Chapter 3

Deriving the Verb Stranding Effect

0. Introduction and Chapter Overview

The content of Chapter 2 addressed the first of the two main goals of this thesis, presenting a range of arguments that what is referred to as V-Stranding VP Ellipsis in Hebrew, Irish, and Swahili is indeed a type of VPE which forms a natural class with the well-studied English VPE construction. From this point on, I will take it as a background assumption that the arguments given to this effect are sufficiently compelling to motivate adding the VPE data from these languages to those of English, forming a core set of facts for which a theory of VP Ellipsis should account.

This assumption carries with it the implication—assumed throughout the remainder of this thesis—that V-Stranding VPE does indeed exist as a bona fide cross-linguistic option and VP Ellipsis sub-type. The construction thus requires an account within theories which derive ellipsis: an account which handles not only the facts of English VPE, but which can also encompass the facts from VPE in languages outside English.

I therefore turn, at this point, to the second core goal of this thesis: to bring V-Stranding VPE data to bear on theories of ellipsis which, for VPE, have previously been applied only to data from English.[1] Specifically, I consider here the two leading *syntactic* treatments of VPE, which can be

[1]This statement requires some qualification. First, the version of LF Copying proposed by Lobeck (e.g. 1995, 1999), in particular, aims not just to account for the facts of English VPE, but to simultaneously account for the lack of this construction in languages such as French and German. However, and as noted by Lobeck (1999:119-120, fn.14), this analysis does *not* address the existence of V-Stranding VPE in languages such as Hebrew and Irish.

Second, it is also true that some of the work positing V-Stranding VP Ellipsis in various languages explicitly adopts one of the two lines of analysis as responsible for the ellipsis effect. (The PF Deletion approach is the one most commonly chosen, given its general gain in popularity in the most recent work within Principles and Parameters

(continued...)

broadly characterized as the PF Deletion and LF Copying analyses. I argue in favor of PF Deletion over LF Copying to capture V-Stranding VPE facts. Assuming it to be a desideratum that English's Aux-Stranding VPE and the V-Stranding VPE found in other languages should be derived in a single, unified fashion, this chapter's arguments can be taken to form a larger argument in favor of PF Deletion over LF Copying as the better syntactic approach to VP Ellipsis—and possibly (if all data involving any type of ellipsis are viewed as arising from a single process) to ellipsis in general.

The 'PF Deletion' analysis of ellipsis has been advocated, in various forms, in recent work by e.g. Tancredi (1992), Chomsky and Lasnik (1993), Fox (2000), Johnson (2001), Merchant (2002a, 2003) for VP Ellipsis; see also e.g. Kennedy and Merchant (2000), Merchant (2001, 2002b, 2004) for its application to other constructions.[2] It is assumed as well in much recent work by Lasnik (e.g. 1997, 1999) and others.

This line of analysis within modern frameworks contrasts most fundamentally with the LF Copying approach in that, for the PF Deletion account, the null element of VPE and other ellipsis constructions is base-generated with fully fleshed-out internal syntactic structure. The surface effect of ellipsis is then achieved via the full deletion, non-pronunciation, or failure of lexical insertion in the targeted constituent—here, a VP. This approach is thus rooted in the earlier deletion accounts which were originally standard for ellipsis phenomena, including Sag (e.g. 1976), Hankamer and Sag (1976), and Sag and Hankamer (1984), and providing the source of the construction's original name, "VP

[1](...continued)
Theory and Minimalism.) Thus, such work does at times make crucial use of aspects of the assumed ellipsis analysis in making various points. However, it is true nonetheless that there has not yet, to my knowledge, been a systematic comparison of the two lines of analysis for V-Stranding VPE with respect to the sorts of issues addressed in this chapter.

[2]See, in particular, Merchant (2001) for a detailed explication of some of the differences in entailment requirements between the antecedent and target clauses of Sluicing, as opposed to VP Ellipsis.

Deletion".

The 'LF Copying' view of VP Ellipsis and other ellipsis constructions is common to proposals advocated by Hardt (1992, 1993), Lobeck (e.g. 1995, 1997, 1999), Chung, Ladusaw, and McCloskey (1995), Zagona (1988b), and Chao (1987). Like the PF Deletion account, this sort of analysis has so far been fleshed out only for English VPE, among the languages which have VP Ellipsis. The LF Copying approach views the elided constituent—so, in VP Ellipsis, the null VP—as a category which is base-generated with no internal content or structure (syntactic or otherwise), gaining such structure only at LF. LF Copying theory assumes that the null VP of VP Ellipsis is syntactically and semantically pronominal in nature, due to certain empirical similarities observed between the behavior of overt pronominal elements and that of VPE and other ellipsis gaps. The theory holds that an obvious trait of pronouns is that they have no internal syntactic structure, and thus neither do the pronominal null VPs of VP Ellipsis.

The base-generated null pronominal receives its interpretation at LF by being replaced by a copy of its antecedent VP's LF representation, a procedure termed "reconstruction" in Fiengo and May (1994) and Lobeck (e.g. 1995), and "recycling" in Chung, Ladusaw, and McCloskey (1995) (the latter for just the related copying needed of an LF IP under this view for Sluicing). Such copying not only gives meaning to the target-clause null constituent (i.e. to the null VP, in the case of VPE), but, crucially, is also how this account achieves semantic identity between the null element and its antecedent. This contrasts with PF Deletion, in which separate LF isomorphism constraints enforce identity between the equally syntactically articulated antecedent and target VPs.

The essence of the LF Copying general approach, then, reaches back to earlier interpretive views of ellipsis and anaphoric constructions by Williams (e.g. 1977a,b), Wasow (1972, 1979), and

others—as well as to the analysis of "deep anaphors" (*excluding* cases of VPE) in Hankamer and Sag (1976).[3,4]

This chapter is structured as follows. Sections 1 and 2 respectively lay out the general workings of the PF Deletion and LF Copying approaches, in terms of how they have been formulated in the extant literature for previously studied types of ellipsis like English VPE and Sluicing. Sections 3 and 4 lay out the basics of PF Deletion and LF Copying analyses of V-Stranding VPE, with respect to the ability of each to capture the basic effect of verb-stranding. The comparison of the two approaches brings out the first argument made here in favor of PF Deletion over LF Copying in highlighting a previously unattested set of null pronominal elements which must be assumed to exist in all V-Stranding VPE languages under the latter approach.

Before beginning, a few points should be noted which will hold throughout the remainder of this thesis. First, because the presence of the V-Stranding effect in V-Stranding VPE is crucially tied up with the independently motivated existence of V Raising to Infl (i.e. a high surface position for main Vs) in the languages in question, the nature of the head movement of the main V (as a sub-case of head movement generally) will be of central importance throughout this chapter. In order for the discussion here to be concrete, therefore, it will be useful to maintain precise assumptions regarding what head movement is, and about where it occurs within the derivation.

There is currently a debate underway about whether head movement should continue to be

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[3]For a revised take on the derivation of deep anaphors, relying more on discourse and pragmatic factors, see Sag and Hankamer (1984).

[4]I exclude from this discussion views on which elided constituents have no structure whatever, at any level of the syntax. Given the ultimate finding here—that elided constituents must have structure not just at LF (as the LF Copying view proposes), but in the narrow syntax as well—I take a view in which even LF structure were done away with to be unworkable by extension.

seen as occurring within the narrow syntax, as has been the traditional assumption, or, rather, whether it should be taken to be just a PF phenomenon (see, for the latter position, e.g. Chomsky 2000, 2001; Boeckx and Stjepanovic 2001). Other work within the 'remnant movement' line of thought (see e.g. Koopman and Szabolcsi 1999, Mahajan 2003, among others) has proposed that head movement is not a distinct phenomenon at all, but instead is actually a type of full XP movement.

Regarding the second question, the points made in this chapter suggest that head movement behaves differently from XP movement (whether A- or A-bar movement) in V-Stranding VPE, regardless of whether one takes a PF Deletion or LF Copying approach. I will therefore not include discussion of remnant-movement-type approaches here, leaving an exploration of how they might work with respect to V-Stranding VPE for future work.

As for the first question, the main text of this discussion will maintain the traditional position, still assumed in much current literature, that head movement occurs in the narrow syntax (see e.g. Zwart 2001 for a recent defense of this position). However, so far as I have been able to tell, the points and conclusions made in this chapter will all hold, with at most minor modifications, under a view in which head movement occurs at PF. On the whole, then, I will relegate the head-movement-at-PF view to footnotes, taking head movement to be a phenomenon of the syntax proper in the chapter's main text—except in cases for which the difference between the two is analytically significant.[5]

[5]Note too that positions out of which any type of movement has left a copy (as well as other low positions in non-movement-formed chains) will play a crucial role as we proceed. For this reason, such positions will now be represented as the actual copies of the chain's head which I have assumed them to be throughout this thesis, but which I represented as just 't' for notational convenience in earlier chapters. Such copies are thus represented henceforth in capital letters subscripted with 'cop', so that e.g. a copy of *harpsichords* would appear as 'HARPSICHORDS$_{cop}$'.

1. The PF Deletion Analysis of Ellipsis

In this section, I provide an overview of PF Deletion, framed in general in terms of its workings for English VPE, but with reference at points to other ellipsis constructions (namely, Sluicing and NP Ellipsis) for which it has also been proposed in the literature. The same will then be done for LF Copying in Section 2.

For present purposes, I will adopt the essence of the PF Deletion characterization proposed by Merchant (2001, 2004)—fleshed out specifically for both (English) VPE and Sluicing, but intended to encompass the third ellipsis construction of NP Ellipsis as well. Merchant's characterization is particularly concrete in spelling out precisely what needs to occur at all levels of the grammar for ellipsis examples to be generated, and will thus allow the present discussion to be fully explicit. Nonetheless, the points made here hold for other versions of the theory as well (see e.g. Fox 2000, Tancredi 1992, and so on), as far as I can tell, and are thus not crucially dependent on the existence of the traits (including the presence of the E-feature) unique to Merchant's approach.

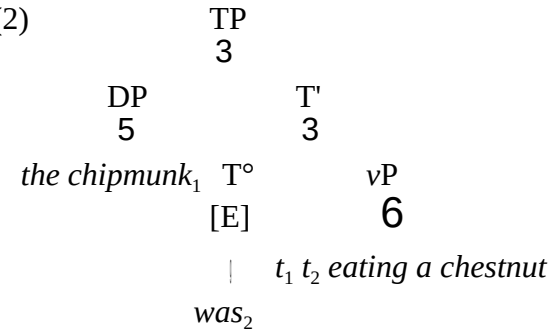
Under Merchant's (2001:60-61, 2004) view, then (see also Kennedy and Merchant 2000:116-117),[6] the events which combine to produce the effect of ellipsis in a given sentence—events which are spread across the narrow syntax, PF, and LF—are mediated by the presence of a single lexical feature, 'E(llipsis)', appearing on the inflectional head which selects the XP to surface as null. For VPE, as discussed in Chapter 2 above, the head in question will be the Tense head. This allows a way to view the sort of 'communication' necessary between the three parts of the syntactic derivation

[6]Kennedy (2002:597-600) also presents an alternative conception within an Optimality-Theoretic framework.

which is necessary under all PF Deletion-type derivations of ellipsis:[7] the feature (A) enforces Lobeck's (e.g. 1995) inflectional licensing constraint in the narrow syntax, (B) enforces identity between the null constituent and an antecedent at LF, and (C) causes the effect of phonological nullness at PF. Under Merchant's view, then, the target clause of an English VPE example such as (1) will have the representation shown (in simplified form) in (2), in which the E-feature appears on the T° head containing the auxiliary *was*:

(1) The grey squirrel was eating a chestnut, and the chipmunk was too.

(2)



[7]The need for such communication has been identified as a key criticism of (PF) Deletion views by work advocating LF Copying, such as by Chao (1987), Lobeck (1995; see especially pages 31-32), and others. The worry is that the LF and PF components of the grammar are by definition separate, with the assumption being that each should have no access to information in the other.

While it is technically true that each of PF and LF lack access to information within the other, it is also true that different sorts of information encoded within lexical entries is needed by different components of the grammar (as pointed out in e.g. Merchant 2004), and further that the lexicon is the most uncontroversial locus of cross-linguistically variant information.

For instance (see e.g. Merchant 2001: 55, including fn. 6, for greater elaboration), the English word *squirrel* appears in the syntax proper as an N°, with its N° node carrying person, number, and case values and features which are then available for syntactic checking. In the PF and post-PF phonological components, information from this lexical item must ensure its pronunciation as something like [skwəɹəɬ], and in the LF and post-LF semantic components, it must be understood as denoting a common type of furry rodent which lives either in the ground or in trees. In the French lexicon, however, the entry for *écureuil* will encode the same LF- and post-LF-targeted denotation as does the English lexicon's *squirrel* entry, but the French word will have a different phonological representation to be used by PF, an additional syntactic feature encoding masculine gender, and so on.

The encoding of information relevant to both PF and LF in the E-feature borne by a particular head—and variation from one language to another in terms of the particular list of heads which can bear the E-feature and thus allow the elision of their complement—thus seems more reasonable when viewed in relation to the more established assumptions about lexical items and lexical entries just laid out. My thanks to Jason Merchant for discussion and elaboration of these issues.

I now spell out each of the three effects of the E-feature. First, then, Lobeck's (e.g. 1995) constraint requiring that the null constituent be licensed by an overt inflectional head has traditionally been viewed as holding before the split to LF and PF. As noted in Chapter 3, this requirement that elided constituents be licensed by an overt inflectional head appears in research from the late 1980s and early 1990s by authors including Zagona (e.g. 1988a,b), Chao (e.g. 1987), and Lobeck (e.g. 1992, 1995)—all using the notion of proper government, within a Government and Binding theory. Lobeck (1995) provides the most widely cited version of the constraint, repeated as follows from Chapter 3:

(3) **Licensing and Identification of *pro***: (Lobeck 1995:20)
An empty, non-arbitrary pronominal must be properly head-governed, and governed by an X° specified for strong agreement.

Although Lobeck's constraint was originally proposed within an LF Copying view, it is generally taken to have revealed a genuine insight into the workings of ellipsis, and thus is assumed (whether implicitly or explicitly) in much modern PF Deletion research as well.

In Lobeck's view, this constraint applied to phonetically null, non-arbitrary pronominal elements, thus excluding arbitrary null subjects and direct objects (for the latter, see e.g. Rizzi 1986), but including VPE (and other ellipsis) gaps viewed as pronominal in nature under her view, along with other null pronominals such as null subjects. As noted in Chapter 3, Lobeck uses the phrase "specified for strong agreement" to indicate that the governing X° head—or, alternatively, a head with which the governing head agrees—shows overt realization of features which it shares with another head or phrase, under government, and in a productive number of cases. For VP Ellipsis, Lobeck proposed that the relevant type of agreement feature is [+tense], which will be realized on a verbal head, but which is initially located on a sub-head of Infl. For VP Ellipsis, then, Lobeck's

constraint requires essentially that the null VP be properly governed by an Infl (presumably T°) sub-head which bears overt inflection for tense.

Within a PF Deletion view in which the null elements of ellipsis are *not* viewed as being pronominal, and within Minimalist assumptions which avoid the notion of government, Merchant's (2001:60-61, 2004) proposals for Sluicing would suggest that, for VPE, Lobeck's syntactic constraint would take the form of a requirement that the E-marked overt inflected T° head select the null constituent, so that the two can enter into an Agree relationship.[8]

After inflectional licensing, the second effect of the E-feature's presence will be the PF (or post-PF) deletion or nonpronunciation E-marked head's complement. This will produce the actual effect of the surfacing of a null VP. For the present discussion, it will not be crucial whether deletion or nonpronunciation is assumed, and I will thus remain neutral with respect to which of the two options is chosen.[9] For ease of exposition, however, I will use the wording of 'deletion'.

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[8]Note that Merchant's conception of the inflectional licensing constraint avoids difficulties encountered by suggestions in Lobeck (1999:114-117), which reformulates the government-centered requirement of Lobeck (1995) by drawing on Chomsky's (1995) suggestion that subjects, including null subject *pro*, are licensed by checking a strong Case feature in a Spec-Head configuration with AgrS°. In parallel fashion, then, Lobeck (1999) proposes that the elided VP of VPE—analyzed, we recall, as an instance of non-DP *pro*—is forced to raise to Spec-TP, in order to lie in a Spec-Head configuration in which it is asymmetrically c-commanded by T° and can thus check the latter's strong agreement feature.

Merchant (2001:60) notes that such an approach will not work for Sluicing, in which the counterpart of VPE's licensing T° head will be C°. Since the remaindered wh-phrase of the Sluicing target clause will necessarily occupy Spec-CP, this position will be unavailable as a landing site for the null IP which would need to land in this position to check the features of the head C°. We can note, similarly, that the same observation will arise for NP Ellipsis, in which a stranded possessor phrase frequently lies in Spec of the D° which licenses the null NP.

An additional alternative is suggested by Potsdam (1998:77), in which an elided VP is required to be c-commanded by an overt, non-affixal inflectional head within the same s-projection (in the sense of Abney 1987)—where, for Vs, the s-projection corresponds essentially to the V's extended projection (as conceived by e.g. Grimshaw 1990). Potsdam's formulation may well prove the most workable, since it avoids problems which seem potentially to arise under Merchant's (2001, 2004) conception, due to the fact that the latter uses licensing of the null VP by its *selecting* head. This question will have to be left to future, resolution, however, since the points at issue in this chapter (and in this thesis) will hold regardless of what formulation one takes of the inflectional licensing requirement.

[9]I will also remain neutral as to whether the effect of ellipsis takes place in (the mapping from Spell-Out to) PF, as (continued...)

The third and final effect of the E-feature is the application of an identity or 'isomorphism' requirement at LF between the target VP and a suitable antecedent phrase. Merchant's (2001:ch.1) formalization of the constraint for VP Ellipsis builds on proposals of Schwarzschild (1999), and is also similar in ways to that of Rooth (1992). Contrasting with earlier deletion theories from especially the 1970s, a major innovation in most current conceptions of PF Deletion—including that of Merchant, and beginning with Tancredi (1992) (see also Rooth 1992, Schwarzschild 1999, Fox 2000, Johnson 2001)—is the tying of the semantic constraints on the deletion or nonpronunciation of a VP to those necessary for a VP to be phonologically deaccented (i.e. to be phonologically overt, but pronounced with a low monotone). In this light, the elision of a VP can be viewed as just an extreme form of phonological reduction.[10] VP Ellipsis, then, requires both (A) the partial semantic similarity or 'isomorphism' necessary for VP Deaccenting, plus (B) an additional, stronger semantic constraint, which does not apply to deaccenting alone.

Put very informally, both VP Deaccenting and VP Ellipsis require that the antecedent VP could be part of a proposition which entails a proposition which the target VP's LF could be a part

[9](...continued)
in Merchant (2001), or rather post-PF, in the phonology proper, as in e.g. Merchant (2002b). In addition to the fact that the choice between the two does not bear in any crucial way on the issues relevant to this chapter, this move on my part is made largely because it is not presently clear to me how the two could be teased apart in terms of differing *empirical* predictions.

Finally, note that the null effect under PF Deletion views has alternatively been conceived as resulting from a failure for the null constituent to undergo lexical insertion at all (Merchant 2002b). From what I can see, such a proposal would require a very specific type of 'late lexical insertion', in which *all* content except the actual phonological or phonetic representation of a word *does* appear in the narrow syntax. This is necessary since, in order for isomorphism to be calculated (as described immediately below), the full meaning of all elements within the null constituent—and not e.g. just their argument structure or theta-role properties—will need to be sent to LF.

