Now I'm a phase, now I'm not a phase: On the variability of phases with extraction and ellipsis*

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Abstract: Based on a number of cases where the status of X with respect to phasehood changes depending on the syntactic context in which X occurs the paper argues for a contextual approach to phasehood where the highest phrase in the extended projection of all lexical categories, Ns, Ps, As, and Vs (passive and active), works as a phase. The relevant arguments concern extraction and ellipsis. Regarding ellipsis, it is argued that ellipsis is phase-constrained: only phases and complements of phasal heads can in principle undergo ellipsis. I also provide evidence for the existence of several AspectPs, all of which have morphological manifestation, in the VP domain which crucially affect the phasehood of this domain. The paper provides a uniform account of a number of superficially very different constructions involving extraction and ellipsis from Serbo-Croatian, Japanese, Turkish, and English.

Keywords: phases, locality of movement, NP, ellipsis, aspect, P-stranding

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1. Introduction

This paper addresses the central question of the theory of phases: what counts as a phase. On Chomsky's (2000, 2001) original approach to phasehood, phasehood is in a sense rigid: the phase status of a category does not depend on its syntactic context; thus CPs and vPs are always phases. This goes counter to the spirit of the minimalist predecessor of phases, barriers (more precisely, blocking categories; barriers are predecessors of phases in the sense that both barriers and phases are crucially used in formulating opaque/non-opaque domains for extraction). In the barriers framework (Chomsky 1986a), whether or not a particular category is a barrier depends on its syntactic context. Thus, CP is sometimes a barrier and sometimes it is not, depending on its syntactic context: If a CP is located in object position, it is not a barrier (more precisely, an inherent barrier); on the other hand, if a CP is located in subject position, or if it is an adjunct, it is a barrier. In other words, while phases are defined rigidly, barriers are defined contextually, i.e. they are context sensitive. A number of authors have recently argued that phasehood should also be defined contextually, i.e. that the phase status of X can be affected by the syntactic context in which X is found (see Bobaljik and Wurmbrand 2005, Bošković 2005, den Dikken 2007, Despić 2011, Gallego and Uriagereka 2007a,b, M. Takahashi 2010, 2011, among others, for various approaches that belong to this line of research). This paper will argue for this approach to phasehood. More precisely, I will argue for a particular contextual approach to phasehood where the highest projection in the extended projection of a major (i.e. lexical) category functions as a phase. The approach is contextual because the amount of structure (including the highest phrase) projected by major categories can differ both crosslinguistically and in different constructions within a single language.

On the approach to phasehood argued for here Vs, Ns, Ps, and As all project phases. This will enable us to address a serious issue that the theory of phases has faced from its very inception: why some elements work as phases but others do not. Consider this issue with respect to Chomsky's original approach to phases, where CPs and vPs are assumed to work as phases. The obvious

question here is why CPs and vPs but not other phrases. Chomsky attempted to address the issue by adopting propositionality as the definition of phasehood, i.e. by arguing that phases are essentially syntactic reflexes of the semantic notion of proposition and that CPs and vPs, but not other phrases, are syntactic reflexes of propositionhood. This approach has well-known problems; it turns out that propositionhood simply does not yield the right cut (see, for example, Bošković 2002, Epstein and Seely 1999, 2006, Boeckx and Grohmann 2007).[1] However, even if the propositionhood approach were to provide the right cut we would still be facing the question of why propositionhood, and not another syntactic, semantic, or for that matter phonological property is not used as the defining property of phasehood (there are certainly numerous candidates here). In other words, the question of why phasehood is picky, i.e. why only some phrases work as phases, has never really been answered in a satisfactory manner. To address the question, a number of authors have either explicitly or implicitly argued that phasehood is actually not picky: every phrase counts as a phase (for relevant discussion, see Epstein and Seely 2002, Bošković 2002, Manzini 1994, Boeckx 2003, 2007, Boeckx and Grohmann 2007, Fox and Lasnik 2003, Müller 2010, among others). Conceptually, this is an appealing approach since it resolves the "choosing issue" (i.e. how to pick phases): there is nothing to choose here, everything functions as a phase. Although conceptually appealing, the approach does face some serious problems. For example, as noted by Boeckx and Grohmann (2007), given the by now standard assumption (see the discussion in section 2.1) that complements cannot move to the Spec position of the same phrase, the Phase-Impenetrability Condition (PIC), which was proposed by Chomsky to allow extraction out of phasal domains, can no longer help complements move out of phasal domains. In fact, if all phrases are phases, complements are rendered completely immobile.

