approach*. Cambridge, Mass.: MIT Press.

BOECKX, C. 2006. Eliminating spell-out. *Linguistic Analysis* 33: 414-425.

BRESNAN, J. 1971a. Sentence stress and syntactic transformations. *Language* 47: 257-281.

BRESNAN, J. 1971b. Contraction and the transformational cycle. Ms., MIT.

BRESNAN, J. 1972. Theory of complementation in English syntax. Ph.D. dissertation, MIT, Cambridge, Mass.

BROWNING, M.A. 1987. Null operator constructions. Ph.D. dissertation, MIT, Cambridge, Mass.

BROWNING, M. A. 1991. Bounding conditions on representations. *Linguistic Inquiry* 22: 541-562.

CHOI, H.-W. 1996. Optimizing structures in context: Scrambling and information structure. Ph.D. dissertation, Stanford University.

CHOMSKY, N. 1981. *Lectures on government and binding*. Dordrecht: Foris.

CHOMSKY, N. 1986a. *Knowledge of language: Its nature, origin, and use*. New York: Praeger.

CHOMSKY, N. 1986b. *Barriers*. Cambridge, Mass.: MIT Press.

CHOMSKY, N. 1995. *The minimalist program*. Cambridge, Mass.: MIT Press.

CHOMSKY, N. 2000. Minimalist inquiries: The framework. In *Step by step: Essays in minimalist syntax in honor of Howard Lasnik,* ed. R. Martin, D. Michaels & J. Uriagereka, 89-155. Cambridge, Mass.: MIT Press.

CHOMSKY, N. 2001. Derivation by phase. In *Ken Hale: A life in language*, ed. M. Kenstowicz, 1-50. Cambridge, Mass.: MIT Press.

CHOMSKY, N. 2004. Beyond explanatory adequacy. In *Structures and beyond: The cartography of syntactic structure, vol. 3*, ed. A. Belletti, 104-131. New York: oxford University Press.

CHOMSKY, N. 2005. On phases. Ms., MIT.

CHOMSKY, N. & H. LASNIK. 1993. The theory of principles and parameters. In *Syntax: An international handbook of contemporary research*, Vol. 1, ed. J. Jacobs, A. von Stechow, W. Sternefeld & T. Venneman, 506-569. Berlin: Mouton de Gruyter. [Reprinted in Chomsky 1995: 13-127.]

DIESING, M. 1992. *Indefinites.* Cambridge, Mass.: MIT Press.

DOBASHI, Y. 2003. Phonological phrasing and syntactic derivation. Ph.D. dissertation, Cornell University, Ithaca.

EPSTEIN, S.D., E. M. GROAT, R. KAWASHIMA & H. KITAHARA. 1998. *A derivational approach to syntactic relations*. Oxford: Oxford University Press.

FOX, D. & D. PESETSKY. 2005. Cyclic linearization of syntactic structure. *Theoretical Linguistics* 31: 1-45.

FUKUI, N. 1986. A theory of category projection and its applications. Ph.D. dissertation, MIT, Cambridge, Mass.

GRIMSHAW, J. 1997. Projection, heads, and optimality. *Linguistic Inquiry* 28: 373-422.

GUIMARÃES, M. 1998. Repensando a interface sintaxe-fonologia a partir do axioma de correspondência linear. Master's thesis, UNICAMP, Brazil.

GUIMARÃES, M. 2004. Derivation and representation of syntactic amalgams. Ph. D. dissertation, University of Maryland, College Park.

HALLE, M. & A. MARANTZ. 1993. Distributed morphology and the pieces of inflection. In *The view from Building 20: Essays in linguistics in honor of Sylvain Bromberger*, ed. K. Hale & S.J. Keyser, 111-176. Cambridge, Mass.: MIT Press.

HARLEY, H. 1995. Subejcts, events and licensing. Ph.D. dissertation, MIT, Cambridge, Mass.

HARLEY, H. 2003. Possession and the double object construction. In *Linguistic variation yearbook 2*, ed. P. Pica and J. Rooryck, 31-70. Amsterdam: John Benjamins.

HOLMBERG, A. 1986. Word order and syntactic features in Scandinavian languages and English. Ph.D. dissertation, University of Stockholm.

HOLMBERG, A. 1999. Remarks on Holmberg's generalization. *Studia Linguistica* 53: 1-39.

HORNSTEIN, N. 2001. *Move! A minimalist theory of construal*. Oxford: Blackwell.

HUANG, C.-T. J. 1982. Logical relations in Chinese and the theory of grammar. Ph.D. dissertation, MIT, Cambridge, Mass.

HUDSON, R. 1992. So-called 'double objects' and grammatical relations. *Language* 68: 251-276.

JAEGGLI, O. 1980. Remarks on *To* contraction. *Linguistic Inquiry* 11: 239-246.

JOHNSON, K. 1991. Object positions. *Natural Language & Linguistic Theory* 9: 577-636.

JOHNSON, K. 2003. Towards an etiology of adjunct islands. *Nordlyd* 31: 187-215.

JONES, C. 1991. *Purpose clauses: Syntax, thematics, and semantics of English purpose constructions*. Dordrecht: Kluwer.

KAHNEMUYIPOUR, A. 2004. The syntax of sentential stress. Ph.D. dissertation, University of Toronto.

KAISSE, E. M. 1979. Auxiliary reduction and the derivation of pseudoclefts. *Linguistic Inquiry* 10: 706-710.

KAYNE, R. 1994. *The antisymmetry of syntax.*. Cambridge, Mass.: MIT Press.

KING, H. V. 1970. On blocking the rules for contraction in English. *Linguistic Inquiry* 1: 134-136.