[10]For ease of exposition, I will speak of PF Deletion's requirements as needing to be met *in order for* a VP to elide. However, as noted by Fox (2000:85,fn.6), an alternative conception would involve VPs being able to 'delete' freely, with elided VPs then needing to meet these requirements in order to be licit—and thus for derivations containing such elided VPs not to crash. From what I can see, the points made here will hold under either conception.

of—modulo Focus effects, as explicated immediately below. Ellipsis—though *not* deaccenting—requires additionally the reverse: that elided VP's LF can be part of a proposition which would entail any proposition containing the LF of the antecedent VP, again modulo Focus. Essentially, then, this theory captures the fact that ellipsis involves null material which is semantically identical with an antecedent phrase by requiring that the antecedent and target phrases mutually entail each other.[11]

I will include just the requirements specific to ellipsis, as consistent with the present focus; the reader is referred to work such as Rooth (1992) and Schwarzschild (1999), in particular, for a formal treatment specific to deaccenting. For VP Ellipsis, then, Merchant formulates the two requirements described informally above into the following constraint on ellipsis (which I refer to as effecting 'Isomorphism'):

Merchant (2001:46) Isomorphism Constraint on VP Ellipsis:

(4) A VP α can be deleted only if α is e-GIVEN.

Associated Definitions:[12]

(5) Definition of e-GIVENness: (Merchant 2001:46)
An expression E counts as e-GIVEN iff E has a salient antecedent A, and, modulo $\exists$-type-shifting,

(i) A entails F-clo(E)

and (ii) E entails F-clo(A).

[11]It is crucial that conditions require semantic isomorphism, and not the structural and lexical isomorphism which was used in earlier theories (see e.g. Fiengo and May 1994) and which have proved problematic (see e.g. Merchant 2001:ch.1 for discussion, as well as work beginning with Sag 1976 and Williams 1977a).

[12]Merchant's *e-GIVENness* and *F-closure* are derived, respectively, from Schwarzschild's notions of *GIVENness* (see Schwarzschild 1999: 151-152 in particular) and *Existential F-Closure* (Schwarzschild 1999: 150). The latter two are used in Schwarzschild's work just for cases of focus and deaccenting, but not for ellipsis, since ellipsis was not the explicit topic of his work.

(6) Definition of F-closure ("F-clo"): (Merchant 2001:14)
The F-closure of α is the result of replacing F(ocus)-marked parts of α with ∃-bound variables of the appropriate type (modulo ∃-type-shifting).

∃-type-shifting is an operation which Schwarzschild (1999:147, 152) uses in order to allow his notion of GIVEN to be able to apply to expressions of any type, even though it involves the notion of entailment, which holds only of propositions (i.e. elements of semantic type <*t*>). Thus, this operation is defined as a sort of type-shifting operation which will raise any expression to type <*t*> by replacing each unfilled argument within it (i.e. each additional argument which would be needed in order to make the expression a semantic proposition) with a semantic variable which is bound by an existential quantifier ∃.

As a whole, then, clause (i) of (5) will require the denotation of the antecedent VP, when raised via ∃-type-shifting to a proposition of type <*t*> (which for a VP will involve inserting an existentially-bound argument for the subject), to entail the denotation of the similarly existentially-type-shifted target VP, where the latter has also been F-closed—i.e. has had the denotations of any focused elements which it contains replaced by just a semantic variable of the same type. As Merchant (2001:26, fn. 26) notes, however, there will be no such focused elements in the target VP, since it is, of course, phonologically null. Clause (ii) of (5) will then require the reverse: that the denotation of the existentially-type-shifted target VP entail the denotation of the existentially-type-shifted and F-closed antecedent VP.

To see the basic effects of these constraints, let us consider some examples from English. First, then, phonological deaccenting is allowed, correctly, in both (7a-b), since the antecedent VPs' LFs in each will entail those of the corresponding target VPs (note that focus intonation here is shown

in SMALL CAPITAL LETTERS; *small italics* represents phonological deaccenting):

VP Deaccenting: Antecedent Must Entail Target,
Target <u>Need Not</u> Entail Antecedent

(7) a. Arthur [$_{\text{VP-antec}}$ mailed a present to Hall], and Julia ALSO [$_{\text{VP-target}}$ *mailed a present to Hall*].

b. Arthur [$_{\text{VP-antec}}$ mailed a present to Hall], and Julia ALSO [$_{\text{VP-target}}$ *mailed a present*].

Notice that the antecedent VP's denotation entails that of the target even for (7b), in which the antecedent and target clauses are lexically non-identical. The antecedent's *mailing a present to Hall* thus describes a more restricted event than that of the target: it is true in a proper subset of the cases in which the event described by the target clause—just *mailing a present*—is true. Thus, the target clause's *mailing a present* does not entail the antecedent's *mailing a present to Hall*. But the antecedent's *mailing a present to Hall* does entail the target's *mailing a present*, and therefore the example is correctly predicted to be grammatical as a case of deaccenting.

However, for full ellipsis of a VP to occur, the constraints correctly allow only the case in which both the antecedent VP's denotation entails that of the target VP, and vice-versa. Thus, (8a) is correctly predicted grammatical, but not (8b)—since, in the latter, simply *mailing a present* as in the target VP does not entail *mailing a present to Hall*:

VP Ellipsis: Antecedent Must Entail Target, <u>and</u> Target Must Entail Antecedent

(8) a. Arthur [$_{\text{VP-antec}}$ mailed a present to Hall], and Julia ALSO did [$_{\text{VP-target}}$ ~~mail a present to Hall~~].

b. *Arthur [$_{\text{VP-antec}}$ mailed a present to Hall], and Julia ALSO did [$_{\text{VP-target}}$ ~~mail a present~~].

Thus, if VP Ellipsis occurred in (8b), there would be no way to recover the fact that the target clause is not intended to include reference to the goal of the mailing event.[13]

[13]Note that this pattern of effects captured holds as well under Fox's (2000:ch3) slightly different conception of the isomorphism constraints under the PF Deletion view. Although Fox considers semantic isomorphism to hold essentially of *both* deaccenting and ellipsis, he allows deaccenting (but *not* ellipsis) to satisfy this requirement through (continued...)

Essentially, then, the additional requirement that the F-closure of the target VP must entail the F-closure of the antecedent VP (so that the F-closures of the two must mutually entail each other) allows *nothing* about the antecedent and target VPs to differ. Put another way, (8b) is ruled out for exactly the same reason that (9) or (10) will be:

(9) *Arthur [$_{\text{VP-antec}}$ mailed a present to Hall], and Julia ALSO did [$_{\text{VP-target}}$ ~~send a present to Hall~~].

(10) *Arthur [$_{\text{VP-antec}}$ mailed a present to Hall], and Julia ALSO did [$_{\text{VP-target}}$ ~~eat waffles for breakfast~~].

Thus, whether just the presence (or content) of one or more internal arguments differs between the antecedent and target VP (8b), or just the Vs of the two clauses are non-identical (9), or the entire content of each VP differs (10), the mutual entailment requirement will fail.

To see how this mutual entailment requirement works, consider that the ∃-type-shifted antecedent VP in example (8a) will denote the proposition that 'there exists an x such that x mailed a present to Hall'. Since the target VP has the identical wording of its antecedent, and, further, has no focused elements, its ∃-type-shifted and F-closed denotation will be just as was found for its antecedent. The derived denotation of the antecedent VP trivially entails that of the target VP, given that they are identical, and so (8a) satisfies clause (i) of the e-GIVENness definition in (5).

For example (8b), clause (5i) will also be satisfied. This example has the same antecedent VP as (8a), and so its ∃-type-shifted denotation will again be (informally) that 'there exists an x such that

[13](...continued)
'indirect parallelism', as for examples like (7b) above. In this case, isomorphism is satisfied between the 'focus value' of the target sentence (this is Rooth's notion, but can be considered an analog of F-closure for present purposes) and that of an 'accommodated' antecedent, non-identical to the F-closure of the actual antecedent, but which is entailed by the actual antecedent.

This possibility of indirect parallelism is blocked for VPE, however, since a null VP would contain no 'accommodation-seeking material'—material in the target sentence which is not focused, and which is furthermore not present in the antecedent sentence—which can serve as the trigger required to indicate that accommodation of an indirectly parallel antecedent is necessary.

x mailed a present to Hall'. For this example, the ∃-type-shifted denotation of the target VP will be just that 'there exists an x such that x mailed a present'. Given that someone *mailing a present to Hall* (from the antecedent) entails someone *mailing a present* (from the target), then, clause (5i) of the definition of e-GIVENness is again satisfied for (8b).

It is for clause (ii) of this definition that a difference occurs between the two examples. Here, the ∃-type-shifted denotation of the antecedent VP of both examples, when F-closed, is just as it was without F-closure ('there exists an x such that x mailed a present to Hall'), since this antecedent VP contains no focused elements. Clause (ii) of the e-GIVENness definition requires that this denotation derived from the antecedent VP then be entailed by the ∃-type-shifted denotation of the target clause, which will be (once again) for (8a) that 'there exists an x such that x mailed a present to Hall'. The two propositions are again identical, and so the proposition derived from the target VP entails that derived from the antecedent VP, satisfying clause (ii). However, for example (8b), the derived proposition of the target clause, 'there exists an x such that x mailed a present', does *not* entail that of the antecedent clause, that 'there exists an x such that x mailed a present <u>to Hall</u>'. (5ii) is thus *not* satisfied for (8b).

We thus achieve the desired result that only the target VP of example (8a), but *not* of (8b), counts as e-GIVEN, satisfying the Isomorphism Constraint in (4) by satisfying both clauses of the definition of e-GIVEN in (5). Thus, by (4), deletion of the VP is correctly allowed *only* in example (8a), and not in example (8b).

2. The LF Copying Analysis of Ellipsis

I now lay out the basic details of the LF Copying line of analysis for ellipsis. As a start, it will be helpful to clarify the role of Lobeck's (e.g. 1995) inflectional licensing requirement within this variety of analysis. Although, as discussed in the preceding section, the gist of this requirement is assumed in much current PF Deletion work, Lobeck's constraint was originally proposed within the LF Copying view of ellipsis which Lobeck maintained. The requirement was used in that context as a constraint which the empty category of VPE and other ellipsis constructions must satisfy within the narrow syntax in order for derivations which contain it to succeed. I repeat from above (and from Chapter 3) the most widely cited version, taken from Lobeck (1995):

(11) **Licensing and Identification of *pro***: (Lobeck 1995:20)
An empty, non-arbitrary pronominal must be properly head-governed, and governed by an X° specified for strong agreement.

This constraint, then, applies to phonetically null, non-arbitrary pronominal elements. It thus excludes arbitrary null subjects and arbitrary direct objects (for the latter, see e.g. Rizzi 1986), but includes referential null argument *pro*s along with VPE gaps, the latter viewed as equally pronominal in nature. As laid out in Chapter 3, Lobeck uses the phrase "specified for strong agreement" to indicate that the governing X° head—or, alternatively, a head with which the governing head agrees—shows overt realization of features which it shares with another head or phrase, under government, and in a productive number of cases. For VP Ellipsis, Lobeck proposes that the relevant type of agreement feature at issue is [+tense], which will be realized on a verbal head, but is initially located on a sub-head of Infl. For VP Ellipsis, then, Lobeck's constraint requires essentially that the null VP be properly governed by an Infl head which bears overt inflection for tense.

Various re-formulations of this constraint have been proposed which avoid the notion of

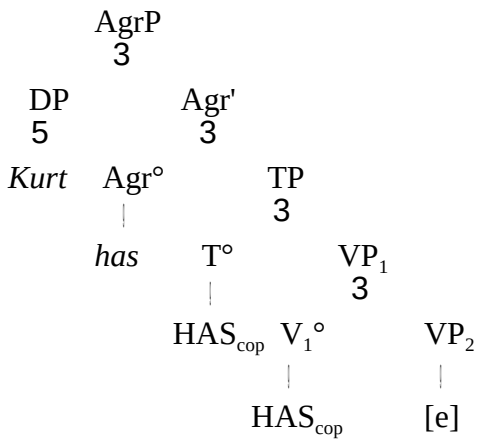
government, but which would still be compatible with Lobeck's LF Copying view of ellipsis derivation (see especially Merchant 2001, 2004; and Potsdam 1998, as discussed in footnote 8 above). Notably, however, the specific details of how inflectional licensing is ultimately implemented will not be of crucial importance in what follows, since the key problem for V-Stranding VPE will be seen to arise not from the details of this constraint's implementation, but, rather, from the array of points related to LF Copying's general tenet that the null VP is devoid of internal syntactic structure.

The derivation of a typical English VP Ellipsis example, then, works as follows under LF Copying. I will use the details of Lobeck's (1995) work, which gives a particularly precise characterization of the syntactic components of LF Copying analyses. Consider, then, an example such as (12), in which the stranded Auxiliary V in the target clause is a form of *have*:

(12) James hasn't read that book, but Kurt has [~~read that book~~].

Lobeck's treatment of this example will produce the LF structure shown in (13) (modeled on Lobeck's (1995:146) example (18)):[14]

(13)



The identity of certain functional nodes in this tree might be changed under more recent

[14]I have omitted certain syntactic details which are not germane to the present point, including non-crucial X-bar levels and copies produced by movement (e.g. of subject raising).

conceptions of clausal structure, but the essential import of the representation continues to hold. Thus, the overt *has* auxiliary lies in a high sub-head of Infl, here in Agr°, having moved to this node through intermediate Infl heads, from its base-generated position in the V_1° head. As Lobeck (1995:146-147) observes, therefore, "...the matrix VP [i.e. VP_1 in the tree above, –LG] is not generated empty; rather, it is empty through a combination of Verb Raising and base-generation of an empty VP complement of *have* or *be*.".

By the fundamental tenets of the LF Copying view, this means that the actual elided VP of this tree can *only* be the lower VP, i.e. VP_2. This is necessarily so, since the LF Copying approach takes VP Ellipsis gaps to be nothing but base-generated null pronouns, a trait which holds of the content of VP_2, in a tree such as (13). VP_1 in this tree, in contrast, was base-generated *with* internal structure, namely as containing a V° node which dominated the lexical item *has* (later replaced with a trace), and which in turn took a sister VP node which dominated an empty category. Thus, the nature of this internal structure precludes VP_1 from being able to be the VPE gap in this case.

2.1. Wrapping up

Having now laid out the basic workings of each of PF Deletion and LF Copying with respect to English VP Ellipsis, the next (and last) task is to consider each of these competing syntactic theories of ellipsis with respect to V-Stranding VPE. This is begun in the next section, and will be taken up a final time in Chapter 4—once a last set of V-Stranding VPE data has been added to the picture.

3. Deriving V-Stranding VPE via PF Deletion: Part one

In this section, I present an initial consideration of the workings of PF Deletion as an account of V-Stranding VPE specifically. Issues related to the derivation of the necessary sort of isomorphism between the antecedent and target clauses will be put off until after the verbal identity facts are presented in Chapter 4. For now, then, our principal concern will be how to derive the verb-stranding effect itself, since this is a question which does not arise when the verb-eliding VPE of English is considered. In the present section, we will see that a PF Deletion account allows a straightforward treatment of this effect. This will then be contrasted with LF Copying in Section 4, at which point the first formal awkwardness necessary under an LF Copying treatment of V-Stranding VPE will emerge.

I now present arguments that PF Deletion, with its assumption that the null VP has internal syntactic structure, allows the traits of V-Stranding to follow straightforwardly from the interaction of V-to-Infl raising of a main V, on the one hand, and the deletion or nonpronunciation of the complement of Infl, on the other. The significance of the simplicity of this treatment of the V-Stranding effect takes on its importance when it is contrasted, in the next section, with the difficulties which LF Copying will be seen to have in capturing the same V-Stranding facts. The two accounts are then considered for a second, final time in Chapter 4, once the facts of the Verbal Identity requirement are added to the full picture of what an account for V-Stranding VPE needs to capture.

Let us consider a typical example of V-Stranding VP Ellipsis from Swahili:

(14) Mama a-li-wek-a ki-kombe meza-ni na m-toto
mother 1Su-Past-PUT-FV 7-cup 9table-LOC and 1-child

a-li-wek-a pia.
1Su-Past-PUT-FV too
'The mother put the cup on the table, and the child put [~~the cup on the table~~] too.'
(Ngonyani 1996a:ex.1d)

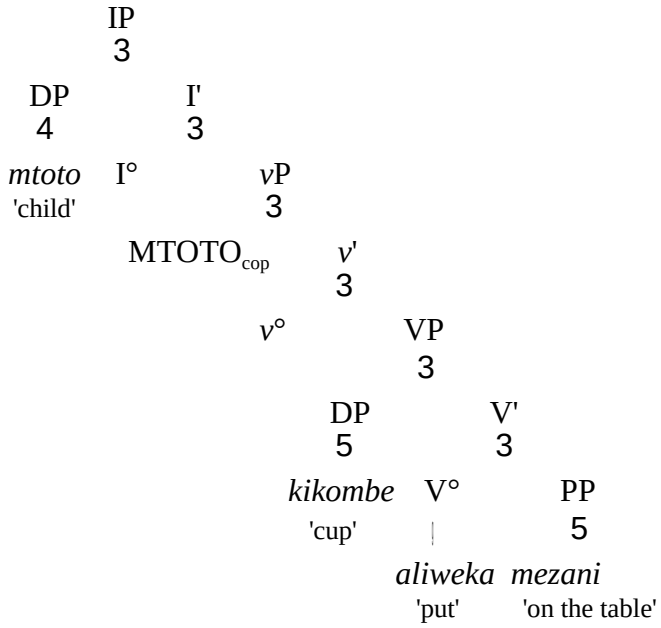
As laid out in earlier parts of this thesis, the V-Stranding effect in V-Stranding VPE examples such as this one arises, by hypothesis, due to the interaction of head-raising of the main V into the inflectional domain with the ellipsis of the resulting verb phrase. One point to make clear at the outset regards the precise categorial identity of the phrase which elides. As noted in Chapter 1, and as will be especially salient in the ensuing discussion of the present chapter, I will not be overly concerned here with the precise identity of this constituent. Instead, I take a relatively fluid view of just what this constituent is, so long as it is understood as the complement of (i.e. as selected by) the overtly-tense-inflected head which must be present in order to satisfy the inflectional licensing constraint on ellipsis.

This stance is intended to allow the points made here to remain valid regardless of the outcome of the numerous extant debates in the literature on the phrase structure of the inflectional and verb phrasal layers, in which there remains much to be worked out as to precisely which sub-constituents comprise the IP and verb phrase, what the hierarchy of these sub-layers should be, and whether these conclusions hold cross-linguistically, or are points of variation from one language to another. This stance also means that the "V-Stranding VP Ellipsis" label which I use to describe the phenomenon at hand is actually a descriptive term used for expository convenience, to group together what may in fact be individual cases of *v*P Ellipsis, Small Clause Ellipsis (as termed by McCloskey 1991), AgrP Ellipsis, and so on. More precisely, then, the term "V-Stranding VP Ellipsis" used here can be viewed

as a convenient abbreviation for the ellipsis of the constituent selected by an overtly-tense-inflected V head. Similarly, the general term "VP Ellipsis" used to group these V-Stranding cases together with the English construction—which, in fact, might more precisely be "*v*P ellipsis", or "VoiceP Ellipsis"—could be spelled out as the ellipsis of the constituent selected by an overtly-tense-inflected head, whether the head is an Auxiliary or Main V.