[1]To mention here just one problem, noted in Bošković (2002), Chomsky argues that finite clauses (which are CPs) but not ECM infinitives (which are TPs) function as phases. Compare, however, the infinitive in *There seemed to have arrived someone* with the embedded finite clause in *It seemed there had arrived someone* or *It seemed someone had arrived.* The embedded finite clause seems to be no more of a proposition than the infinitive.

The general approach to phasehood argued for here, where all lexical categories project phases (so we find phases with VPs, NPs, PPs, and APs), trivially resolves the choosing issue: there is nothing to choose here.[2] It thus preserves to a considerable extent the major achievement of the every-phrase-is-a-phase approach. However, since it is the highest projection in the extended domain of VPs, NPs, PPs, and APs that works as a phase, the problem that arises under the every-phrase-is-a-phase approach noted above does not arise under the current approach: complements of Vs, Ns, Ps, and As can still undergo movement (we will, however, see below that in a few cases where these elements do not project any extended structure above their basic projections the complements actually cannot undergo movement, as expected).

I will provide a number of arguments that the same phrase that works as a phase in one syntactic context does not work as a phase in another syntactic context. As a result, we will end up with a superficially rather messy picture with a great deal of variation regarding what counts as a phase. We will, however, also see that there is order in the chaos. More precisely, I will argue that the superficially messy picture can be made sense of if it is the highest phrase in the extended projection of a lexical category that works as a phase. To illustrate, we will see a number of cases of the following type: X, which works as a phase, ceases to work as a phase when another phrase Y is added on top of X in the extended projection of the same lexical category (with X being the highest projection in this domain when Y is absent).

My argumentation will involve two domains: extraction and ellipsis. With respect to the former I will examine extraction of nominal complements corresponding to English *of* phrases in examples like (1), as well as extraction of complements of prepositions.[3]

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[2]The issue, however, will not be completely resolved since in this paper I will not address the phasehood of the clausal domain, where the standard assumption is that CP, but not TP, works as a phase. In other words, I will confine the discussion in this paper to domains below the level of a full clause; incorporating the clausal domain into the general approach to phasehood argued for here will have to be left for another occasion (for some discussion see section 3.2).

[3]The discussion will not be confined to English; I am only using English here to illustrate the phenomena to be discussed. A disclaimer is in order, however. I will only be discussing the aspects of the phenomena from (1)-(4) that are

(1) Of which city did you witness the destruction? (Huang 1982, Chomsky 1986b)

(2) Who did you look at?

As for ellipsis, I will examine ellipsis within traditional noun phrases, as in (3), as well as VP ellipsis in complex auxiliary/modal constructions, as in (4).

(3) I like Peter's book, and you like Bill's.

(4) Betsy must have been being hassled by the police, and Peter

a. *must too.

b. must have too.

c. must have been too.

d. *must have been being too. (Sag 1976)

Regarding ellipsis, I will argue that ellipsis is affected by phasehood.[4] More precisely, I will argue that ellipsis is crucially constrained by phases: only phases and complements of phase heads can be elided. The theory of phases enables us to privilege only two domains for ellipsis: the phase itself and the complement of a phase head (i.e. the spell out domain). There is, e.g., no natural way of privileging the complement of a complement of a phase head. I will argue that phases and complements of phase heads are indeed the only projections that can undergo ellipsis. This is a

directly relevant to the arguments given in this paper and the theoretical issues under consideration. In other words, as is standard in the works that are similar in scope to the current one, I will not be providing a comprehensive account of these phenomena, which would go way beyond the scope of this paper. In fact, due to space limitations I will not be able to provide a comprehensive discussion even of some aspects of the phenomena in question that are relevant to our current concerns, limiting myself to giving references where the reader can find relevant discussion whenever this is possible.

[4] A note is in order regarding terminology. I use the term ellipsis to refer to deletion processes where no overt material can follow the gap (apart from elements like *too*), as opposed to gapping, where overt material follows what appears to be elided (see Johnson 2009 on gapping). This paper only deals with ellipsis (in the above sense), not gapping.

rather constrained approach to ellipsis: the approach, e.g., disallows ellipsis of complements of non-phasal heads (which are themselves not phases).