LAKOFF, G. 1970. Global rules. *Language* 48: 627-639.

LASNIK, H. & M. SAITO. 1991. On the subject of infinitives. In *Papers from the 27th regional meeting of the Chicago Linguistic Society: Part One: The General Session*, ed. L. M. Dobrin, L. Nichols & R.M. Rodriguez, 324-343. Chicago: Chicago Linguistic Society. [Reprinted in Lasnik, H. 1999. *Minimalist analysis*, 7-24. Oxford: Blackwell.]

LAW, P. 1991. Effects of head movement on theories of subjacency and proper government. Ph.D. dissertation, University of Connecticut, Storrs.

LEGATE, J. 2003. Some interface properties of the phase. *Linguistic Inquiry* 34: 506-516.

MARTIN, R. 1996. A minimalist theory of PRO and control. Ph.D. dissertation, University of Connecticut, Storrs.

MARTIN, R. 2001. Null Case and the distribution of PRO. *Linguistic Inquiry* 32: 141-166.

MCCARTHY, J. 1991. Synchronic rule inversion. In *Proceedings of the 17th Annual Meeting of the Berkeley Linguistics Society*, ed. L.A. Sutton, C. Johnson & R. Shields, 192-207. Berkeley: Berkeley Linguistics Society.

MCCARTHY, J. 1993. A case of surface constraint violation. *Canadian Journal of Linguistics* 38: 169-195.

MCCAWLEY, J. 1988. *The syntactic phenomena of English: Volume I.* Chicago: University of Chicago Press.

MELVOLD, J. 1991. Factivity and definiteness. In *MIT working papers in Linguistics* 15: *More papers on wh-movement*, ed. L. Cheng & H. Demirdache, 97-117. Cambridge, Mass.: MITWPL.

MUNN, A. 1993. Topics in the syntax and semantics of coordinate structures. Ph. D. dissertation, University of Maryland, College Park.

NUNES, J. & J. URIAGEREKA. 2000. Cyclicity and extraction domains. *Syntax* 3: 20-43.

OEHRLE, R. 1976. The grammatical status of the English dative alternation. Ph.D. dissertation, MIT, Cambridge, Mass.

PESETSKY, D. 1982. Paths and categories. Ph.D. dissertation, MIT, Cambridge, Mass.

PESETSKY, D. 1995. *Zero syntax: Experiencers and cascades*. Cambridge, Mass.: MIT Press.

PETERS, S. & E. BACH. 1968. Pseudo-cleft sentences. Ms., MIT.

POSTAL, P.M. & G.K.PULLUM. 1978. Traces and the description of English complementizer contraction. *Linguistic Inquiry* 9: 1-29.

POSTAL, P.M. & G.K.PULLUM. 1982. The contraction debate. *Linguistic Inquiry* 13, 122-138.

PULLUM, G.K. 1991. *The great Eskimo vocabulary hoax, and other irrelevant essays on the study of language*. Chicago: University of Chicago Press.

PYLKKÄNEN, L. 2002. Introducing arguments. Ph.D. dissertation, MIT, Cambridge, Mass.

RADFORD, A. 1996. The nature of children's initial clauses. In *Child language*, ed. M. Aldrdige, 112-148. Philadephia: Multilingual Matters.

RICHARDS, M. 2006. Weak pronouns, object shift, and multiple spell-out: Evidence for phases at the PF interface. In

    *Minimalist essays*, ed. C. Boeckx, 160-181. Amsterdam: John Benjamins.

RICHARDS, N. 1997. What moves where when in which language. Ph.D. dissertation, MIT, Cambridge, Mass.

SAFIR, K. 1993. Perception, selection, and structural economy. *Natural Language Semantics* 2: 47-70.

SELKIRK, E. 1978. On prosodic structure and its relation to syntactic structure. In *Nordic Prosody II*, ed. T. Fretheim,

    111-140. Trondheim: Tapir.

SELKIRK, E. 1984. *Phonology and syntax: The relation between sound and structure*. Cambridge, Mass.: MIT Press.

SELKIRK, E. 1995. The prosodic structure of function words. In *University of Massachusetts occasional papers in*

    *linguistics 18: Papers in optimality theory*, ed. J. Beckman, L. Dickey, & S. Urbanczyk, 439-468. Amherst, Mass.: GLSA.

SOAMES, S. & D. PERLMUTTER. 1979. *Syntactic argumentation and the structure of English*. Berkeley: University of

    California Press.

SPEAS, M. 1994. Null arguments in a theory of economy of projection. In *University of Massachusetts Occasion*

    *Papers in linguistics 17:  Functional projections,* ed. E. Benedicto & J. Runner, 179-208. Amherst, Mass.: GLSA.

STOWELL, T. 1981. *Origins of phrase structure*. Ph.D. dissertation, MIT, Cambridge, Mass.

SVENONIUS, P. 2004. On the edge. In *Peripheries: Syntactic edges and their effects*, ed. D. Adger, C. de Cat & G.

    Tsoulas, 259-287. Dordrecht: Kluwer.

URA, H. 1996. On the structure of "double objects" and certain differences between British and American English.

    *Eibungaku Kenkyu* 72: 269-286.

URIAGEREKA, J. 1999. Multiple spell-out. In *Working minimalism*, ed. S. D. Epstein & N. Hornstein, 251-282.

Cambridge, Mass.: MIT Press.

VOGEL, R. 2006. Weak function word shift. *Linguistics* 44: 1059-1093.

ZAGONA, K. 1988. *Verb phrase syntax: A parametric study of English and Spanish*. Dordrecht: Kluwer.

ZWICKY, A. M. 1970. Auxiliary reduction in English. *Linguistic Inquiry* 1: 323-336.