With this noted, then, the target clause of the example in (14) will have the following schematic representation in the syntax proper, after the subject has raised out of its initial VP-internal position, but *before* V-Raising occurs:[15]

(15)



By the proposals laid out in Section 1 above, a sub-node of Infl, presumably Tense, though abbreviated just as "I" here, will have an uninterpretable T ('Tense') feature which will need to be deleted. This node will also bear the E-feature which effects ellipsis, and which also bears an

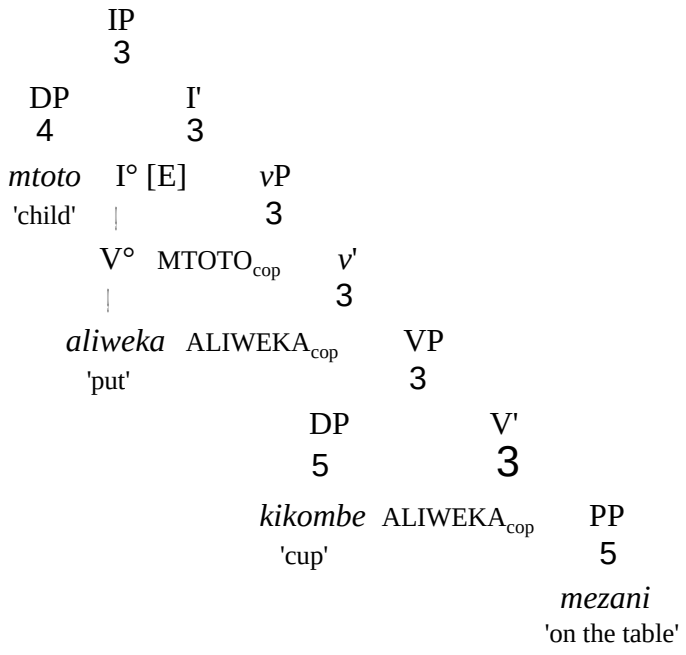
[15]The respective positions of the accusative and dative internal arguments here is not crucial to the present discussion. I have thus shown the accusative argument in Spec-VP, and the dative as the complement of V°, in order to allow the sentence's word order to be reflected with maximal transparency.

uninterpretable T feature. As was noted in Chapter 3, the general nature of Lobeck's inflectional licensing constraint (implemented here via the syntactic traits of Merchant's (2001, 2004) E-feature) actually makes the prediction that V-Stranding VPE should be possible. This is so since the constraint requires just that an inflectional head bearing overt inflection for Tense selects the null VP, and this is as much the case in a situation in which this inflectional head is instantiated as a raised, overtly inflected *main* V as it is in the English VPE case in which this inflectional head is instantiated as an overt *Auxiliary* V.

Thus, the V° node filled by the overtly inflected main V, here *aliweka* 'put', will have a past-tense valued (and hence interpretable) T feature, as well as the EPP property, which requires it to move overtly. This V° will be activated by its Probe, the T sub-node of the Infl domain, since the latter has uninterpretable T features ([*u*T]): one on the T node itself, and a second on the E-feature borne by this node. Upon movement of the V, the local configuration necessary in order for Agree to occur will hold. The Agree relation will thus occur between the matching T feature specifications of the two nodes, causing the uninterpretable T features on T° to delete, and then to be replaced with the tense value of the moved V°. The syntactic requirements of the E-feature are thus satisfied straightforwardly here, since, once the main V raises to Infl, the E-feature will lie on a head which is overtly inflected for Tense.

At this point, then, the schematic representation mapped to the LF and PF interfaces for the typical V-Stranding VPE example from above will be as in (16):

(16)



Given that the E-feature lies in a sub-node of Infl (abbreviated here just as "I"), the complement of this node will be deleted or not pronounced at PF, resulting in the desired target clause: the subject and V (*mtoto* 'child' and *aliweka* 'put') are overt, but the two VP-internal arguments (*kikombe* 'cup' and *mezani* 'on the table') are not.

On the LF side of the derivation, we recall that an Isomorphism Requirement of (roughly) mutual entailment between the ∃-type-shifted denotations of the antecedent and target VPs must be met in order for the E-feature's LF properties to be satisfied. In order to determine whether this requirement is satisfied, it is necessary to construct ∃-type-shifted propositional denotations from the antecedent and target clause VPs. However, the tree in (16) contains not only overt material, but also the traces of subject and V movement. The question now arises, then, whether the traces of these elements should be considered in the computation of antecedent and target clause material held semantically isomorphic. This is an empirical question, and one which will be resolved with the presentation of new data in Chapter 4, after which we will be in a position to return to our

consideration of the PF Deletion analysis of V-Stranding VPE. Before then, though, I first lay out the initial portion of an LF Copying treatment of this construction, including its handling of the verb-stranding effect.

4. The Argument Against LF Copying from V-Stranding VPE: Part one

As discussed in Section 2 above, the LF Copying line of analysis is very clear about the fact that the empty category which surfaces as a null verb phrase has no internal structure whatever (null or overt) until the LF representation of the antecedent verb phrase is copied in to give it meaning. Thus, on the one hand, V-Stranding VPE structures under LF Copying should contain a base-generated "VP" node which consists of just an empty category non-DP *pro*. On the other hand, the main V understood as the head of this null VP appears as phonetically overt. Given that this main V cannot originate as a syntactic part of the VP of which it is understood as the head, then, the V will have to be generated instead as the head of some projection *outside* the null verb phrase.

The related ellipsis construction of Sluicing will provide a useful point of comparison throughout our discussion, since, unlike VPE, Sluicing in any language involves the stranding of an element—specifically a *wh*-phrase—in the target clause, which must then be linked up in some way with a position within the elided material. It is thus useful to note, in this sense, that LF Copying treatments of Sluicing also take the target-clause *wh*-phrase remnant to be base-generated in the position to which it would have moved under a PF Deletion approach—namely, in Spec-CP (see e.g. Chung, Ladusaw, and McCloskey 1995).

To lay out concretely what the initial structures would be like for V-Stranding VPE derivations, let us consider the SVO cases first. In terms of the material understood as elided, we

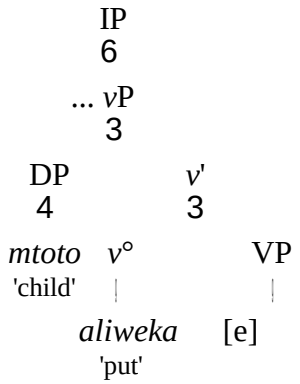
have seen that SVO languages like Hebrew, Swahili, and Ndendeule show all arguments internal to the V as null under VP Ellipsis. This means that, from the empirical evidence involving the elements which elide, the null category for the SVO languages must be *at least* the "big" VP which excludes the agentive subject, but includes all of the V's internal arguments. This will mean that the target clause of a typical SVO V-Stranding VPE example like (14) from Swahili (repeated here from above) will have the base-generated structure shown schematically in (17):

(14)

Mama	a-li-wek-a	ki-kombe	meza-ni	na	m-toto
mother	*1Su-Past-PUT-FV*	*7-cup*	*9table-LOC*	*and*	*1-child*

a-li-wek-a pia.
1Su-Past-PUT-FV *too*
'The mother put the cup on the table and the child put [~~the cup on the table~~] too.'
(Ngonyani 1996a:ex.1d)

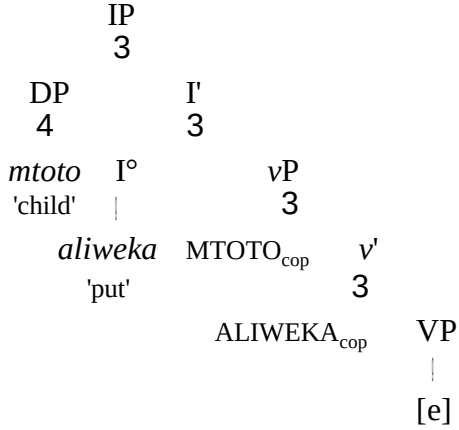
(17)



Within the narrow syntax, the remaining step will be for the main V and subject to raise into the inflectional domain, as is standardly assumed for the SVO languages involved. For the Swahili example in (14), this will create a structure as in (18) to be sent to the LF and PF interfaces:

Swahili: V-Stranding VPE Target Clause *Before* LF Copying

(18)



Note that it is also possible that the null constituent is actually the entire verb phrase, i.e. the *v*P or voiceP (or whatever one takes to be the highest verb phrasal projection). In such a case, the subject will also be base-generated in the Spec of a sub-part of IP. Because I leave to future work the question of the precise identity of the null constituent in the VPE of each language being considered, however, we will continue to use the structure in (18) for the purposes of the present discussion. The problems for LF Copying identified here will hold regardless of the ultimate answer to this question, since all such problems stem from the fact that the *main V* is not base-generated in V°—and this fact will remain true regardless of whether the null constituent turns out to be a VP or a higher phrase.

For VSO languages like Irish, in contrast, the main V will need to be base-generated higher than at least the *v*P projection (or whatever verb phrase sub-projection agents are initially merged into as specifier). This is because, as can be seen in a typical V-Stranding VPE example such as (19), Irish shows not only the elision of the arguments internal to the V, but of the post-verbal agentive subject as well:

(19) Q: Cheannaigh siad teach.
Buy[PastAnl] they house
'(Did) they buy a house?'

A: Níor cheannaigh.
Neg[Past] buy[PastAnl]
'(They) (did) not.' (lit. 'Not bought [~~they a house~~].') *(McCloskey 1991:ex.30)*

Thus, under the assumption that the agentive subject lies in Spec-*v*P, the null category in the Irish examples will need to be at least the *entire v*P in order to include such subjects along with the internal V arguments.[16] Here, the lowest available head position into which the main V can be generated would be above *v*P, so either the verbal sub-head above *v*P, if one exists, or else the lowest sub-head of the Infl projection. I will assume the latter here, for convenience, but the problems discussed below arise under either choice. Thus, the target clause of the example in (19) will be base-generated as in the schematic structure in (20) under the LF Copying analysis:[17]

[16]As noted in Chapter 2, McCloskey (2003a) has recently begun to explore the idea that Irish may in fact have the EPP, and thus may have subject raising to a low sub-projection of the Infl domain. This thus reconsiders a longstanding position within his work, taken by many to be the standard treatment of Irish clause structure, that the subjects of Irish finite VSO clauses remain in-situ, internal to the verb phrase projection.

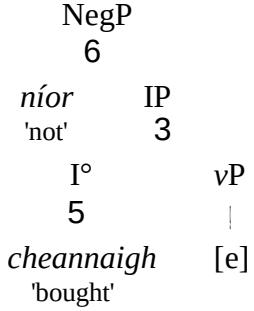
Alternative proposals can also be noted to exist for Irish finite clauses, whereby VSO order is derived via V raising to C°, with the subject raising to the Spec of a high sub-projection of IP, as in e.g. Doherty (1992). In this case, the "VP Ellipsis" of Irish (or other languages with this structure) becomes the elision of the IP complement to the C° head which contains the main V. Thus, it would be the *IP projection* which would need to be the empty category on this view, meaning that the main V would need to be base-generated in C° under LF Copying. For further discussion of the various types of phrases which can elide in Irish "V-Stranding VPE", see e.g. Doherty (1992), McCloskey (2003b).

For the purposes of the present discussion, and as is also noted in Chapter 2, I will continue to assume the traditional position that Irish finite subjects do not raise, and that the Irish main V raises only as far as the Infl domain, and not to C°. The points made in this chapter, however, will continue to hold regardless of the ultimate surface position decided upon for the Irish main V and subject. Regardless of this choice, Irish "V-Stranding VPE" will involve elision of phrase which immediately contains the subject, and which serves as complement to the head in which the tense-inflected main V lies. Also regardless of this choice, the overt Irish main V of V-Stranding VPE cannot be base-generated in V°.

[17]I finesse in this structure the question of what position the negative element *níor* 'not' occupies; it is placed here within a NegP above IP merely for convenience, and with no structural claim intended.

Irish: V-Stranding VPE Target Clause *Before* LF Copying

(20)



As the V already lies within Infl in this structure, no subsequent V-Raising is presumably needed; if movement does occur, it would only involve the V raising to a higher sub-head within IP. The structure in (20) or something very close to it, therefore, will be the structure from the narrow syntax which is sent to the LF and PF interfaces.

Discussing now the import of the points just laid out, we have seen, first, that the agentive subject of V-Stranding VPE examples in SVO languages like Swahili and Hebrew can only be base-generated in its prototypical Spec-*v*P position if the empty category is considered to be the VP and not the *v*P. Although this potentially presents problems for the VP-internal subject hypothesis, I will largely set it aside here, for the following reasons.

First, as noted above, determining the precise identity of the empty category of VPE in all of English and the V-Stranding languages is a question in need of more finely grained investigation into argument structure issues for the Vs involved, and so the issue of where the subject must be base-generated under LF Copying must, in part, be postponed until this question is better resolved.

Second, the possible base-generation of the subject outside its thematic base position is not a problem specific to *V-Stranding* VPE: it arises equally for English VPE (and has yet to be addressed to date for that construction, to my knowledge), since the subjects of English also survive the ellipsis of its verb phrases. Among ellipsis constructions, the problem is also not specific to *VPE*:

LF Copying also takes the *wh*-remnant of Sluicing, as well as, presumably, the stranded possessor phrase of NP Ellipsis, to be analogously base-generated outside the thematic base position. Thus, the base-generation of phrasal elements in such non-thematic positions is a standard approach under LF Copying. I will focus instead, however, on the fact of base-generating a *head*, and, moreover, a *Verb* outside its base position: this, I claim, is much more problematic than doing so for a *phrase*.

The base-generation of the V outside VP, and the implications of this, differ from the subject problem just discussed in several ways. First, the need to base-generate the main V in a head other than V° arises for both VSO languages like Irish, in which the subject's content is part of the empty category, as well as for SVO languages like Swahili and Hebrew, in which both the subject *and* the main V will lie outside the empty category.

Second, the need to generate the verb outside VP arises on all LF Copying derivations, no matter what conception is taken of the internal structure of the verbal and inflectional phrase domains, and regardless of where the subject and main V lie within these levels of structure in each language involved. On every competing phrase structural view, the pronominal empty category of Irish, Hebrew, and Swahili V-Stranding VPE necessarily is or contains at least the 'big' VP.

Third, the generation of the verb outside VP does *not* arise for English VPE, since the main Vs of that construction elide necessarily. This is thus an entirely new issue to be dealt with under LF Copying, and one which arises solely once V-Stranding VPE is considered to be a bona fide (VP) Ellipsis sub-type.

Note, first, that the notion of base-generating something other than an Infl element in an Infl head would have posed deep problems for previous versions of the Extended Standard Theory such as Government and Binding theory, since it would be unclear there how a categorial label of 'Infl'

could arise for a phrase whose head is a main V. Similarly, it would be unclear how the verb phrase could attain a verbal categorial label if it does not correspond to a constituent headed by a verb. However, under the more fluid current conceptions of clausal organization involving Bare Phrase Structure theory, this would not be a problem, and so will not be elaborated upon in detail here. Note further that I will reserve for Chapter 4 consideration of the main V is interpreted as the head of the VP pronominal despite the fact that it is generated outside this projection.

At present, then, consider that the nature of the "verb phrasal" pronominal elements which an LF Copying derivation of V-Stranding VPE requires are of an entirely new nature, corresponding to no overt pronouns in any language of which I am aware—including those languages in which V-Stranding VPE is attested. This is so because of the fact that the main V is not semantically part of the material for which the pronoun stands in, so that the pronoun will replace the verb's entire set of internal arguments (and, for Irish, the external argument subject as well), but *not* the main V itself. Since different verbs take different sets of internal arguments—some just a DP, some two DPs, some a DP plus a PP, some a CP, some a DP plus a CP, some a PP plus a CP, and so on—there will need to be a range of null "VP-minus-the-V" pronouns in the lexicon of each language in which V-Stranding VPE is attested.

The point becomes especially salient when described in terms of type theory. Thus, the null "VP" pronominal which appears in English VPE under LF Copying analyses will be of the same semantic type as an overt verb phrase, namely <*e*,*t*>—i.e. an expression which, when combining with a nominal element of type <*e*>, will return a proposition of type <*t*>. Because each argument structural variety of verb is of a different semantic type, the V-Stranding VPE languages will all need to have added to their lexicons a *set* of "VP-minus-V" null pronominals, each of which will return a

verb phrasal expression of type <*e*,*t*> upon taking as functor a different variety of V.

For instance, the "VP-minus-V" null pronoun for which the VP is transitive (so that just a direct object goes missing) will be a pronoun of type <<*e*,<*e*,*t*>>,<*e*,*t*>>, i.e. an expression which takes as functor a transitive V of type <*e*,<*e*,*t*>> and returns a verb phrasal expression of type <*e*,*t*>. The "VP-minus-V" null pronoun for which the V is *ditransitive* will be of type <<*e*,<*e*,<*e*,*t*>>>,<*e*,*t*>>, taking a ditransitive V of type <*e*,<*e*,<*e*,*t*>>> as functor, and returning a verb phrasal expression of type <*e*,*t*>. The "VP-minus-V" null pronoun for which the VP contains a nominal object plus a CP (as for Vs like Hebrew *diber* 'tell') will be of type <<*e*,<*t*,<*e*,*t*>>>,<*e*,*t*>>, taking a V of type <*e*,<*t*,<*e*,*t*>>> and returning a VP of type <*e*,*t*>; and so on, down through the entire list of argument structural verb varieties.

This need to add this array of null pronouns does not arise for the lexicon of English, because its variety of VPE elides its main V along with the other content internal to the verb phrase.[18] Thus, the null VPs of English under LF Copying are uniformly of type <*e*,*t*>, all needing to combine just with the subject nominal to return a proposition. When considering the naturalness of the account needed, then, it seems notable that overt pronominals which correspond to a full VP, such as English's *do so*, are a common cross-linguistic occurrence. In contrast, however, pronominals corresponding to the array of semantic types just described for every "VP-minus-V" possibility are entirely unattested cross-linguistically, as far as I know. The unattested nature of such elements is a particular problem given that it is exactly the apparent parallelism between independently occurring (nominal)

[18]The case of main V *have* in English dialects in which this V raises to Infl (such as Irish English and older varieties of British RP, for example) would actually be a case for which the points discussed here (in terms of the need to posit a null pronominal which does not correspond to what would standardly be considered a constituent) for V-Stranding VPE would hold in English as well, from what I can see. For further discussion of the V-Stranding VPE in which the main V *have* of these dialects occurs, please see Section 1 of Chapter 4.

pronouns and the null material of ellipsis which provides a core motivation for the LF Copying view of ellipsis.

It appears, then, that adapting LF Copying to languages outside English would require, as a first step, the positing of a set of null pronouns, all lacking an overt counterpart in any known language, of a wide variety of often very high semantic types. Furthermore, as null pronominals, these elements would be relegated in appearance to the single construction of VP Ellipsis.[19] I would suggest, then, that while it is *possible* and even potentially workable to make such a proposal, doing so also involves the assumption of what appears to be ad hoc—just for this particular construction and in the particular variety it shows up in these particular languages. It is, of course, necessary at times to adopt seemingly awkward accounts in the absence of a more natural alternative. In this case, however, it can be recalled that the alternative treatment available under PF Deletion allows *ordinary verb phrases* to be generated as the structures which underlie V-Stranding VPE surface strings. The ellipsis involved then targets the same predicate phrasal constituent targeted in the VPE of languages like English,[20] and the verb survives this ellipsis in these particular languages because it is independently motivated to raise out of the VP in the same set of languages in which the V-Stranding

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[19]If one were so inclined, the construction of Hebrew VP fronting (also known as VP topicalization) might be another candidate for a type of sentence in which such null pronouns would occur; a typical example, taken from Doron (1999), appears in (i):

(i) Lishtot bira, hi lo šota.
drink[Inf] beer she not drink[BniFsg]
'Drink beer, she doesn't.' (lit. 'To-drink beer, she doesn't drink (~~DRINKcop beer~~).')

However, such a view would require its own careful investigation, since it is not clear (to me, at least) that even proponents of analyzing ellipsis as LF Copying would also take the missing VP in (i) to indicate the presence of a null pronoun (as opposed to the movement of the entire VP following V-to-Infl raising).

I note that new work on this construction by Landau (2004, to appear) has emerged in the final stages of completing this dissertation, and time constraints prevent me from being able to consider it within the context of the present discussion. I hope to be able to do so in future work.