The analysis presented here will also have consequences for the clausal structure of English, in particular the middle field located in between the phrases hosting the surface and the deep subject position (TP and vP), which I will also refer to as the aspectual domain given that it hosts aspectual elements *-en* and *-ing*. While I will argue that several functional projections can be present in this middle field, all these projections will be morphologically motivated; there will be no projections headed by null heads; in other words, what you see is what you get, an appealing state of affairs.

The central arguments for the-highest-phrase-is-a-phase approach involve extraction from, and ellipsis within, Traditional Noun Phrases (TNP, I will use the term TNP to refer to noun phrases without committing myself to their categorial status, i.e. functional structure that may be present above NP) in article-less languages. A number of authors have argued that the highest layer in the TNP of a language like English, DP, is missing in languages without article-less. As a result, in certain contexts these languages enable us to vary the actual size of the TNP. While TNPs are typically NPs in article-less languages, in certain contexts there are functional categories above NP. It turns out that the phasehood status of NP depends on whether or not another phrase dominates it, which provides a strong argument for the contextual approach to phasehood argued for here. I will therefore start the discussion by examining extraction from TNPs. In section 2.2 I discuss extraction from PPs. In section 3 I turn to ellipsis, starting with a general discussion of ellipsis and then turning to ellipsis within TNPs and finally to traditional VP ellipsis.

2. Extraction

In this section I will discuss extraction of complements of Ps and Ns, starting with the latter. The extraction of nominal complements will be used as a tool for determining phasehood of TNPs.

2.1 Phases in NPs

A number of authors have argued that Serbo-Croatian (SC), a language that does not have articles, does not have the DP layer (see Corver 1992, Zlatić 1997, 1998, Bošković 2005, 2008, 2010a, Marelj 2008, Despić 2011, in press, Runić 2011). In this system, possessives, which morphologically and syntactically in every respect behave like adjectives in SC (see Zlatić 1997, 1998, Bošković 2005, 2008, 2010a), are treated as NP adjuncts. One argument for this analysis, noted by Despić (2011, in press), is provided by the ungrammaticality of the examples in (6), which contrast with their English counterparts in (5) in that the pronoun and the name cannot be co-indexed. Given that the possessive is an NP adjunct, and that the language lacks DP, the possessor c-commands out of the TNP, which results in Condition B and C violations in (6).

(5) a. His$_i$ father considers John$_i$ highly intelligent.

b. John$_i$'s father considers him$_i$ highly intelligent.

(6) a. * [$_{NP}$ Kusturicin$_i$ [$_{NP}$ najnoviji film]] ga$_i$ je zaista razočarao.

Kusturica's latest movie him is really disappointed

'Kusturica$_i$'s latest movie really disappointed him$_i$.'

b. * [$_{NP}$ Njegov$_i$ [$_{NP}$ najnoviji film]] je zaista razočarao Kusturicu$_i$.

his latest movie is really disappointed Kusturica

It is worth noting that, as noted by Despić (2011), nothing changes in the presence of a demonstrative (7), which is then also treated as NP adjoined (demonstratives also behave like adjectives morphologically and syntactically (see Zlatić 1997, 1998, Bošković 2005, 2008, 2010a; however, they are treated differently from adjectives semantically, see Bošković 2010a). The same holds for adjectives, which also do not change relevant binding relations (8). The data in (6)-(8) thus receive a uniform account if possessives, demonstratives, and adjectives (which, as discussed in the references cited above, behave in the same way in a number of other respects) are NP adjoined and

the DP layer is missing in SC, a language without articles.

(7) a. *[$_{NP}$ Ovaj [$_{NP}$ Kusturicin$_i$ [$_{NP}$ najnoviji [$_{NP}$ film]]]] ga$_i$ je zaista razočarao.
this Kusturica's latest movie him is really disappointed
'This latest movie of Kusturica$_i$ really disappointed him$_i$.'

b. *[$_{NP}$ Ovaj [$_{NP}$ njegov$_i$ [$_{NP}$ najnoviji film je zaista razočarao Kusturicu$_i$.
this his latest movie is really disappointed Kusturica
'This latest movie of his$_i$ really disappointed Kusturica$_i$.'

(8) *[$_{NP}$ Brojni [$_{NP}$ Kusturicini$_i$ [$_{NP}$ filmovi]]] su ga$_i$ razočarali.
numerous Kusturica's movies are him disappointed

It is by now the standard assumption that the TNP in English is a phase. It seems natural to assume that this should quite generally be the case, i.e. that the TNP should be a phase in other languages too.[5] The same should then also hold for SC, where the TNP should then also be a phase. Recall now that the DP layer is missing in SC, SC TNPs being NPs. NP should then function as a phase in SC. A consequence of this is that extraction out of NP in SC will have to proceed via SpecNP, given the PIC, which requires that movement proceeds via phasal edges. Now, it is standardly assumed that complement to Spec movement is impossible, an assumption that has received a more general treatment in terms of anti-locality, a ban on movement that is too short.[6] Abels (2003) observes that

[5]In fact, this claim has been made for a number of languages with articles; for DP-as-a-phase analysis of English as well as other languages, see Bošković 2005, Chomsky 2000, 2001, Compton and Pittman 2007, den Dikken 2007, Despić 2011, Heck, Müller, and Trommer 2008, Gutierrez-Rexach and Mallen 2001, Hiraiwa 2005, Kramer 2009, Reintges and Liptak 2006, Svenonius 2004, Ticio 2003, Uchishiba 2006, among others; for reasons of space I simply refer the reader to the literature for relevant arguments (see also footnote 7).

[6]There is rather rich literature on anti-locality (the term is due to Grohmann 2003). I will simply assume here Bošković's (1994, 2005) approach to anti-locality, which requires movement to cross at least one phrase (which rules out complement-to-Spec movement within the same phrase). For all practical purposes, as long as Abels's generalization in (9) is not an issue, anti-locality will then not be a problem, given that only complements of phasal heads are forced to move to the Spec of the same phrase.

the PIC and anti-locality impose conflicting requirements on the extraction of phasal complements: the PIC requires such movement to proceed via SpecXP (with X being the relevant phase head), while anti-locality blocks such movement. The result is that phasal complements cannot move.

(9) Complements of phasal heads cannot undergo movement.

Abels (2003) provides strong evidence that this is indeed the case. As an illustration, he observes that IP that is dominated by CP, a phase, cannot undergo movement (11) (see Abels 2003 for additional evidence to this effect). As noted by Abels, this follows from an interaction of the PIC and anti-locality, with the PIC requiring IP movement through SpecCP ((10)b is ruled out by the PIC), and anti-locality blocking such movement because it is too short ((10)a is ruled out by anti-locality).[7]

(10) a. *$[_{CP}$ IP_i $[_{C'}$ C t_i b. *IP_i $[_{CP}$ $[_{C'}$ C t_i

(11) *[His mother likes Mary]$_i$ everyone believes that t_i

Now, if NP is indeed a phase in SC, as suggested above, we make a rather surprising prediction: NP complements of nouns should be immobile in SC. This surprising prediction is borne out. Typical

[7]From this perspective (see here Matushansky 2005), the impossibility of moving a complement of D, as in (i), can be interpreted as an argument for the phasal status of DP.

(i) *Books$_i$ he bought $[_{DP}$ some $t_i]$

German, however, allows such examples (the process in question is referred to as split topicalization.) In principle, this could be accounted for if German TNPs have a bit more structure than English TNPs, in which case examples like (i) in German would not have to involve movement of the complement of D, but a lower phrase. I will not, however, endorse this analysis here given that the subextraction analysis of German split topicalization faces numerous, well-known problems (one of them is that the fronted element corresponding to *books* in (i) is an independent TNP which can even have its own article). There are in fact a number of analyses of such constructions in German that do not involve subextraction from DP (for a survey of such analyses, see van Hoof 2006; see also Roehrs 2006 for yet another non-subextraction analysis). More generally, a detailed examination of examples like (i) crosslinguistically is beyond the scope of this paper since it would require discussion of a number of phenomena that are not of direct relevance to our concerns given that such examples may have various non-movement sources in some languages (one such source involves NP ellipsis in the in-situ "remnant" DP, which is available in some languages), and in some languages such examples are analyzable in terms of the quantifier float construction (with *some* a floating quantifier).

theme complements of nouns that are expressed as *of*-phrases in English are expressed as postnominal genitive complements in SC.[8] Zlatić (1997) observes that, in contrast to accusative complements of verbs, genitive complements of nouns cannot be extracted in SC.