[20]As mentioned in the concluding chapter, Mandarin Chinese and Moroccan Arabic also seem, at this point, to be likely candidates for other languages in which an Aux-Stranding (and thus V-eliding) VPE is attested.

variety of VPE surfaces.

5. Chapter Summary and Conclusions

Having seen the initial steps necessary in a derivation of V-Stranding VPE using either PF Deletion or LF Copying, we now move on to consider the Verbal Identity Requirement. This novel generalization—and its contrast with the isomorphism behavior of phrases in ellipsis antecedent versus target clauses—will play a key role in the remainder of this thesis.

Chapter 4

Capturing the Isomorphism Requirements of V-Stranding VPE

0. Introduction and Chapter Overview

This chapter concerns itself with the facts and analysis of isomorphism in V-Stranding VPE, and is structured as follows. Section 1 presents a novel empirical paradigm revealing a *Verbal Identity Requirement* which holds between the antecedent- and target-clause main Vs of VPE in Hebrew and Irish. This generalization is then compared with the sorts of identity needed between other, specifically phrasal elements which are overt in both the antecedent and target clauses of various types of ellipsis.

Section 2 then returns to the PF Deletion approach to ellipsis, fleshing out the remainder of its workings for V-Stranding VPE, including its ability to capture the facts of Section 1. We see in this section that a PF Deletion derivation of V-Stranding VPE succeeds in several senses which I take to be desiderata. The most significant of these is that PF Deletion handles V-Stranding VPE in a way which brings out the construction's basic similarities with English VPE and other types of ellipsis, while simultaneously allowing the differences between the construction's instantiation in various languages to arise from factors independently known to differentiate each language from the other irrespective of VP Ellipsis.

Finally, Section 3 returns to LF Copying to consider its ability to capture the verbal versus phrasal identity facts from Section 1. In contrast to the results for PF Deletion in Section 2, LF Copying is shown here to require a number of theoretically awkward and henceforth unattested assumptions involving basic constituency and the nature of chain formation in order to capture V-

Stranding VPE. This analysis is thus rejected, in favor of PF Deletion, as an account which can viably provide a unified treatment of V-Stranding and Aux-Stranding VP Ellipsis. Section 4 then wraps up the chapter with a summary and conclusion of the main results.

1. The *Verbal Identity Requirement*[1]

In this section, I present the final set of data to be accounted for in this thesis. This involves what I refer to as the *Verbal Identity Requirement*, a generalization by which the antecedent- and target-clause main Vs are held isomorphic within VP Ellipsis constructions. The requirement is introduced using Hebrew in Subsection 1.1, and is generalized to other languages in Subsection 1.2. Subsection 1.3 then concludes the section by placing this requirement within the larger perspective of the sorts of isomorphism which hold between elements overt in both the antecedent and target clauses of ellipsis. Specifically, we will see there that the Verbal Identity Requirement involves a much stricter variety of isomorphism than that which holds between all other stranded target clause elements and their antecedent-clause counterparts—in VPE as well as in other types of ellipsis like Sluicing and NP Ellipsis.

1.1. The Verbal Identity Requirement in Hebrew

Doron's (1990) initial manuscript on V-Stranding VP Ellipsis in Hebrew claims that the construction is licit only when its Vs are identical: "...the stranded verb of the null VP must be

[1]My thanks to Jim McCloskey (personal communication, mid-1990s) for extremely helpful discussion of this issue and its need for an account.

identical to the verb of the antecedent VP" (Doron 1990:8).[2] However, it does not give a more precise characterization of such identity. We can note, further, that Doron's (1990) examples with non-identical Vs (argued in this work to be able to occur in only Null Object constructions, and not VPE) involve antecedent-target clause V pairs of *sarag* 'knit' and *kana* 'buy', two Vs which have different roots but are both in the basic *pa'al* binyan, as well *natan* 'give' and *hexin* 'prepare[transitive]', which have both non-identical roots *and* non-identical binyanim—*pa'al* versus the causative *hif'il*, respectively. The work presents several licit examples with Vs whose root and binyan are both identical, but for which the subject, and thus the subject-agreement morphology, varies. Tense is, however, held identical in the antecedent- and target-clause V pairs in this work.

The published (1999) version of Doron's (1990) manuscript on Hebrew VPE and null objects makes a reverse claim, that Hebrew VPE in fact does *not* require that its main Vs be identical. I have argued in prior work (Goldberg 2002a,b) that Doron's (1999) claim of non-identity seemed to be supported at that time because of the confounding factor of the Null Object versus VP Ellipsis ambiguity discussed in detail in Chapter 2 of this thesis. In the prior work cited, I have argued that, once the null object construction is systematically controlled for when probing Hebrew VPE, it becomes clear that Doron's initial (1990) claim was indeed the correct one—in other words, that the main Vs of the antecedent and target clauses are obligatorily identical in Hebrew VPE.[3]

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[2]Potsdam (1997) relies on Doron's (1990) claims for Hebrew in suggesting verbal identity might be a larger, cross-linguistically systematic phenomenon, along lines very consistent with the conclusion reached at the close of the present section. Note that Potsdam (1997) also cites work from McCloskey in which the same requirement is said to hold of Irish VPE, as detailed in Subsection 1.2 below.

[3]Lasnik (1997) also presents Hebrew examples from personal communication with Danny Fox and Idan Landau which he claims cast doubt on Hebrew having a verbal identity requirement. However, these data had the same null object versus VPE ambiguity problem as those used by Doron (1999):

(i) Dina ohevet kol sveder še-hi lovešet aval ima šela sonet.

(continued...)

In the present subsection, I wish to return to the question of verbal identity, and to make more explicit what it is that needs to be identical in the antecedent and target main Vs of Hebrew VPE. As support of the claim that Hebrew VPE requires identity between its antecedent and target Vs, I presented examples such as (1) in Goldberg (2002a,b). Note that here, as in all additional Hebrew VPE data presented in this section, at least one of (and often both of) the available controls for a null object are used: using an *animate* direct object which elides in the target clause (since Hebrew null objects can only involve *inanimate* direct objects), and/or including a second internal argument in the target clause which elides along with the direct object.

[3](...continued)

Dina love[BniFsg] every sweater that-she wear[BniFsg] but mother of.her hate[BniFsg]
'Dina loves every sweater that she wears, but her mother hates ~~every sweater that she wears~~.'

Lasnik (1997:ex. 65)

As explicated in detail in Chapter 2 above, examples of this type can also be analyzed as cases of null direct objects, and I would claim that it is that construction—and *not* VPE—which is present here.

Lasnik's mis-identification of these examples might stem from his use of only the presence of sloppy identity readings to diagnose them as cases of VP Ellipsis. Lasnik himself correctly points out in accompanying text that the presence of sloppy identity readings alone is theoretically dubious as a VPE diagnostic, given especially the arguments of Hoji (1998) and others that null objects can also be analyzed so that they allow sloppy identity readings. It can be recalled, in this light, that Otani and Whitman (1991) also claimed that Japanese and Korean allow V-Stranding VPE with non-identical main Vs, but that those data too were later shown to involve not VPE, but null arguments. Once again, please see Chapter 2 above for full details.

For an additional note on Lasnik's (1997) claims—which formed something of a debate involving Lasnik (1999) (which was the published version of content which originally appeared in 1995), Potsdam (1997), Lasnik (1997), and Roberts (1998), among others—please see footnote 10 below.

Hebrew VPE: *Non-Identical Vs in Antecedent and Target Clauses

Context: Dvora is pregnant and has many errands to do; Miryam, who has a car but is sometimes inconsiderate, is supposed to be helping her.

(1) Q: (Ha'im) Miryam hevi'a et Dvora la-xanut?
Q Miryam bring[Past3Fsg] ACC Dvora to.the-store
'(Did) Miryam bring Dvora to the store?'

Ai: Ken, hi hevi'a.
yes she bring[Past3Fsg]
'Yes, she brought [~~Dvora to the store~~].'

Aii: *Ken, hi lakxa.
yes she take[Past3Fsg]
'Yes, she took [~~Dvora to the store~~].'

Aiii. *Lo— hi ŠALXA!
no she send[Past3Fsg]
'No—she SENT [~~Dvora to the store~~]!' *(Goldberg 2002a:ex.13)*

Here, we see that it is grammatical in Hebrew to use the same V in the target clause as in the antecedent clause, as in *hevi'a* 'brought' of the grammatical (1Ai). However, in (1Aii-iii), the target clause V has been changed to *lakxa* 'took' or *šalxa* 'sent', respectively, and the result is ungrammatical. We can note that the problem with these examples is not pragmatic; (1Aii-iii) become licit responses to the question in (1Q) when an overt pronoun is added following the V, so that a VPE structure is not present. The English translations of such examples are also grammatical—and thus pragmatically as well as syntactically wellformed:

(2) Q: (Ha'im) Miryam hevi'a et Dvora la-xanut?
Q Miryam bring[Past3Fsg] ACC Dvora to.the-store
'(Did) Miryam bring Dvora to the store?'

Ai: Ken, hi hevi'a ota.
yes she bring[Past3Fsg] ACC.her
'Yes, she brought her.'

Aii: Ken, hi lakxa ota.
yes she take[Past3Fsg] ACC.her
'Yes, she took her.'

Aiii: Lo— hi ŠALXA ota!
no she send[Past3Fsg] ACC.her
'No—she SENT her!'

However, when we examine the examples in (1) more closely, we see that there are actually two senses in which the antecedent- and target-clause main Vs are different. First, they have different binyanim, which can be viewed as Hebrew's way of marking derivational morphology on Vs. In (1), the antecedent V, *hevi'a* 'brought', is in the causative *hif'il* binyan. The root of this V, √Bet-Vav-Alef,[4] means 'come' in the basic *pa'al* binyan, as in *ba* 'come[Past3Msg]'. Thus, the V *hevi'a* in the antecedent clause of (1Q) is a lexical causative meaning literally 'cause to come', i.e. 'bring'. In contrast, the two non-identical Vs of the target clauses, *lakxa* 'took' in (Aii), and *šalxa* 'sent' in (Aiii), are in the basic *pa'al* binyan. But the antecedent- and target-clause V pairs in (1Aii-iii) are *also* non-identical in their verb *roots*: the root √Bet-Vav-Alef of the antecedent clause's main V contrasts with

[4]As is well-known from the literature on Semitic languages, Hebrew roots consist of a sequence of normally three (or, exceptionally, two or four) consonants. I represent these here and throughout with a radical sign followed by a transcription of the names of the Hebrew letters which constitute the particular root. I have chosen to use the actual names of the Hebrew letters, as opposed to, e.g., their equivalent IPA character, since there are many pairs of distinct Hebrew phonemes which, in Modern Hebrew, are pronounced alike. For instance, the letters *Xet* and *Xaf*, written in Hebrew as "ח" and "כ", respectively, correspond to distinct phonemes (the latter of which has [k] as an allophone and the other of which does not), and so count as distinct root consonants. These would be indistinguishable, however, if shown just as their IPA [x].

the roots √Lamed-Kuf-Xet and √Šin-Lamed-Xet of (1Aii) and (1Aiii), respectively.

Given that the examples used in Goldberg (2002a,b) involved Vs which differed in *both* root and derivational morphology, then, we can note now that it is not actually clear from this example whether the ungrammaticality of (1Aii-iii) is due to just the non-identity in binyan—i.e. to a difference in derivational morphology—or to non-identity in the roots of the Vs involved, or to both factors.

Hebrew is an especially good language in which to examine this question, since its Vs typically contain three distinct types of morpheme: root, derivational morphology—reflected in Hebrew and other Semitic languages via the Binyan in which the V is conjugated—and inflectional morphology. Specifically, then, we should ask which of these types of Hebrew verbal morphology must be identical in order for a given pair of antecedent and target Vs to be grammatical in the language's VPE.

First, we can note that inflectional morphology, which for Hebrew Vs involves marking for both tense and subject-agreement, may clearly vary for the Vs of the antecedent and target clauses of V-Stranding VPE in Hebrew. This is seen in the following examples, in which the binyan and root of the two Vs is held constant. In (3), tense varies between the antecedent and target Vs, and in (4) both tense and subject-V agreement vary; both are fully grammatical:

Hebrew VPE: ✓*NON-MATCHING* Inflection, Matching Root and Binyan

✓*Past* Antecedent V, *Future* Target V (3Msg Subject in Both)

(3) Q: Binyamin hisi'a ha-yom et imo la-xanut?
Binyamin drive[Past3Msg] the-day ACC mother[Gen3Msg] to.the-store
'(Did) Binyamin drive today his mother to the store?'

A: Lo— hu yasi'a maxar.
no he drive[Fut3Msg] tomorrow
'No— he will drive tomorrow [~~his mother to the store~~].'

✓Future 2Fsg Antecedent V, Past 1sg Target V

(4) Q: Tazmini et Dvora la-mesiba?
invite[Fut2Fsg] ACC Dvora to.the-party
'(Will) (you) invite Dvora to the party?'

A: Kvar hizmanti.
already invite[Past1sg]
'(I) already invited [~~Dvora to the party~~].'

It turns out, however, that either varying the root or varying the derivational morphology is on its own enough to cause ungrammaticality in Hebrew VPE. First, then, ungrammaticality results when the derivational morphology (i.e. the binyan) is held identical between the main Vs of the antecedent and target clause, but the roots of these main Vs vary:[5]

Hebrew VPE: *_NON-MATCHING_ Root, Matching Binyan

Root NUN-SAMEX-AYIN vs. BET-VAV-ALEF, Binyan Hif'il (Causative)

(5) Q: Rivka hisi'a otax le-beit ha-sefer?
Rivka drive[Past3Fsg] ACC.you[Fsg] to-house the-book
'(Did) Rivka drive you to school?'

A: *Ken, hi hevi'a.
yes she bring[Past3Fsg]
'Yes, she brought [~~me to school~~].'

Root BET-VAV-ALEF vs. NUN-SAMEX-AYIN, Binyan Hif'il (Causative)

(6) Q: Rivka hevi'a otax le-beit ha-sefer?
Rivka bring[Past3Fsg] ACC.you[Fsg] to-house the-book
'(Did) Rivka bring you to school?'

A: *Ken— hi hisi'a.
yes she drive[Past3Fsg]
'Yes— she drove [~~me to school~~].'

[5]Note that, if one were use the metaphor of set theory, the meaning of the antecedent V in (5) would be characterized as expressing a proper superset of the meaning of its counterpart target V, with 'driving' someone somewhere entailing 'bringing' someone somewhere, but not vice-versa. The positions of these Vs are reversed in (6), resulting in a situation in which the antecedent V describes a proper subset of the target V. Both configurations are shown here to be infelicitous.

Root ZAYIN-MEM-NUN vs. NUN-SAMEX-AYIN, Binyan Hif'il (Causative)

(7) Q: Dov hizmin ota la-mesiba šelo?
Dov invite[Past3Msg] ACC.you[Msg] to.the-party of.him
'(Did) Dov invite you to his party?'

A: *Ken, ve-hu HISI'A gam (ken).
yes and-he drove also yes
'Yes, and he also *drove* [~~me to his party~~].'
(cf. English 'Yes, and he also drove me.')

Root NUN-ŠIN-KUF vs. XET-BET-KUF, Binyan Pi'el (Intensive)

(8) Q: Yicxak nišek et Aviva?
Yitzchak kiss[Past3Msg] ACC Aviva
'(Did) Yitzchak kiss Aviva?'

A: *(Lo,) hu XIBEK.
no he embrace[Past3Msg]
'(No,) he HUGGED [~~Aviva~~].'

Root LAMED-KUF-XET vs. ŠIN-LAMED-XET, Binyan Pa'al (Plain)

(9) Q: Binyamin LAKAX et Ruti la-makolet?
Binyamin take[Past3Msg] ACC Ruti to.the-grocery.store
'(Did) Binyamin TAKE Ruti to the grocery store?'

A: *Lo, hu ŠALAX.
no he send[Past3Msg]
'No, he SENT [~~Ruti to the grocery store~~].'

Finally, it is equally ungrammatical for the binyanim to vary, with the roots held identical:

Hebrew VPE: *_NON-MATCHING_ Binyan, Matching Root

Binyan Pa'al (Plain) vs. Hif'il (Causative), Root NUN-SAMEX-AYIN

(10) Q: Li'ora nas'a etmol le-Tel Aviv?
Liora travel[Past3Fsg] yesterday to-Tel Aviv
'(Did) Liora travel yesterday to Tel Aviv?'

A: *Ken— hisa'ti.
yes drove[Past1sg]
'Yes— I drove [~~her yesterday to Tel Aviv~~].'
(cf. English 'Yes— I drove her.')

Binyan Hif'il (Causative) vs. Pa'al (Plain), Root NUN-SAMEX-AYIN

(11) Q: Hisa'ta etmol et Li'ora le-Tel Aviv?
drive[Past2Msg] yesterday ACC Liora to-Tel Aviv
'(Did) you drive yesterday Liora to Tel Aviv?'

A: *Ken, hi nas'a.
yes she travel[Past3Fsg]
'Yes, she traveled [~~to Tel Aviv yesterday~~].'

Binyan Pu'al (Passive of Intensive) vs. Pi'el (Intensive), Root XET-BET-KUF

(12) Q: Aviva xubka al-yedey Yicxak?
Aviva be.embraced[Past3Fsg] by Yitzchak
'Was Aviva hugged by Yitzchak?'

A: *Ken, hu xibek.
yes he embrace[Past3Msg]
'Yes, he hugged [~~her~~].'

Notably, changing the binyan of a V almost always changes its argument structure as well. Thus, the target VPs in each of (10-12) have either one additional or one fewer internal argument than their antecedent VPs do. This means that it is unclear whether the ungrammaticality observed in these examples is due to their Vs alone being non-identical, or, rather, is the result of a failure of the larger parallelism required for VPE, as calculated over their entire antecedent and target *VPs*.

Nonetheless, the ungrammaticality observed in these examples is consistent with the relevant generalization being that neither the root nor the derivational morphology of the antecedent and target main Vs may vary. In absence of evidence to the contrary, I will maintain this statement as the generalization present here. To recapitulate, then, we have observed in this section the following generalization involving Hebrew VPE:

(13) **THE VERBAL IDENTITY REQUIREMENT** *(First Version)*
The antecedent- and target-clause main Vs of (Hebrew) V-Stranding VPE must be identical, minimally, in their root and derivational morphology. Their inflectional morphology may vary.

1.2. On the cross-linguistic generality of the Verbal Identity Requirement

We can note, first, that the Verbal Identity Requirement exactly as stated in (13) holds as a given in all verb-eliding VPE as occurs in English. In that case, because the target clause main V is *null*, this fact is merely part of the larger generalization that there will be no way to recover *any* null material—involving the verb or any other elements—which differs semantically from its correlate(s) in the antecedent clause. For example, consider the series of adjacent sentences in (14), along with examples (15-16) (the latter repeated from the earlier discussion of PF Deletion's workings):

(14) a. Carrie [$_{\text{VP-antec}}$ re-wrote her essay last night].
b. *Toby hasn't [$_{\text{VP-target}}$ ~~written his essay~~] yet.
c. *He will [$_{\text{VP-target}}$ ~~write his essay~~] tomorrow.

(15) *Arthur [$_{\text{VP-antec}}$ mailed a present to Hall], and Julia ALSO did [$_{\text{VP-target}}$ ~~(re-)send a present to Hall~~].

(16) *Arthur [$_{\text{VP-antec}}$ mailed a present to Hall], and Julia ALSO did [$_{\text{VP-target}}$ ~~eat waffles for breakfast~~].

The ungrammaticality which results from the presence of non-identical Vs (whether they are non-identical just in derivational morphology, or in V root as well) in the V-eliding VPE of English is thus just a sub-case of the larger fact that ungrammaticality results whenever any or all of the null target clause material differs in its core semantic content from its counterpart material in the antecedent clause.