(12) ?*Ovog studenta_i sam pronašla $[_{NP}$ sliku $t_i]$
this$_{GEN}$ student$_{GEN}$ am found picture$_{ACC}$
'Of this student I found the picture.'

(13) cf. Pronašla sam sliku ovog studenta.

The surprising immobility of genitive adnominal complements in SC can be straightforwardly accounted for if NP is a phase in SC. (12) is then just another instance of Abels's generalization and can be accounted for in the same way as other cases that fall under Abels's generalization: The PIC requires the genitive NP in (12) to move via SpecNP; this movement is, however, blocked by anti-locality. Notice also that the problem that arose with respect to (12) does not arise in (14), given the standard assumption that vP is projected above VP, and that vP, but not VP functions as a phase (see also section 3.2; the second lines gives the SC counterpart of the English example in (14).)

(14) This student_i, I $[_{vP}\, t_i\, [_{VP}$ teach $t_i]]$
Ovog studenta ja učim

Recall that SC adnominal complement genitive is expressed as an *of*-genitive in English. It is well-known that, in contrast to SC adnominal genitive, *of*-genitive complements in English can move.[9]

[8] These elements receive genitive case from the noun and must follow the noun, differently from the possessor in (6), which precedes the noun and agrees with it in case (and phi-features), just like adjectives do.

[9]The literature is actually split on the categorial status of the nominal complement in (15): some treat it as a DP (with *of* essentially being a case marker) and some treat it as a PP. It should be noted that, as shown in Bošković (2010b), SC does not have nominal PP complements; in SC PPs modify nouns only as adjuncts. In other words, in SC, a language which allows NP nominal complements, the nominal complement/argument treatment is reserved for NPs. For relevant discussion, see also Starke 2001: chapter 5, who (simplifying somewhat) ties traditional argumenthood to NPhood, or, more precisely, being case-marked; notice that English may not differ from SC in the relevant respect if in a case-poor

(15) a. Of which city did you witness the destruction? (Huang 1982, Chomsky 1986b)

b. Of whom do government employees see pictures every day (Bach and Horn 1976)

Given Abels's generalization, this can be taken to indicate that NP is not a phase in English. Do we then have here genuine crosslinguistic parameterization with respect to phasehood, with DP being the phase in English (see footnotes 5 and 7) and NP being the phase in SC? Recall now that English and SC differ with respect to the categorial status of the TNP: While TNP in English is a DP, in SC it is an NP. In light of this, SC and English can receive a unified treatment with respect to TNP phasehood if it is the highest projection in the extended domain of NP that counts as a phase: the highest projection in English is DP, hence DP functions as a phase, and the highest projection in SC is NP, hence NP functions as the phase. There is then no need to posit crosslinguistic variation with respect to phasehood here: the relevant differences are the result of independently motivated variation in the amount of structure that TNPs have in SC and English.[10]

Very strong evidence that this analysis is on the right track is provided by constructions in which additional structure is projected in SC TNPs. Despić's (2011, in press) binding test, discussed above, shows that SC TNPs are not always bare: certain numerals and quantifiers do project additional structure. When these elements precede a possessor they confine the binding domain of the possessor to the TNP. Thus, (16) contrasts with (6), (7), and (8) in that the coreference reading is

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language like English some prepositions count as case-markers, which is not the case in a case-rich language like SC, where prepositions are prepositions.

[10]It should be noted that in Bošković (in press) I have mistakenly argued that NP functions as a phase in German, based on the impossibility of extracting genitive NP complements in German (to account for this, I applied to the German case in question the PIC/anti-locality account of SC (12)). However, German also bans overt extraction of pre-nominal genitives that are not located in the nominal complement position, which indicates that we are dealing with a more general issue here. Furthermore, German allows QR of true genitive NP complements, as discussed in Bobaljik and Wurmbrand (in press). Given that the QR operation in question is constrained by the PIC/anti-locality, as the German QR data discussed by Bobaljik and Wurmbrand (in press) quite clearly show, it must then be the case that German genitive NP complements in fact can extract, in contrast to SC genitive complements (what is important is that such extraction is in principle possible; see Bobaljik and Wurmbrand (in press) for a suggestion regarding the cases where it is disallowed). German genitive NP complements then in fact provide evidence for the general approach to phasehood

allowed. In other words, the possessor apparently does not c-command out of the subject TNP in (16), in contrast to (6)-(8).[11] This indicates that the elements in question do bring in an additional projection. I will refer to this projection as QP below.[12]

(16) [$_{QP}$ Pet/Mnogo [$_{NP}$ Dejanovih$_i$ [$_{NP}$ prijatelja]]]] je došlo na njegovo$_i$ venčanje.
five/many Dejan's$_{GEN}$ friends$_{GEN}$ is came to his wedding
'Five of Dejan's friends came to his wedding.'