One additional point can be noted with respect to English. This involves the fact that this language actually does allow main-V-Stranding VPE, though in a very restricted set of cases. The construction occurs, specifically, for main Vs such as *be* which originate within the VP, but then raise into the inflectional domain—on a direct par with the behavior of *all* main Vs in languages like Hebrew and Irish. As one might expect given that they raise, such English Vs also allow V-Stranding

VPE. This, of course, contrasts with the behavior of nearly all other main Vs of English, which fail to raise and thus fail to license VPE:

(17) I am a brunette, and my brother is [~~IS$_{cop}$ a brunette~~] too.

(18) *I met a brunette, and my brother met (~~a brunette~~) too.

Unfortunately, however, it is not possible to test the Verbal Identity Requirement in English. This is because, first, *be* is the sole raising V in many dialects of the language (including most spoken in North America). It is thus impossible to construct V-Stranding VPE examples in which two different Vs appear in the antecedent versus target clauses for these dialects.

The second reason involves the fact that certain English dialects do allow main V *have* to raise, including e.g. Irish English and the British R.P. used by at least elderly speakers. In such dialects, sentences such as the following are grammatical:

(19) Have you a good editor?

(20) I haven't a good editor.

As expected, these dialects also allow main V *have* to be stranded in VPE:

(21) Q: Have you a good editor?
A: I haven't.

Further, for such speakers, *have* is indeed ungrammatical as the antecedent-clause main V of VPE when *be* appears as the main V of the target clause; the reverse is also true:[6]

(22) *I HAVE a good editor, and my brother IS (~~a good editor~~).

[6]Note that it is not pragmatics which causes these examples to be illformed, since they become grammatical with the addition of an element such as *one*:

(i) I HAVE a good editor, and my brother IS one.

(ii) I am not a good editor, but I HAVE one.

My thanks to Jim McCloskey, Tess Wood, and Lydia White for judgements and/or discussion of the examples involving *have*-raising presented here.

(41) *I am not a good editor, but I have (~~a good editor~~).

These facts, then, are not inconsistent with a picture in which English V-Stranding VPE can be said to behave in accord with the Verbal Identity Requirement. Unfortunately, however, the antecedent and target clauses in this case involve different predicate structures, given that the predicative copula clause—but not the *have*-headed clause—instantiates a nominal rather than a verbal predicate. Thus, the ungrammaticality here is more likely to be the result of a deeper mis-match in parallelism between the type of predicate used in the antecedent versus the target clause than from a mis-match in just main Vs. As far as I can see, furthermore, there is no other sort of V-Stranding VPE available for testing in English.[7]

In Irish, the issue is much clearer: the generalization stated in (13) for Hebrew holds straightforwardly in that language as well (James McCloskey, personal communication, mid-1990s and 2003). A sampling of the Irish data appears as follows, taken from Potsdam (1998:117, ex. 32a-b), which gives their source as McCloskey (in preparation):[8]

Irish: *V-Stranding VPE with Non-identical Vs

(23) *Léigh mé an dán ach níor thuig.
read[PAST] I the poem but not[PAST] understand[PAST]
lit. 'Read I the poem, but not understood [~~I the poem~~].

[7]It can be noted, however, that this provides another way in which VPE—including the variety in which the main V is stranded—contrasts empirically with Null Complement Anaphora. In the latter, which can be recalled from Chapter 2 to involve target clauses in what has gone missing necessarily constitutes a semantic proposition, fully licit examples like (i) can be noted to violate the Verbal Identity Requirement:

(i) Sara didn't finish the marathon. She didn't even try ~~to finish the marathon~~.

My thanks to Jason Merchant for pointing out to me this additional difference between VPE and NCA.

[8]The source for McCloskey (in preparation) listed in the references to Potsdam (1998) appears to be a later version of the manuscript ("*Irish Syntax: Clauses and Clause-Types*") of which I have had access to one chapter, and which is listed in the references of the present thesis as McCloskey (1995).

(24) *Bhris siad an chathaoir agus dheisigh ina dhiaidh sin
break[PAST] they the chair and repair[PAST] after.that
lit. 'Broke they the chair and repaired [~~they the chair~~] after that.'
(McCloskey in prep., as cited in Potsdam 1998:Ch2,exx.32a-b)

Because Irish lacks the rich derivational morphology for Vs which is present in Hebrew, the Irish data tested have so far been like the examples shown here, involving non-identical versus identical V roots as opposed to non-identical derivational morphology with roots held constant. Nonetheless, the generalization as stated is accurate for Irish. Note, relatedly, that inflectional morphology has varied between the antecedent and target Vs of many of the grammatical examples of Irish VPE seen thus far.

Finally, to my knowledge, neither a claim nor a set of supporting data has yet to appear (in the work of Ngonyani or others) with respect to whether the Verbal Identity Requirement holds in the VPE of Swahili (or Ndendeule). The long list of examples given in Ngonyani (1996a) systematically contain Vs identical in both their root and derivational morphology. However, the works of Ngonyani (1996b) and (1998), in addition to presenting again a majority of examples with Vs of identical root and derivational morphology, do present one Swahili example in which the V roots are *not* identical:

Swahili: ✓(Putative) VPE with *Non-Identical* Overt Main Vs

(25) M-kurugenzi a-li-omb-a wazee wa-tembele-e ki-wanda
1-director 1Su-Past-ASK-FV them 2Su-VISIT-Subjnctv 7-factory

ch-ote lakini meneja a-li-amuru.
7-all but 1-manager 1Su-Past-COMMAND
'The director told them to visit the entire factory, but the manager commanded (~~them to visit the entire factory~~).' *(Ngonyani 1998:ex.6)*

Unfortunately, I have been unable to contact Ngonyani to confirm that such examples are indeed grammatical, and, if so, to verify that the facts of this sentence are part of a systematic pattern across

the language. This means that this question for Swahili—as well as a claim either way for Ndendeule—must be left to be resolved by future work.

The situation, then, is that there is currently no complete set of data which shows the Verbal Identity Requirement *not* to be a cross-linguistic generalization. Further, there *are* data which clearly show that the requirement holds in Hebrew, Irish, and English, and so the facts from each of these languages require a formal account. For English, the target Vs are generally null, and VPE cases in which English's target-clause main Vs *are* overt are so limited as to make it impossible to construct V-Stranding VPE examples with non-identical Vs in this language. For this reason, the Verbal Identity Requirement's effects in English are already fully captured under either an LF Copying or a PF Deletion account, since both ensure identity in core semantics between *all* null material in the target clause and the corresponding overt material of the antecedent clause—for Vs as well as for other VP-internal elements.

In contrast with the situation for English, the effects of the Verbal Identity Requirement in Irish and Hebrew do not currently have an obvious formal account within either PF Deletion or LF Copying. For present purposes, it seems reasonable to assume that the Verbal Identity Requirement is a cross-linguistically systematic generalization—presumed to be at work in all languages ultimately found to have VPE. If this assumption turns out to be right, then the account proposed here will extend to the Verbal Identity cases from all other languages as well. If, instead, it turns out that some languages have clear cases of (V-Stranding) VPE for which the Verbal Identity Requirement does *not* hold, then the facts of Irish and Hebrew will still require an account, and the proposals made here will still be relevant for what would then be a proper subset of the V-Stranding VPE data. Under the latter scenario, of course, a formal explanation will also be needed for why some languages show

evidence of the Verbal Identity Requirement holding while others do not. For now, then, the requirement from (13) above can be restated in a final form which is not Hebrew-specific, and which holds over all types of VPE:[9,10]

(26) **THE VERBAL IDENTITY REQUIREMENT** *(Final Version)*
The antecedent- and target-clause main Vs of VP Ellipsis must be identical, minimally, in their root and derivational morphology.

1.3. The novelty of the Verbal Identity Requirement within the larger domain of ellipsis isomorphism

Having established the details of the Verbal Identity Requirement, let us close this section by stepping back a bit to consider this generalization within the larger context of the sorts of isomorphism which can be observed to hold over other overt target-clause elements with respect to their antecedent-clause counterparts. Specifically, we will see in this section that, although the facts have not been brought out previously in this light, to my knowledge, all other such elements require a much less strict variety of isomorphism between antecedent- and target-clause counterparts than that described by the Verbal Identity Requirement.

As a first step, let us consider the subjects stranded in the target clauses of VP Ellipsis in SVO

[9]So far as I am aware, James McCloskey (personal communication with the author and others, mid-1990s) was the first to suggest that the Verbal Identity Requirement might be a cross-linguistically systematic trait of all VP Ellipsis.

[10]In support of a claim to the contrary, Lasnik (1997) cites putative VPE data from personal communication with Sandra Stjepanovic which appear to show that non-identical Vs are possible in Serbo-Croatian V-Stranding VP Ellipsis; I can note that additional Serbo-Croatian examples are presented in Stjepanovic (1997a,b; 1998a,b; 1999) and Boeckx and Stjepanovic (2001). As noted in the concluding chapter of this thesis, however, although several key traits have indeed already been demonstrated toward establishing that the Serbo-Croatian data do involve VP Ellipsis, there remain several gaps in the set of evidence which has appeared in the literature for this language thus far. Such gaps include demonstration that the data in question are licit not just in coordinated structures, but in other discourse environments as well (such as question-answer pairs, for example), in addition to showing that the target clause can licitly appear in sentential embedding, island structures, and non-ATB coordinate structure conjuncts when its antecedent clause lies outside such structures.

For an additional note on Lasnik's (1997) other sources of support for his non-identity claim, please see footnote 3 above.

languages. The now-standard assumption of the VP-internal subject hypothesis, for instance, causes copies of subject A-movement to be present in the structural representations for all null VPs of VPE, whether involving English Aux-Stranding VPE or V-Stranding VPE. English examples will suffice to make the generalization clear:

(27) Chipmunks don't [CHIPMUNKS$_{cop}$ live in trees], and marmots don't [~~MARMOTS$_{cop}$ live in trees~~] either.

It can be argued, of course, that the null constituent in examples like (27) might be just the 'big' VP, with the subject trace still originating (in e.g. Spec-VoiceP or Spec-*v*P) *outside* the null constituent. However, this objection is not possible for examples like (28-29), making the point stronger. Here, the subject of a passive or a raising V is at issue, respectively. Once again, the examples are fully licit, despite the fact that the non-identical surface subjects in this case must have corresponding movement copies *within* the 'big' VP (the contents of which are shown as ~~struck through~~ here) which has minimally elided under VPE:

(28) a. Joey was accepted to the conference, and Mikael will be [~~accepted to the conference~~] too.

b. *Structural schematic for (a):*
Joey was [$_{vP}$ JOEY$_{cop}$ [$_{VP}$ accepted JOEY$_{cop}$ to the conference]], and
Mikael will be [$_{vP}$ MIKAEL$_{cop}$ [$_{VP}$ ~~accepted MIKAEL$_{cop}$ to the conference~~]] too.

(29) a. Joey seems to be happy, and Mikael does [~~seem to be happy~~] too.

b. *Structural schematic for (a):*
Joey [seems [$_{IP}$ JOEYcop to be [$_{AP}$ JOEY$_{cop}$ happy]]], and
Mikael does [~~seem [$_{IP}$ MIKAEL$_{cop}$ to be [$_{AP}$ MIKAEL$_{cop}$ happy~~]]] too.

Analogous patterns can be seen in the remaindered constituents of closely related types of ellipsis. For instance, two of the three types of Sluicing involve a remaindered *wh*-phrase in an A-bar position within the target clause for which there is no corresponding movement copy in the

antecedent clause. The first of these types of Sluicing appears in (30-31), in each of which the target clause contains a remaindered *wh*-adjunct, and in the latter of which the antecedent clause also contains a distinct *wh*-trace (of *how*) for which the target clause shows no correlate. The second such type of Sluicing appears in (32), in which the target clause contains a remaindered *wh*-complement to a V whose antecedent clause counterpart has only an implicit argument:[11]

(30) [Mikinari managed to fix the TV], but I don't know how [~~Mikinari managed to fix the TV HOW$_{cop}$~~].

(31) We know [$_{CP}$ how [$_{IP\text{-}antec}$ Mikinari fixed the TV HOW$_{cop}$]], but we don't know [$_{CP}$ why [$_{IP\text{-}target}$ ~~Mikinari fixed the TV WHY$_{cop}$~~].

(32) Ingrid ate, but we're not sure what [~~Ingrid ate WHAT$_{cop}$~~]

Similar patterns can also be observed for the stranded possessive phrases of NP Ellipsis, as in examples like the following:

(33) Henry didn't have [$_{DP}$ a [$_{NP}$ coat]], so he borrowed [$_{DP}$ Jonathan's [$_{NP}$ ~~coat~~]].

(34) I had forgotten to bring [$_{DP}$ my [$_{NP}$ bag of pencils]], so I borrowed [$_{DP}$ Henry's [$_{NP}$ ~~bag of pencils~~]].

One possibility, as in (33), shows the stranded possessor of the target clause lacking an antecedent clause counterpart altogether. Such data thus represent a possibility for NP Ellipsis analogous to what was just observed for the stranded *wh*-phrases of Sluicing. Alternatively, as in (34), the target clause possessor can have an extant antecedent-clause counterpart which is non-identical in root and derivational morphology (i.e. in its core meaning), but identical in syntactic category and semantic type. This second possibility would be akin to what was observed for VPE subjects above.

The generalization seen in this subsection thus far, then, seems to be that a counterpart to a

[11]In the third type of Sluicing, of course, the remaindered *wh*-phrase corresponds to an overt but weak DP in the antecedent clause:

(i) Ingrid ate something, but we're not sure what [~~Ingrid ate WHAT$_{cop}$~~].

given remaindered element in the target clause need not exist in the antecedent clause. If such an antecedent clause counterpart does exist, it must only match its corresponding target clause element in (something like) semantic type or syntactic category. Thus, stranded target clause subjects of VPE must have a corresponding DP or e-type element in the antecedent clause, and the stranded target clause possessives of NP Ellipsis may have such a corresponding possessive DP in the antecedent clause. Alternatively, in cases in which the larger sentence created is independently wellformed, remaindered elements such as the *wh*-phrases of Sluicing and possessors of NP Ellipsis can co-occur with antecedent clauses in which a counterpart element is entirely absent.

As we conclude this section, let us consider what the correct distinction might be between the strict sort of isomorphism expressed in the Verbal Identity Requirement for antecedent and target main V heads, versus what has just been seen to be required of other antecedent versus target clause elements. In so doing, it is immediately noticeable that the Verbal Identity Requirement data seen in Subsections 1.1 and 1.2 all involved verbal *heads*, while the less stringently isomorphic examples examined in the present subsection were all *phrases*. The latter comprised both A-phrases, as for stranded VP Ellipsis subjects in SVO languages, or A-bar phrases, as for the remaindered *wh*-phrases and (presumably) possessives of Sluicing and NP Ellipsis, respectively. It might be hypothesized, then, that the crucial distinction is between remaindered heads and remaindered phrases.

I would like to suggest, however, that this is not the case. Instead, I hypothesize that the strict isomorphism seen in the Verbal Identity Requirement arises not just because a head is at issue, but more specifically because the particular head involved is the head of the null constituent itself. In the next section, I will propose an account for the Verbal Identity Requirement within a PF Deletion view of ellipsis which is amenable to this hypothesis.

Note, in closing, that this hypothesis is testable. Specifically, it makes the prediction that, first, for the sort of predicate ellipsis I have referred to throughout this thesis using the umbrella term "VP Ellipsis", A heads of adjectival predicates and N heads of nominal predicates should also be obligatorily identical in root and derivational morphology, should such heads be found to raise and thus appear licitly in the sort of predicate-stranding predicate phrase ellipsis seen here with Vs and VPs. Similarly, this would predict a similar isomorphism requirement for stranded N heads if NP Ellipsis should turn out to have an N-Stranding counterpart to V-Stranding VPE.

In such testing, it should also be possible to compare the success of the hypothesis posed here with that of imaginable alternatives, including a view in which the distinguishing trait for the main Vs of V-Stranding VPE it is that they are *lexical* heads (as opposed to the functional heads which could potentially be stranded in the IP ellipsis of Sluicing), or that they are the heads specifically of a predicate.

2. The Proposed Account: Deriving the Verbal Identity Requirement with PF Deletion[12]

Having seen the last set of data to be captured in our exploration of a formal account of V-Stranding VPE, we return now to the consideration of the PF Deletion analysis begun in Chapter 3. In that earlier discussion, we saw that PF Deletion allows the V-stranding effect in this type of VPE to be captured by relegating it to the independently established process of V-Raising specific to the languages involved. LF Copying, in contrast, required the positing of a range of null pronouns of high semantic types, comprising the set of possible internal argument combinations in verb phrases which lack their head V. Such an addition to the lexicons of V-Stranding VPE languages was not

[12]My thanks especially to Line Mikkelsen for discussion of the content of this section.

only a situation unattested in any known language, but was furthermore not tied in any clear way to any independently motivated traits of the languages in question.

In this section, I show that the LF isomorphism constraints already in place under existing versions of PF Deletion analyses can capture the full range of isomorphism facts seen in Section 1, once two additional assumptions are in place. I argue that the analysis of these data achieved by such an account is superior to one involving LF Copying, since the PF Deletion account is able to relegate the differences between V-Stranding VPE and English VPE to peculiarities of the independently established trait of V-Raising in the languages involved. Furthermore, as I then show in Section 3, the LF Copying alternative achieves empirical adequacy only via stipulation, in a fashion which is inconsistent with LF Copying's most fundamental assumptions about the source of isomorphism in ellipsis.

To begin, then, recall that the LF isomorphism constraint used by the version of PF Deletion assumed here is as follows, repeated from (4-6) of Chapter 3:

Merchant (2001:46) Isomorphism Constraint on VP Ellipsis:

(35) A VP α can be deleted only if α is e-GIVEN.

Associated Definitions:[13]

(36) Definition of e-GIVENness: (Merchant 2001:46)
An expression E counts as e-GIVEN iff E has a salient antecedent A, and, modulo ∃-type-shifting,

(i) A entails F-clo(E)

and (ii) E entails F-clo(A).

[13]Merchant's *e-GIVENness* and *F-closure* are derived, respectively, from Schwarzschild's notions of *GIVENness* (see Schwarzschild 1999: 151-152 in particular) and *Existential F-Closure* (Schwarzschild 1999: 150). The latter two are used in Schwarzschild's work just for cases of focus and deaccenting, but not for ellipsis, since ellipsis was not the explicit topic of his work.

(37) Definition of F-closure ("F-clo"): (Merchant 2001:14)
The F-closure of α is the result of replacing F(ocus)-marked parts of α with ∃-bound variables of the appropriate type (modulo ∃-type-shifting).

This constraint's effects on the antecedent- and target-clause main Vs of English VPE can be seen in considering an example like (38), also repeated from Chapter 3:

(38) Henry [goes to Royal Taj] every day, but his friends only will [~~go to Royal Taj~~] on Fridays.

Recalling the isomorphism constraints which hold of the antecedent- and target-clause LFs within PF Deletion approaches, the main Vs' root and derivational morphology are necessarily held identical here, since both are *within* the VPs which count as antecedent and target and thus must entail each other. This holds true even though the agreement and tense features of the two Vs (*goes* and *go*) vary, since these traits do not affect the denotations of which each of the two VPs will be a part. In other words, the Vs of English V-eliding VPE are constrained in accord with the Verbal Identity Requirement by simple virtue of the fact that they are part of the larger constituent targeted for elision.

The verbal identity seen here is thus a sub-effect of the larger isomorphism required between the entire antecedent and target VPs. An example of English VPE which is illicit because its Vs do not obey the Verbal Identity Requirement, as in (39), will be ruled out formally for the same reason as would any other violation of the theory's LF isomorphism constraints.

(39) *Henry [goes to Royal Taj] every day, but his friends only will [~~walk to Royal Taj~~] on Fridays.

PF Deletion thus treats (39) on a direct par with examples like (40), in which the antecedent and target clause have the same argument structure but non-identical semantic content within this structure, as well as with examples like (41), in which the null targeted material lacks the argument

structure of its antecedent VP as well:

(40) *Henry [goes to Royal Taj] every day, but his friends only will [~~walk to Taqueria Vallarta~~] on Fridays.

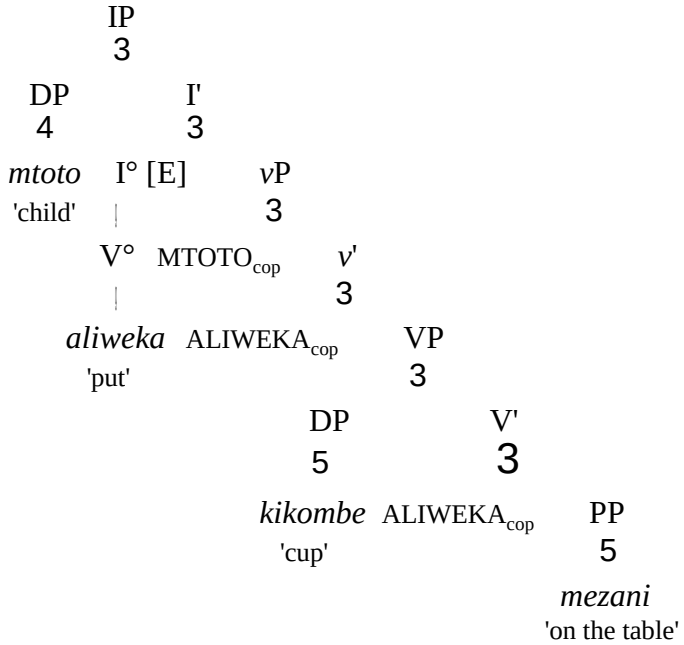
(41) *Henry [goes to Royal Taj] every day, but his friends only will [~~practice their harpsichords~~] on Fridays.

Let us now consider the same issues for *V-Stranding* VPE. In our first consideration of a PF Deletion derivation for this type of VPE in Chapter 3, we saw that an example such as (42) (repeated here from Chapter 3) could be derived straightforwardly through the narrow syntax, with the representation sent to the PF and LF interfaces appearing as in (43) (once again repeated here from Chapter 3):

(42) Mama a-li-wek-a ki-kombe meza-ni na m-toto
mother *1Su-Past-PUT-FV* *7-cup* *9table-LOC* *and* *1-child*

a-li-wek-a pia.
1Su-Past-PUT-FV *too*
'The mother put the cup on the table, and the child put [~~the cup on the table~~] too.'
(Ngonyani 1996a:ex.1d)

(43)



It was noted in Chapter 3 that, at PF, the *v*P complement to the E-feature-bearing head containing *aliweka* 'put' would be deleted or not pronounced, leaving this V overt, just as is desired. It was also noted, though, that it is not clear *a priori* what parts of the structure in (43) would be constrained by the LF isomorphism conditions present in this type of analysis, since the *v*P target phrase contains copies of the movement of both the subject and main V.

Note that, in (42), with the exception of the main V, the constituents of the targeted VP need to be isomorphic to the constituents of the antecedent VP in only the loosest of ways. That is, if material—a subject or a direct object, for instance—moves out of the target clause and thus survives elision at PF, it does not need to be identical to its antecedent clause counterpart in any core semantic sense.

This lack of identity among overt material in the target clause and counterpart elements in the antecedent clause is contrary to what Merchant's (or others') Isomorphism Constraint would predict if these elements were subject to it, since isomorphism requires mutual entailment between material in the antecedent and target clause such that, for instance, non-identical subjects should be ungrammatical. A similar situation will hold as well for the remaindered *wh*-phrases of Sluicing which originate inside the target IP. Thus, while it is not clear *a priori* what the Isomorphism Constraint predicts with respect to antecedent-clause versus target-clause main Vs, it *is* clear that the theory must allow at least *some* target-clause overt material which originates inside the null constituent to escape its requirements.

The PF Deletion account for which this thesis argues claims that isomorphism in ellipsis results from a constraint of mutual entailment between the antecedent and target verb phrases, once each is type-raised to a proposition, and once the semantic content of focused constituents (other than their

semantic type) is excluded. This means that, if the target-clause main V *were* to be constrained by the Isomorphism Constraint, then the identity in root and derivational morphology (but not necessarily inflection) which occurs under the Verbal Identity Requirement will occur as a natural part of the mandated mutual entailment between the entire target VP and its antecedent. I propose, then, that the isomorphism in main Vs described by the Verbal Identity Requirement results from the fact that these Vs *are* part of the constituent to which the LF Isomorphism Constraint applies at the point at which this constraint applies.

Given the superficial position of Vs outside of the VP in V-Stranding VPE constructions at PF, an explanation is then required for the assumption that these same Vs are considered inside the VP for computation at LF. The solution which I would like to put forth here is that there is obligatory reconstruction (i.e obligatory privileging of the lowest V copy, in the sense of Bobaljik 2002) of all main Vs. On this view, the Verbal Identity Requirement of V-Stranding VPE arises formally for exactly the same reason as does the Verbal Identity Requirement in English VPE.

The only difference between the two languages is the position in which the main V is *pronounced*. In terms of the material to which the Isomorphism Constraint applies, however, the main V is internal to the verb phrasal constituent in the V-Stranding VPE languages just as it is in English. The fact that the V is stranded is thus a superficial fact of PF Interface properties for those languages with V-Stranding VPE, as opposed to being a deep property evident at all levels of the syntactic derivation. At LF, then, an entire property-denoting element (i.e. a whole verb phrase) is semantically given, and so is elided. But, superficially, the Vs of these languages lie high, and thus are still pronounced.

Given the debate within current literature over what stage within the derivation head

movement occurs, it is important to note that the assumption of main V reconstruction would become unnecessary on a view in which all head movement occurs at PF. Because such a view would take the main V to remain in its base position throughout the narrow syntax and into the LF interface, the main V—but not moved phrases such as subjects or *wh*-phrases—will necessarily be part of the *v*Ps to which the LF isomorphism constraints will apply. It can be noted as well, however, that this could actually prove problematic should it turn out that the right generalization about what class of elements main Vs belong to in being held strictly isomorphic is *not* one involving *all* heads. If the crucial class is actually just lexical heads, or just predicate heads, the view in which head movement occurs at PF will take all such heads to lie internal to the target phrase.

Regardless of how we derive the result that main Vs lie in situ at LF, this result also has implications for the theory of Focus as it relates to the inclusion of V-stranding phenomena in the class of VPE. Specifically, notice that if an element is focused in both the antecedent and target clause, then in each clause it will be replaced with an existentially bound variable of the appropriate type. If this occurs in both the antecedent and target clauses, then the mutual entailment requirement *will* be satisfied between the two.

Empirically, however, focusing the Vs does *not* have the effect of making their non-identity licit. This can be seen in examples like (9), repeated here from above, in which non-identical Vs with identical argument structures are focused, and yet are still ungrammatical in V-Stranding VPE:

(9) Q: Binyamin LAKAX et Ruti la-makolet?
Binyamin take[Past3Msg] ACC Ruti to.the-grocery.store
'(Did) Binyamin TAKE Ruti to the grocery store?'

A: *Lo, hu ŠALAX.
no he send[Past3Msg]
'No, he SENT [~~Ruti to the grocery store~~].'

For the Isomorphism Constraint, the F-marking on each of the antecedent V (*LAKAX* 'take') and the target V (*ŠALAX* 'sent') will cause each to replaced by just a variable of the same semantic type. This means that isomorphism over the type-raised targeted VP and its antecedent will only be computed between two identical propositions which could each be paraphrased roughly as 'There exists someone who *something*'d Ruti to the grocery store'.

However, in deriving the effects of the Verbal Identity Requirement, it is simultaneously necessary—given the results of Section 1 above—that A- and A-bar phrasal material *not* be subject to the LF Isomorphism Constraint, since it can vary licitly between the antecedent and target clauses when focused. The same will be true, incidentally, of the remaindered phrases which follow the elided VP in English pseudogapping; such phrases are also licitly non-identical when focused:

(44) BECCA sent cheesecake to LAURIE, and ROBEY did [~~send cheesecake~~] to HENRY.

I propose, then, that focusing does not work similarly for main Vs because Vs are the actual *heads* of the constituents which elide—and such constituents necessarily involve GIVEN information. Thus, while it will still be true that, following the proposals of Merchant (2001) and others, counterpart constituents may be non-identical between the antecedent and target clauses if they are both focused (because the F-closure of each clause that contains them will just show them replaced with an existentially-bound variable of their semantic type), a principle such as (45) will nevertheless need to be respected:

(45) **GIVEN-ness Constraint on the Heads of Elided Constituents:**
The head of the constituent targeted for deletion must be semantically GIVEN (in the sense of Schwarzschild 1999).

The workability of this constraint uses the fact that the PF effect of focus marking arises on an element because it is F-marked syntactically; and it will then have an LF requirement that it express

information which is non-GIVEN. Since the main Vs of all elided VPs are required via (45) to be GIVEN necessarily, they will not satisfy the LF requirements of F-marking (and will thus cause a crash at LF) should they be F-marked in any example. The inability of such Vs to be F-marked syntactically will in turn mean that the F-closure of any elided VP and its antecedent will each only be able to take a meaning involving the individual Vs themselves, as opposed to just an existentially-bound variable matching the semantic type of the V.

I would note that the extension of PF Deletion theory proposed in (45) is motivated by the particular fact that PF Deletion's Isomorphism Constraint applies to not just the type-raised VPs of VPE, but rather to the F-closures of these—in an effort to capture the requirements of the deaccenting of a VP, *along with* those of actually deleting a VP (or, in the case of Sluicing, an IP). The condition in (45) would not be required if PF Deletion's LF Isomorphism Constraint were formulated to deal only with cases of ellipsis. Furthermore, LF Copying theory makes no attempt to extend to cases of deaccenting. Therefore, the need to posit (45) (or to otherwise deal with the ungrammaticality of verbal identity where the Vs are F-marked) cannot be used as a factor by which the PF Deletion account proposed here can be compared—whether to a negative or a positive effect—with an LF Copying analysis.

As will become clearer in Section 3, the extensions required for the PF Deletion account pale in their undesirability next to the stipulations which an LF Copying account would need to capture *just* the facts of V-Stranding VPE alongside those of English VPE (and other cases of V-eliding VPE, should they emerge). Such enrichments for LF Copying are not only technically *ad hoc*, but, furthermore, still fail to tie V-Stranding VPE-specific traits to any independent properties of the languages involved. Additionally, such extensions do violence to the original spirit of and intuition

behind the LF Copying's basic line of reasoning.

3. The Argument Against LF Copying: Part Two[14]

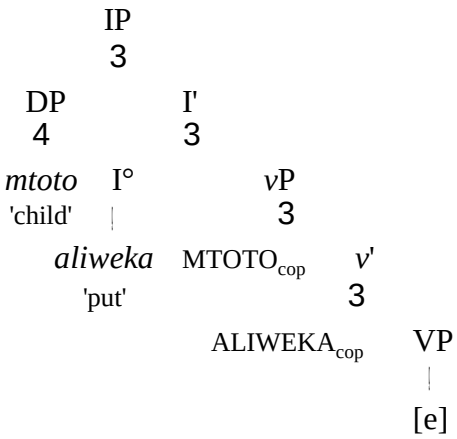
Let us now return to the question of how LF Copying would handle the isomorphism requirements of V-Stranding VPE, as a point of comparison with the PF Deletion analysis just proposed, and picking up where the initial discussion of an LF Copying treatment in Chapter 3 left off. This section argues that isomorphism facts from V-Stranding VPE present a further stumbling block for LF Copying, the solution for which involves the positing of identity constraints over and above the copying mechanism which this theory assumes to be the sole source of isomorphism in ellipsis, thus running contrary to the basic spirit of this account.

In the initial discussion of an LF Copying derivation of V-Stranding VPE data in Chapter 3, we saw that the target clause will contain a null pronominal element which then receives its semantic content via the copying in of the LF structure from a suitable antecedent. We saw as well that the SVO examples of Swahili and Hebrew, and the VSO examples of Irish, will have structures such as (46) and (47), respectively (each repeated here from that discussion), before the copying in of the antecedent phrase's LF occurs:

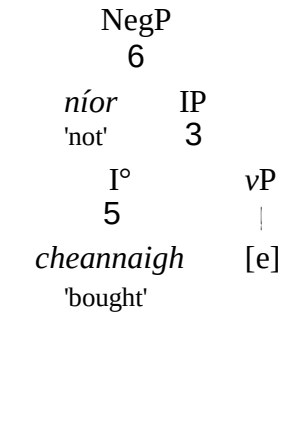
[14]I am grateful to Chris Kennedy and Joey Sabbagh, in particular, for very helpful discussion of the content of this section.

V-Stranding VPE Target Clauses *Before* LF Copying

(46) Swahili:



(47) Irish:

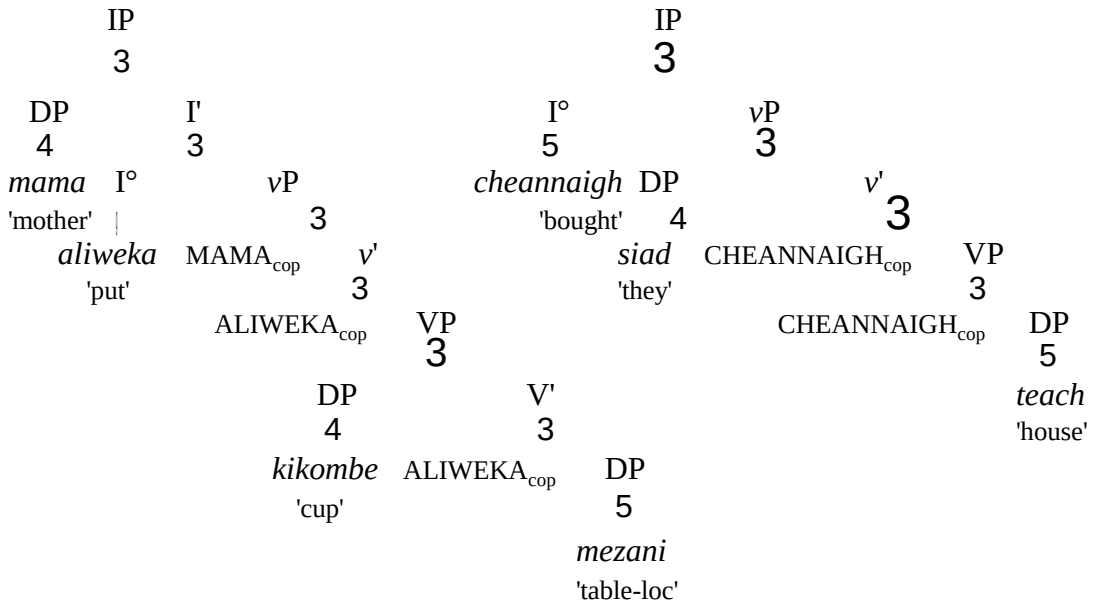


At LF, the full representation of the antecedent VP or *v*P (as the case may be) is then copied in, replacing the pronominal empty category. For concreteness, consider that the trees for the corresponding antecedent sentences for our examples will appear roughly as follows at LF:[15]

[15]As has been the case for various other tree representations in this thesis, the positions and categorial identities of arguments internal to the verb phrase is not at issue here, and so these are drawn in as simple a fashion as is possible to make the relevant points. Note in particular that the internal structure of the Swahili verb phrase shown here is not consistent with arguments made by Ngonyani (see especially Ngonyani 1996b), among others.

LF Antecedent Trees for (46) and (47)

(48) Swahili:

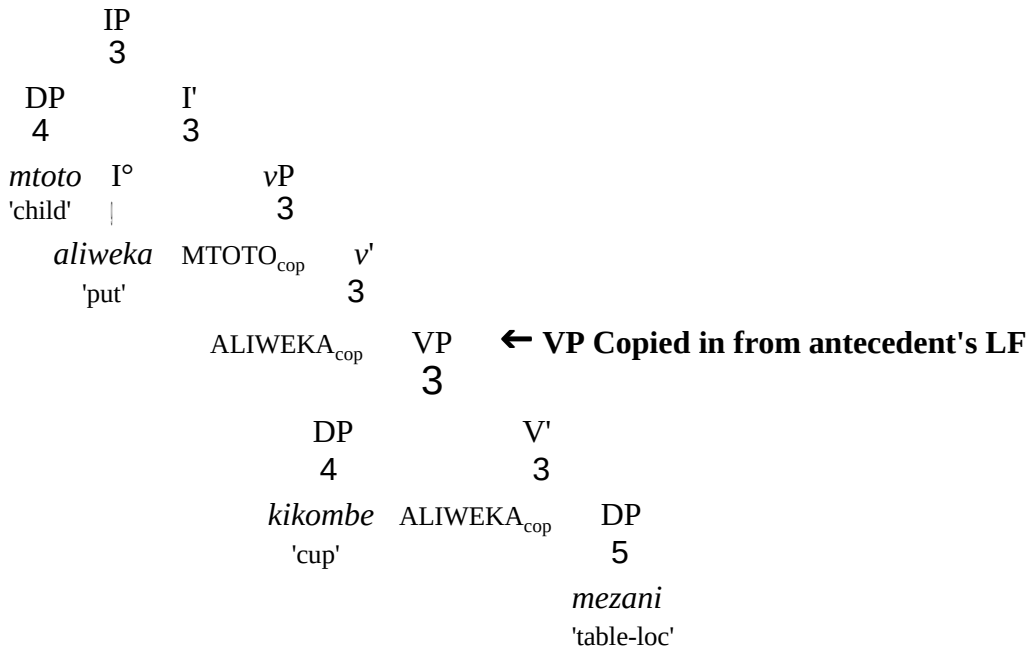


(49) Irish:

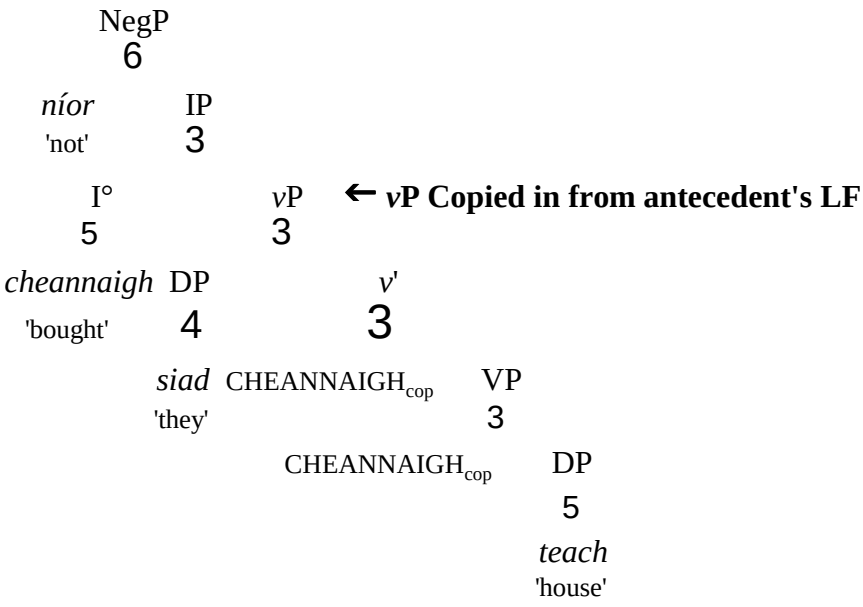
After LF Copying, then, the *target* clauses from (46) and (47) will appear as in (50) and (51), respectively. For the SVO structures of Swahili, and for the analogous SVO structures of Hebrew, it will be the VP that is copied in; for the VSO structures of Irish, the *v*P will be copied in.

V-Stranding VPE Target Clauses *After* LF Copying

(50) Swahili:



(51) Irish:



In this case, LF Copying has worked successfully to create the intended meaning of the target clauses. Notice, however, that a successful derivation requires that a chain be formed between the

target clauses' main Vs, which were base-generated in I° or *v*°, and the copies in (*v*° and) V° of the *antecedent* clauses' main Vs, which only appeared in the target clause when its antecedent's *v*P or VP was copied in. Such chain formation needs to be able to occur if the target clause VPs are to be interpreted as intended—so that verb-phrase-internal arguments which were copied in from the antecedent clause serve as arguments to main Vs which were base-generated within the target clause.[16] It is important to ask, then, precisely what the formal conditions are which govern such non-movement chain formation.

It is clear, first of all, that some conditions must regulate such non-movement chain formation. Syntactic chains produced via movement provide the standard way in which dependencies between elements in a tree structure are captured under Chomskyan theories of syntax. The fact that *movement* is constrained in various ways creates a natural check on what sorts of chains, and thus what sorts of dependencies, are licit in a given tree. It would clearly wreak havoc on the adequacy and viability of the theory if chain formation were permitted at random, outside the confines of movement.

One plausible answer to the question of what constrains the formation of non-movement chains might be to take a very strict approach, positing that strict identity in terms of lexical form is required among all elements involved. This position has intuitive appeal, and would clearly be satisfied in the successful LF Copying derivations of V-Stranding VPE (resulting in (50-51) above) just

[16]Note that this assumes that theta-role relationships can be established *after* the initial creation of the tree in the narrow syntax, and as late as LF. LF seems a plausible locus for such semantic roles to be established, but this can be noted to diverge from traditional assumptions within the Principles and Parameters tradition, as well as from Chomsky's apparent assumptions in the early stages of Minimalism. On the latter, see Chomsky (1995:312-313), in which it is stated that "θ-relatedness is a 'base property'.", and is thus crucially different from elements such as features—which are checked in later stages of the derivation.

demonstrated. For ease of exposition, let us refer to this position as involving a *Strict Lexical Identity* requirement on non-movement chain formation.

A second plausible answer can be extrapolated from the LF Copying analysis of Sluicing proposed by Chung, Ladusaw, and McCloskey (1995). So far as I am aware, the latter is the only source within the literature which explicitly acknowledges that non-movement chain formation is required by LF Copying treatments of ellipsis, and specifies conditions under which it can occur. Their proposal is that non-movement chains can be formed in the target clause of Sluicing, between the *wh*-phrase base-generated in Spec-CP and a trace of movement which is 'sprouted' into existence, so long as doing so respects the argument structure and theta-role requirements of the selecting main verb. Let us refer to this position as a requirement of *Argument Structural Identity* in order for non-movement chains to be formed.

For the case of V-Stranding VPE, it is the selecting main V *itself* which is stranded outside the elided constituent, and not an argument or adjunct of this main V (as is the case in Sluicing). It might be proposed, then, that adapting the requirement of argument structural identity to V-Stranding VPE would involve allowing non-movement chains to be formed between main Vs so long as the Vs themselves have identical argument structure and theta-role requirements.

Like strict lexical identity, an argument structural identity requirement would also be met in the successful V-Stranding VPE derivations which resulted in (50-51) above. The base-generated target clause Vs for those derivations were identical to the V copies which were added to the target clause via LF Copying of the antecedent's LFs, and lexical identity will have identity in argument structure and theta-role requirements as a natural consequence.

A problem, though, will arise with cases in which the Vs are *non-identical*. Thus,

ungrammatical violations of the Verbal Identity Requirement such as (8) from above, repeated here, would satisfy an argument structural identity condition:

(8) Q: Yicxak nišek et Aviva?
Yitzchak kiss[Past3Msg] ACC Aviva
'(Did) Yitzchak kiss Aviva?'

A: *(Lo,) hu XIBEK.
no he embrace[Past3Msg]
'(No,) he HUGGED [~~Aviva~~].'

Despite the fact that the Hebrew Vs *nišek* 'kiss' and *xibek* 'hug' used in this example each take an agent subject and a theme direct object, the Vs have different roots. The same will be true for a range of V pairs in Hebrew and Irish which have non-identical roots or derivational morphology (or both), but identical argument structure and theta-role requirements. We can note, further, that although an argument structural identity condition on non-movement chain formation would incorrectly predict such examples to be grammatical, a condition using strict lexical identity would once again make the right prediction, correctly ruling out such examples.

However, it is also not the case that a strict lexical identity condition will always make the right predictions. While such a condition will always rule out violations of the Verbal Identity Requirement (including those which an argument structural identity condition would incorrectly allow), it will also *incorrectly* block grammatical examples in which the main Vs match in root and derivational morphology, but differ in e.g. inflection, and thus in lexical form. This would be true, for instance, for grammatical examples like (4) from Hebrew, repeated here from above:

(4) Q: Tazmini et Dvora la-mesiba?
invite[Fut2Fsg] ACC Dvora to.the-party
'(Will) (you) invite Dvora to the party?'

A: Kvar hizmanti.
already invite[Past1sg]
'(I) already invited [~~Dvora to the party~~].'

The antecedent-clause main V *tazmini* '(you-Fsg will) invite' and the target-clause main V *hizmanti* '(I) invited' here are clearly different in lexical form, but have the same root and binyan. The problem encountered here for a strict lexical identity condition is, of course, a version of the general problem recognized since at least the work of Sag (1976) and Williams (1977), involving the fact that the type of isomorphism required generally for English VPE to be licit must be weaker than one of strict lexical identity.

To capture the facts of the Verbal Identity Requirement, then, the formation of non-movement chains in an LF Copying analysis of V-Stranding VPE would need a requirement weaker than strict lexical identity, but stronger than just argument structural identity. Specifically, the necessary requirement would seem to be one which in effect restates the Verbal Identity Requirement itself: non-movement chain formation would be licit only if the elements involved share, minimally, the same root and derivational morphology.

Interestingly, though, the empirically adequate requirement for forming non-movement chains between the overt *verbs* of V-Stranding VPE turns out to differ from the requirement needed for such chain formation between *phrases* in LF Copying views of ellipsis, namely for the *wh*-phrases of Sluicing and the surface subjects of VPE in SVO languages like English, Swahili, and Hebrew. Thus, the final subsection of Section 1 demonstrated that we will incorrectly predict ungrammaticality in VPE if its target clauses' base-generated subjects are subjected to conditions of either strict lexical

identity or identity in root and derivational morphology. This can be seen, for instance, from example (28), repeated here from that section:

(28) a. Joey was accepted to the conference, and Mikael will be [~~accepted to the conference~~] too.

b. *Structural schematic for (a):*
Joey was [$_{vP}$ JOEY$_{cop}$ [$_{VP}$ accepted JOEY$_{cop}$ to the conference]], and
Mikael will be [$_{vP}$ JOEY$_{cop}$ [$_{VP}$ ~~accepted JOEY$_{cop}$ to the conference~~]] too.
↑ ↑
Antecedent subject's movement copies, copied in to the target clause by the LF Copying operation

For such examples, the only empirically adequate requirement would need to allow target-clause subjects *Mikael* in examples like (28) to form non-movement chains with the copies of the antecedent clause's subject (here, *Joey*) in the copied-in material, so long as argument structural identity is satisfied. Such a scenario entails that, in conjunction with LF Copying, the copies of the antecedent clause's subject which will appear in the copied-in material of the target clause (i.e. the copies of *Joey* in the target clause of (28b)) would need to be somehow stripped of their lexical and core semantic content, down to a suitable placeholder—e.g. just a semantic type or phrase-level and categorial label—such that the copy can then be filled in with content provided by the target clause's subject.[17] This 'filling in' would thus be much like what occurs with the already-neutral 'sprouted' traces of Sluicing which are posited within the argument structural identity account used by Chung, Ladusaw, and McCloskey (1995).

The situation is even more extreme for the *wh*-phrases of Sluicing, for which what may licitly vary between the antecedent and target clauses is not only lexical content within an element present

[17]Note that such subjects are presumably F-marked, and thus, in a PF Deletion account, would be replaced just with an existentially-bound variable which matches their semantic type. Should such accommodation for F-marking be incorporated into the LF Copying account, the 'stripping away' of lexical content would be captured automatically.

in both clauses, but the actual presence versus absence of the *wh*-word altogether. This can be seen in examples like (30), again repeated here from Section 1:

(30) [Mikinari managed to fix the TV], but I don't know how [~~Mikinari managed to fix the TV HOW$_{cop}$~~].

Just as was the case for non-identical subjects, an argument structural identity requirement will capture the facts of examples like (30). Thus, Chung, Ladusaw and McCloskey's (1995) use of just argument structural identity was clearly motivated by the empirical facts of Sluicing.

At this point, then, we have a contrast in the type of isomorphism needed in order for non-movement chains to be formed. A relatively strict condition involving identity in root and derivational morphology is needed for the remaindered main Vs of V-Stranding VPE, on the one hand, while a weaker, argument structural condition is needed for both the remaindered subjects of VP Ellipsis and the remaindered *wh*-adjuncts and *wh*-complements of Sluicing.

While the latter two groups involve both A- and A-bar elements, they can all be noted to be *phrasal*, while the main Vs at issue for V-Stranding VPE are heads. Thus, a natural way to contrast the two types of requirements might be to draw a distinction between non-movement chain formation involving phrases (whether A- or A-bar) and such chain formation involving heads (whether these are conceived of as predicate heads, lexical heads, or just V heads, modulo the discussion at the end of Section 1 above).

At best, then, the equivalent of the Verbal Identity Requirement would be captured within an LF Copying account as part of the requirements on the formation of non-movement chains. However, all other types of data available in which non-movement chains would be formed suggest that only an argument structural sort of identity (according to the requirements of the selecting V)

is required, and not a stricter identity of root and derivational morphology. Independent motivation for the stricter identity which is needed for V-Stranding VPE main Vs under an LF Copying account would become available only if other examples of non-movement chain formation involving heads emerge—and only if, in such cases, the same sort of identity requirement arises. It is not currently clear, to me, at least, what sort of data could produce such independent corroboration. We are left, then, with a stipulation that buys us no more than an account for just the heads of the single construction of V-Stranding VPE.

Within a larger perspective, a basic tenet of the LF Copying line of analysis is that antecedent-target clause isomorphism arises in ellipsis because the null material of the target clause is simply an LF copy of the equivalent antecedent clause material. We saw in Chapter 3 that, because the main Vs of V-Stranding VPE are overt in both the antecedent *and* the target clauses, the target clause's main V can *not* be part of that clause's null material. But this has driven us to the situation just laid out when the Verbal Identity Requirement is considered. Specifically, we have been driven to a situation in which the needed isomorphism between antecedent and target-clause main Vs cannot be captured via the same mechanism as is used for the other identity requirements between the antecedent and target clauses.

4. Chapter Summary and Conclusions

We began this chapter by considering what I have termed the Verbal Identity Requirement: a novel condition on VP Ellipsis that the antecedent- and target-clause main Vs be identical in at least their root and derivational morphology. After considering data involving this generalization from Hebrew, English, and Irish, we then noted that the identity between verb heads which this

generalization involves is of a much stricter variety than the isomorphism required between other antecedent-target clause elements, including the results of A- and A-bar movement.

We then went on to a second consideration of the PF Deletion and LF Copying lines of analysis for V-Stranding VPE, this time with respect specifically to the attested isomorphism facts. We saw that each of these already accounts for the Verbal Identity Requirement's effects in English (if these do indeed exist), given that the target-clause main V of that language is necessarily null, and so is necessarily held isomorphic to its antecedent-clause counterpart by the same mechanism (specifically, an LF isomorphism constraint in PF Deletion, and the VP-copying mechanism itself in LF Copying) which implements isomorphism between the antecedent and target clauses more generally. Importantly, that this is true involves the fact that—so long as the main V lies within the targeted constituent—the particular type of identity required by the Verbal Identity Constraint is actually subsumed by the isomorphism mechanisms already in place under each line of analysis.

For V-Stranding VPE, however, each line of analysis required modification of some sort. For PF Deletion, we saw that, by making the assumption that main Vs are obligatorily interpreted in their base position (via e.g. obligatory V reconstruction), the facts of the Verbal Identity Requirement can be captured in the same way in which they are captured for English V-eliding VPE: with verbal isomorphism obtaining as just a subcase of the larger isomorphism mandated between the entire antecedent and target verb phrases.

One additional assumption was then needed, namely that the head of a constituent targeted for ellipsis must be GIVEN. Notably, this last addition was needed only because modern versions of PF Deletion invoke F-closures (or something similar) as the representations over which isomorphism is calculated, so that similarities between VPE and VP deaccenting not relevant to the data at hand can

be captured. On the whole, then, this analysis of V-Stranding VPE allowed the main V to lie in a VP-internal base position semantically, but in a VP-external position for just the purposes of pronunciation.

In contrast, LF Copying assumes as a starting point that the null constituent lacks internal structure of any kind until the copying in of the antecedent clause's LF occurs. Relatedly, antecedent-target clause isomorphism under this view results entirely from the fact that the targeted null material is semantically a direct copy of its antecedent's LF. For V-Stranding VPE, however, we saw the result of this to be that there is no existing version of the copying mechanism to implement the required isomorphism between the antecedent and target main Vs—each of which is base-generated as overt (the latter outside the null constituent).

Our only recourse here was to posit a new isomorphism constraint which essentially restates the Verbal Identity Requirement, which would exist alongside the copying mechanism, and which would hold most likely over non-movement chain formation between heads, specifically—or possibly just lexical or predicate heads. When such non-movement chain formation is over phrasal elements, however, a much weaker, argument structural identity requirement needed to be posited.

The stipulations needed under LF Copying run contrary to a very basic tenet of this line of analysis, namely that identity in ellipsis results just from the copying mechanism, and not from independently imposed isomorphism constraints. By imposing just such a constraint on LF Copying, we essentially infuse into this theory a mechanism inherent in PF Deletion. Positing this constraint as part of the mechanisms of non-movement chain formation between heads (or certain types of heads) might potentially tie the effects of facts of verbal versus phrasal isomorphism requirements to an independent process. However, other cases of non-movement chain formation are not widespread

in the literature—in fact, I can think of no type of data for which this type of chain is part of an uncontroversially agreed upon analysis.

Further troubling is the fact that the way in which Verbal Identity would be derived by this line of analysis fails to tie anything about this Requirement to independent factors within each language involved. Instead, this is a type of constraint which, to my knowledge, occurs for no other type of construction or data. When these considerations are combined with the problems for LF Copying, and again the success of PF Deletion, for the facts considered in Chapter 3, then, it is clear that PF Deletion offers a much more natural and plausible analysis by which both V-Stranding and Aux-Stranding VPE can be derived.

In closing, let us note that these conclusions with respect to PF Deletion versus LF Copying are similar to Merchant's (2001) conclusion with respect to treating Sluicing with an LF Copying approach, as in Chung, Ladusaw, and McCloskey (1995). As he notes (Merchant 2001:151-152) in discussing his rejection of this approach (and, ultimately, in arguing in favor of a PF Deletion approach, as I do with respect to V-Stranding VPE), the most compelling evidence from Sluicing against such a view involves two effects in which the Sluicing's remaindered *wh*-phrase behaves just as if it were not in an ellipsis construction, but rather were associated with a syntactically fully fleshed-out IP.

These are, first, a cross-linguistic generalization that the sluiced *wh*-phrase must surface in the same case as does its correlate element in its antecedent clause. Given that this *wh*-phrase of the Sluicing target clause would be base-generated in Spec-CP under the LF Copying analysis, this fact is unexpected. And, a second cross-linguistic generalization holds for Sluicing, such that stranding a Preposition along with the sluiced *wh*-phrase of the target clause is available in a given language if

and only if the language allows such P stranding in ordinary *wh*-movement outside of ellipsis—i.e. allows P pied-piping. Again, this result is surprising under an analysis to Sluicing in which the stranded elements are base-generated in their surface position, but is fully expected if these elements actually move out of structure which exists at some level of the derivation.

Taken with Merchant's results from Sluicing, then, the difficulties which have just been encountered in attempting to implement an LF Copying analysis for V-Stranding VPE seem to fit into a larger, emerging picture about the nature of ellipsis constructions. In this light, the combined results of Chapter 3 and of the present chapter reveal an analytical benefit to the assumption—here, for V-Stranding VPE—that the main V lies *external* to the null VP at PF, for the purposes of pronunciation, but *internal* to the VP at LF, for the purposes of interpretation (and hence of antecedent-target clause isomorphism). Assuming these two distinct positions for the elided VP's main V is not possible under LF Copying precisely because the latter takes the null VP to be devoid of internal structure. And it is possible under PF Deletion precisely because this type of account *does* posit syntactic structure within the elided constituents.

Stepping back a bit, various other types of evidence have been adduced in favor of PF Deletion-style approaches which assume that syntactic structure exists for null constituents (e.g. Johnson 2001 for a recent summary). However, for VP Ellipsis specifically, it should be noted the strikingly strong case for the workability of deletion approaches over interpretive approaches would be much less apparent from the perspective of only English data. The contrast between the two types of analysis surfaces with much greater clarity, as the present discussion has shown, once English VPE is placed within a broader cross-linguistic light.

To the extent that the arguments presented in this chapter and in Chapter 3 hold up, then, it

appears at least at present that this thesis' move of beginning to bring V-Stranding data to bear on the matter of evaluating current lines of analysis can indeed help to shed greater light on the nature of VP Ellipsis, and of ellipsis more generally.

Chapter 5
Conclusion

0. Introduction and Chapter Overview

In this chapter, I provide a summary and conclusion to the material presented in the preceding chapters of this thesis. Section 1 recapitulates the main arguments of each of the earlier chapters. Section 2 then discusses a range of topics for future research, arising either because they are suggested by this thesis' findings, or because they involve domains which lie outside of this thesis' scope of discussion. Section 3 closes with some final remarks.

1. Summary and Implications of the Arguments Made in this Thesis

This thesis began, in Chapter 1, with a discussion of the basic motivations for carrying out the present study. This was couched within an overview of the two, previously non-intersecting bodies of literature which this work has sought to begin to integrate. The first of these is a body of work, extant since only the early 1990s, which aims to establish the existence of (V-Stranding) VP Ellipsis in a given language. The second of these, extant since the early days of generative syntax itself, has considered how English VPE—along with non-VPE ellipsis constructions in English and other languages—should be derived.

Within this background, two principal goals were laid out for this study. The first, addressed in Chapter 2, involved the presentation of a diagnostic profile for putative V-Stranding VPE data from Hebrew, Irish, and Swahili which would motivate its being added to English Aux-Stranding VPE data to form an empirical natural class. The case studies of these languages' VPE data involved

proposing a concrete set of VPE diagnostics: above and beyond their uses here, these diagnostics are offered for future research into the cross-linguistic nature of VPE as tools to both debate and use.

It was shown in Chapter 2 that, along with previously established evidence that data claimed to involve V-Stranding VPE in Hebrew, Irish, and Swahili display core behavioral traits of English VPE, these data also do not have a tenable alternative analysis as one or more independently elided null arguments. This was viewed as an important point, given the under-recognition of the alternative null argument analysis as a confounding diagnostic issue in many previous studies of putative V-Stranding VPE languages. Within this discussion, core traits of English VPE identified for the putative VPE data from Hebrew, Irish, and Swahili included the ability for the target clause to appear separated from its antecedent clause by sentential embedding, a syntactic island, a coordinate structure, or a sentence or discourse boundary; VPs of any argument structural content should also be able to undergo the elision. The chapter then closed with a final case study, this time focusing on Japanese and Korean: two languages for which it is in fact a null argument analysis, and not one of V-Stranding VPE, which provides the best account for data previously claimed to instantiate VPE.

From the finish of Chapter 2, it was assumed that V-Stranding VPE data do exist in at least Hebrew, Irish, and Swahili. Chapters 3 and 4 then explored what such data can illuminate about the debate between a syntactic derivation of VPE involving PF Deletion versus LF Copying—taking it to be a desideratum that V-Stranding VPE and English V-eliding VPE should be derived in a unified fashion.

Chapter 3 took up the question of how to derive the verb stranding effect specifically. It was seen in that chapter that, in order for the target-clause main V to be phonetically overt, an LF Copying analysis would require that the base-generated empty category of V-Stranding VPE be a null

pronominal element corresponding to the semantic type of a VP minus its main V. Because such semantic types would vary according to the particular sequence of internal arguments within a given VP, the lexicons of V-Stranding VPE languages would thus need to contain a range of null pronouns, each corresponding to a distinct argument structural option—one for a transitive VP containing just a direct object, one for a VP containing an accusative and locative object, one for a VP containing an accusative and propositional object, and so on.

Such a set of required null pronouns was noted to be unlike any attested pronouns—null or overt—in any known languages, including those which have V-Stranding VPE. The awkward nature of this proposal was seen to contrast with the straightforward way in which PF Deletion was able to handle the verb stranding effect. This latter type of derivation allowed the target-clause VP to be base-generated with internal syntactic structure, which meant that the target-clause main V could originate as the head of a verb phrase, just as occurs in both VPs not targeted for ellipsis, as well as for VPs which ultimately elide in English VPE. The overtness of the target-clause main V, on this view, would then result from the fact that this V—again, crucially on a par with *all* main Vs of the languages involved, in non-ellipsis clauses as well—raised out of the constituent to be elided before deletion or nonpronunciation took place. In addition to avoiding the assumption of a whole new set of lexical items previously unattested in any language, this meant that PF Deletion allowed the stranding of the main Vs in the languages involved—and the fact that verb stranding does not occur in the VPE of English—to result from the independently motivated process of main V raising in these languages as opposed to English.

Chapter 4 then considered issues involving antecedent-target clause isomorphism in V-Stranding VPE, and began with the presentation of a novel set of data involving what was referred

to as the Verbal Identity Requirement: a generalization that in at least English, Irish, and Hebrew VPE, the antecedent and target main Vs must be identical in minimally their root and derivational morphology. This was suggested to be a cross-linguistic generalization. Its workings in English were seen to already be captured by both LF Copying and PF Deletion accounts, but the facts of Hebrew and Irish were seen to require an explicit account.

Chapter 4 put forth the proposal that, by employing a PF Deletion analysis, the matching in root and derivational morphology described by the Verbal Identity Requirement should be seen as a sub-case of the larger requirement of mutual entailment between the antecedent and target VPs imposed by the already-existing LF isomorphism constraints used in this analytical view. This analysis was seen to be possible so long as main Vs are viewed as being obligatorily interpreted in their base positions, as via obligatory reconstruction. In this way, PF Deletion was noted to be able once again to relegate observed differences for VPE in English, on the one hand, and the V-stranding languages, on the other, to independently motivated traits observable outside VPE, having to do with the independent question of how high within the sentence the main V lies at surface levels for each language.

The plausibility and workability of this extension of the PF Deletion account was seen to contrast once again with that of the LF Copying alternative. For the Verbal Identity Requirement, the latter was noted to enforce antecedent-target isomorphism via just the LF Copying operation itself: i.e. by just the copying in of the antecedent's LF representation to the target-clause null pronominal element. This meant that elements outside the null constituent—including the main V, in the case of the V-Stranding languages—were not automatically constrained by the isomorphism mechanisms already in place under this line of analysis.

To remedy the situation so that the Verbal Identity Requirement would nonetheless be captured, this account was forced to be augmented with a new isomorphism constraint which essentially restated the Verbal Identity Requirement, and which would exist alongside the LF Copying mechanism. This was potentially to be posited as a condition on the formation of non-movement chains at LF between the target clause's base-generated material and the additional elements copied in to this clause from the antecedent's LF. Along with running contrary to LF Copying's basic tenet that antecedent-target clause identity results purely because the target is nothing but an LF copy of its antecedent, this new, supplementary isomorphism constraint would be used *just* to make the facts of V-Stranding VPE work out—with no use or effect whatever in English VPE. Furthermore, the new constraint, whether imposed as a condition on non-movement chain formation or elsewhere in the derivation, would have no relation whatever to the high position of main Vs independently known to hold for the V-stranding languages.

For these reasons, the PF Deletion analysis was argued on the whole to be strikingly more successful than LF Copying at providing a workable and natural account of the full range of facts involved in both English V-eliding VPE and the V-Stranding VPE of Hebrew, Irish, and Swahili.

2. Issues for Further Study

A number of issues emerge from this study as interesting topics for further research. These can be classified into essentially three types: issues relating to the diagnosis of additional cases of VPE, issues relating to what VP Ellipsis is (and is not) in light of the discussion contributed by this thesis, and analytic questions and predictions which the present content makes. These are addressed, in turn, in Subsections 2.1, 2.2, and 2.3.

2.1. Diagnosing additional cases of VP Ellipsis

The most obvious topic for additional research within this category involves expansion of the number and depth of investigations into the existence of V-Stranding VPE in additional languages. The first set of promising candidates for such investigation involves languages closely related to the three core languages treated here. Within the Celtic languages, so far as I know, such work has yet to be carried for Scots Gaelic, Breton, and Welsh, for instance.

Within Semitic, and outside the domain of Hebrew, the small group of studies which exists on Arabic languages can be characterized as suggestive, but as of yet less than fully fleshed out. This includes Kortobi (1998) and unpublished work by Josh Viau of Northwestern University for Moroccan Arabic, and research currently underway on Syrian Arabic by Pamila Pengra of UC Berkeley.[1] Much more clearly needs to be done for the whole range of dialects that exist, and this work needs to pay special attention to control of null objects along the lines of the treatment of Hebrew proposed in Chapter 2—since, being closely related to Hebrew, it seems likely that one or more of the Arabic dialects may also have null objects of some sort.

Within Bantu, Ngonyani's initial work on Ndendeule, a local language spoken in Tanzania, holds promise as a second Bantu language which would have V-Stranding VPE along with Swahili.[2] Given the promising situation for Ndendeule, and the clear diagnostic picture already adduced for Swahili, investigation of additional Bantu languages should clearly be carried out.

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[1]Note that Kolko (2004) (for which I have had access only to the abstract), despite its title ("VP-Ellipsis in Arabic"), appears to describe not VPE, but the Arabic equivalent of the English *do so* construction.

[2]See Chapter 2 for further discussion of the Ndendeule data: Ngonyani's work systematically presents data showing nearly every diagnostic laid out in this thesis to hold in Swahili, but holds back from including a full set of equivalent data from Ndendeule.

Turning away from the languages closely related to Hebrew, Irish, and Swahili, there are also a number of inconclusive cases in the literature where V-Stranding VPE has been claimed or suggested to exist for a language. More careful empirical work remains to be done in these cases: additional data are needed to round out the diagnostic picture before using the label of V-Stranding VPE. These cases include European (and possibly also Brazilian) Portuguese (Martins 1994, 2000), Basque (Laka 1990), possibly Mandarin Chinese (under the view that Mandarin's ellipsis is of the 'big' VP, as in Li (2002) and Pan (1998, 2002)—though see Li's (1998) contrary claim that no VPE exists in Mandarin, using Hoji-style diagnostics), Finnish (Holmberg 1999, 2001), Serbo-Croatian (Stjepanovic 1997a,b, 1998a,b, 1999; Boeckx and Stjepanovic 2001; Lasnik 1997), Tagalog (Richards 2002), and Russian, Polish, and Czech (McShane 2000).

It also appears from the literature that there are a number of languages which are good candidates for having a sort of Aux-stranding VPE, involving a small proper subset of the language's clauses in which primary clausal inflection is borne by an auxiliary-like element rather than by the clause's main V. The Aux-like elements in question are generally non-main-V tense markers which are able to stand alone as a word separate from the main V. Since this thesis advocates the general research program of documenting the full variety of VPE found in the world's languages as essential for the development of a coherent theory of VPE, investigation of these languages is also necessary. They include Moroccan Arabic (Kortobi 1998), European Portuguese (Martins 1994), Brazilian Portuguese (unpublished work by Nattalia Paterson of Northwestern University), Serbo-Croatian (e.g. Stjepanovic 1997a,b, 1998a,b, 1999), and Mandarin (Xu 2003).

For these cases, there once again needs to be more complete diagnostic evidence demonstrating parallel behavior with the VPE of established languages like English. However,

controlling for independently elided null arguments presumably will not be a problem, since the target clause's main V *elides* in this variety of VPE—and V elision should presumably not be a trait of examples in which only individual arguments have dropped.

2.2. What is VP Ellipsis?: Taking stock of where we now stand

The results that come from exploring VPE in a wider variety of languages as outlined in the previous subsection should, in turn, help to shed some light on the larger goal of determining exactly what the set of diagnostic criteria are or should be for VP Ellipsis in any language. Let us now paint a rough picture of where we as a field stand currently with respect to this task, taking into account the results contributed by the present thesis.

Recall that the view of VP Ellipsis which restricts itself only to the facts of English VPE takes the stranding of an Aux to be a—or even the—hallmark trait of the presence of VPE. An example of this can be seen in the difference between English examples containing an ordinary relative clause due to the presence of a main V, as in *Heather tried all the pies that I <u>tried</u>*, as opposed to examples involving Antecedent-Contained Deletion (a subcase of VPE) due to the presence of a stranded Aux and elided main V, as in *Heather tried all the pies that I <u>did</u>*.

The results of this thesis suggest that such a view actually hinders the predictive accuracy of the theory of VP Ellipsis as a whole. The Aux-stranding found in English VPE, in the context of the present thesis' discussion, turns out to arise *not* because Aux-stranding is a deep and cross-linguistically systematic hallmark of VP Ellipsis in general. Instead, Aux-stranding should be viewed as arising because of just the English-specific fact of which elements (namely, auxiliary Vs but not main Vs) happen to lie in the Infl domain for this language.

A more accurate and cross-linguistically viable view of the properties of VPE would instead include the following traits. First, the construction strands an element involving the primary inflection of the clause. This can be either a main V or some form of auxiliary V. Second, the construction involves the elision, minimally, of all elements which are considered—*for the particular language involved*—to lie internal to the entire verb phrase at PF.

Third, if we take seriously the analysis developed in Chapter 4 with respect to the Verbal Identity Requirement, then main Vs show evidence of being among the elided material in at least the semantics (i.e. from LF through the semantics proper) in all VPE, whether or not this V lies internal or external to the constituent which it heads at PF. This was posited as the reason why Focus-marking on non-identical Vs is illicit in V-Stranding VPE: F-marking cannot occur on the head of the elided constituent, regardless of whether this head itself surfaces as overt or null.

Fourth, a range of distributional behavior occurs for the VPE construction, as has long been observed of English, and has now also emerged for V-Stranding VPE in the three additional core languages put forth in this thesis: (A) grammaticality when the target clause appears within any number of layers of sentential embedding, including to different degrees than is the antecedent clause, (B) grammaticality when the target clause appears within any type of syntactic island, where the antecedent clause lies entirely outside this island (lack of island effects), and (C) grammaticality when the target clause is in just one conjunct of a coordinate structure where the antecedent lies outside the entire coordinated structure (i.e. lack of Coordinate Structure Constraint effects).

Somewhat more speculatively, the following can also be considered to be traits of VP Ellipsis.[3] (A) VPE is not relegated to any one type of discourse environment; it is thus licit when antecedent and target clauses are separated by a sentence or a discourse (speaker) boundary, and licit whether or not it occurs within a coordinated structure. (B) VPE displays sloppy identity readings in appropriate contexts. (C) VPE is grammatical when the target clause precedes the antecedent clause, so long as the Backward Anaphora Constraint (e.g. Langacker 1969) is respected, so that the target clause does not (c-)command the antecedent clause (as will be true, for instance, when the target clause is within an adjunct).[4] Finally, (D) VPE has the ability to form Antecedent Contained Deletion examples.[5]

This conception differs from a purely English-oriented picture of VPE, first, by repudiating the idea that only Auxs are stranded—and, more deeply, that a language must have an English-style system of auxiliary Vs as its primary means of expressing clausal inflection in order for VPE to exist. Second, VP Ellipsis is understood here as targeting one of a constellation of verb-headed constituents, rather than taking only the "VP" node as the constituent targeted for elision.

As of the writing of this thesis, both the verb phrase and inflectional phrase are currently viewed as containing more than one layer. This means that, even for English VPE, it has now become

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[3]The traits enumerated in this paragraph are put forth somewhat tentatively only because I can, at present, imagine being able to be convinced that a given set of data does indeed involve VPE if it lacked evidence of one or more of these traits, but showed clear behavior consistent with all other traits posited here as VPE diagnostics.

[4] Although not a problem for English Aux-stranding VPE, Right Node Raising will also need to be controlled for in putative cases of backward anaphora in V-Stranding VPE.

[5]As can be seen from the English examples noted above (namely *Becca tried all the pies that I <u>tried</u>* versus *Becca tried all the pies that I <u>did</u>*), putative ACD in V-Stranding VPE will need to control for the occurrence of just an ordinary relative clause in which the relative gap involves a direct object. This could presumably be accomplished using the sorts of ditransitive VPs employed to rule out null object structures discussed in Chapter 2.

unclear whether the null constituent is e.g. VP, *v*P, voiceP, and so on. This choice would seem to be a plausible source of cross-linguistic variation, so that one language may have "VPE" involving 'big' VP elision, while another has *v*P elision, or even the elision of a low sub-layer of IP. What VP Ellipsis *does* crucially involve, then, is the elision of a constituent dominated locally by a phrase whose head is a primary-inflection-bearing element.

2.3. Analytic questions and predictions

While the Verbal Identity Requirement clearly holds in English (if trivially), Irish, and Hebrew, it is presently unclear whether or not the requirement is also true of Swahili (for details, see the discussion in Chapter 4 of example (25), the sole Swahili example from Ngonyani (1998) containing non-identical antecedent versus target main Vs). The questions, then, are whether that example involves a construction other than VPE (so that the Verbal Identity Requirement *does* hold in Swahili VPE), whether that example's published judgement of grammaticality is indeed correct, or whether Swahili's VPE lacks the Verbal Identity Requirement.

If the last is the case, Swahili might end up grouping with Serbo-Croatian, which, as noted above and in Chapter 4 (see footnote 9 of that chapter), is claimed to have V-Stranding VPE in which non-identical antecedent versus target main Vs are licit. However, the data from Serbo-Croatian remain in need of more conclusive diagnostic work to determine whether they involve VPE at all—such careful diagnosis being an obviously needed preliminary to any claim with respect to the Verbal Identity Requirement's holding or not in putative cases of VPE.

Each time a clear case of VPE is diagnosed in a given language, then, the Verbal Identity Requirement needs to be investigated with respect to whether or not it holds in that language. As

was done for Hebrew, those languages with rich morphology should be tested in this respect along three lines: varying the antecedent and target clauses' derivational morphology (if possible) with all else held constant, varying the V roots with all else held constant, and varying the inflectional morphology.

The result of such work will have analytical implications. On one hand, it is possible that the Verbal Identity Requirement will turn out to hold in all cases found of VP Ellipsis. If so, then, given the formal account for the Verbal Identity Requirement which this thesis has developed, we are still in need of finding novel ways to test the proposal made here that the ungrammaticality of non-identical Vs results from the interaction of (A) the LF isomorphism constraint of PF Deletion theory, (B) the fact that main Vs obligatorily reconstruct (or by other means are obligatorily interpreted in their base position), and (C) the constraint posited here against F-marking on the head of the elided constituent. Thoughts on the obstacles to surmount in doing so are found immediately below.

If, on the other hand, the Verbal Identity Requirement turns out *not* to hold in every case of VPE—as seems presently possible for e.g. Swahili and/or Serbo-Croatian—we will then have negative evidence which will be equally interesting, to the extent that it can help to illuminate the true nature of the LF isomorphism constraint which constrains ellipsis, and/or the proper way to characterize the constraint against F-marking head Vs of elided VPs. It may even turn out that such evidence calls into question the existence of a single natural class which all of these "VPE" cases belong to. It can certainly be imagined that there might in fact be more than one such natural class among what is currently being thought of as a homogenous grouping. We can note, along these lines, that the original conception of English VPE from Ross' (1967) dissertation groups it with English *do*

so and various other types of anaphora, which are now established (since at least Hankamer and Sag 1976) to be demonstrably different phenomena.

In the extended PF-Deletion account proposed in this thesis, significant weight was placed on the idea that Vs are obligatorily interpreted in their base positions. As was noted above, this ideally would have empirical substantiation independent of its efficacy for V-Stranding VPE, since this thesis was driven to this assumption on theory-internal grounds—despite having arisen in a logical sequence in order to account for attested data, and despite being clearly more successful than the LF Copying alternative.

Now, this can conceivably be turned around so that V-Stranding VPE is proposed to be *diagnostic* of the base-position interpretation of main Vs; this would be an especially welcome finding given that main Vs are notoriously resistant to tests such as scope which are commonly used to assess the semantic position of other elements. The basis for taking such a position would be strengthened should the Verbal Identity Requirement turn out to be an entirely systematic trait of every instance of VPE uncovered. Regardless, though, it remains a worry that the motivation for main V reconstruction is at this point based just on theory-internal factors; any source of independent empirical support for it would be very welcome at this point.[6]

Lastly, there is the far-reaching question of why a language does or does not have VPE—whether of the V-stranding or Aux-stranding variety. It seems reasonable to suppose that the construction's existence in a given language results from having a constellation of properties. Presumably, for instance, some traits of at least the inflectional system of the language should be

[6]It can be noted once again, however, that this set of worries disappears if all head movement turns out to be a phenomenon just of PF.

relevant.

However, while uncovering the clustering of traits which is *necessary* for a language to have VPE is likely an achievable task, it also seems conceivable (to me, at least) that determining what set of traits is *sufficient* for the language to have VPE might prove more elusive. Time will tell, and it is certainly clear that progress of any sort in illuminating this larger question should be possible now more than in the past due to the expanding the set of languages whose data can be brought to bear on it.

It may be notable that English, Hebrew, and Irish all allow the same primary-inflection-bearing element which is stranded in VPE (an auxiliary V in the case of English, and the main V for the latter two, in that case as options of VSO clausal ordering) to invert over the subject as well. It may be that the two result from some common factor in each language, and that that factor is *necessary* in order for VPE to exist. However, it cannot be posited that a language's allowing such inversion is *sufficient* to predict the existence of VPE, since both auxiliary and main V elements in e.g. the Romance languages can so invert, but nonetheless cannot be stranded in VPE.

With respect to what is necessary in order for VPE to exist, just having raising of a verbal element to Infl—i.e. V raising for V-Stranding VPE, and Aux raising for Aux-stranding VPE—is clearly not enough. Thus, Irish and Hebrew have both V raising and V-stranding VPE, but Romance languages like Italian, Spanish, French, and so on, and Germanic languages like German, Dutch, and so on, all have V raising (and, where Auxs exist, Aux raising), but all *lack* V-stranding or Aux-stranding VPE.

Conversely, the empirical case for Swahili having V-stranding VPE is quite tight, but the evidence that it also has V raising can be noted to be markedly less certain. V raising is not an

uncontroversial assumption within the Swahili literature. Further, Ngonyani's assumption of V raising is notably based on the sorts of adverbial and negation placement tests familiar from Emonds (1978) and Pollock (1989), and called into question by work including e.g. Fox and Nissenbaum (2003).

3. Final Remarks

On the whole, then, much work remains to be done. It is my hope, however, that this thesis has helped to illuminate what some of our next steps should be, and that the results reported here will be of help to future work aimed at achieving a deeper and more cross-linguistically informed understanding of the empirical and analytic underpinnings of the VP Ellipsis construction.

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