Now, if the highest projection functions as a phase, QP rather than NP should work as a phase in examples like (16). We then make a rather surprising prediction that (12) should improve with an addition of a quantifier/numeral. The surprising prediction is borne out; the extraction indeed improves with an addition of a numeral/quantifier. Thus, (17)a is better than (17)b, which indicates that NP is not a phase in the QP context, as expected under the highest-phrase-is-a-phase approach.

(17) a. Ovog studenta$_i$ sam pronašla [mnogo/deset slika t$_i$]
this$_{GEN}$ student$_{GEN}$ am found many/ten pictures$_{GEN}$
b. *Ovog studenta$_i$ sam pronašla sliku t$_i$
this$_{GEN}$ student$_{GEN}$ am found picture$_{ACC}$

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argued for here, where the highest projection within TNP works as a phase (in German, a DP language, this would be DP, not NP), not against it, as implied in the discussion in Bošković (in press).

[11]It is worth noting here that Japanese and Chinese, which also lack articles, behave like SC with respect to the binding possibilities of possessors, see Bošković (2010a), Cheng (in preparation), Takahashi (2011), and section 3.1.

[12](16) gives a somewhat simplified structure. As discussed in Franks (1994) and Bošković (2010b), the Q elements assign a special inherent case to the element that follows it. Bošković (2010b) shows that such inherent cases are generally accompanied by a null linker/preposition-like element that facilitates such case assignment. In other words, there is an extra functional projection between the QP and NP in (16), which I ignore here for ease of exposition. This projection (referred to as FP below), however, renders irrelevant for our purposes testing movement of the complement of the Q since such movement can actually involve movement of the NP complement of the null F head, which would void potential anti-locality violations (see Bošković 2010b for much relevant discussion; as discussed in that work, this is an interfering factor with inherent case-assigning contexts quite generally, which are therefore ignored here; notice

These data have rather important theoretical consequences; they help us tease apart the rigid, once a phase always a phase approach, where phasehood of a phrase does not depend on the syntactic context in which it occurs (see Chomsky 2000,2001), and the dynamic approach to phases, where what counts as a phase is determined contextually. Under the dynamic phasehood approach, a particular phrase can function as a phase in one, but not in another context; such a situation cannot arise under the rigid phasehood approach, where a phrase is always a phase (in all contexts), or never a phase (in any context). Taking for granted that NP is a phase in SC, given the ungrammaticality of (12), consider how numeral constructions would be treated under the rigid approach to phasehood and the particular implementation of the dynamic approach argued for here, where the highest phrase in the extended projection of the NP works as a phase. If the highest projection in a TNP counts as a phase (the dynamic approach), NP1 will work as a phase in (19), a representation of a non-numeral construction. However, NP1 will not work as a phase in (18), a representation of a numeral construction, under this approach (rather, QP will work as a phase).[13] On the other hand, if NP is always a phase (the rigid phasehood approach), NP1 should function as a phase in both (18) and (19). The data in (17) are in fact the actual illustrations of the abstract structures in (18)-(19) and they provide confirmation for the superiority of the dynamic approach.

(18) $[_{QP}\ [_{NP1}\ [_{NP2}$

(19) $[_{NP1}\ [_{NP2}$

To summarize the discussion of SC TNPs, there is a difference in the phasal status of NP in the QP and the non-QP context in SC: NP functions as a phase only in the latter context. This can be

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also that there is independent evidence that SC adnominal genitive is a structural, not an inherent case (the same actually holds for the case assigned by prepositions), see Bošković 2010b.)

[13] We cannot test the phasehood of QP with extraction here due to an interfering factor (see footnote 12), but relevant evidence to this effect will be discussed in section 3.1 with respect to ellipsis.

captured if the highest phrase in the TNP functions as a phase. Since in a QP context the highest phrase is QP rather than NP, NP does not function as a phase in this context even in an NP language like SC. As a result, the complement of *pictures* can be extracted in (17)a, where the NP headed by *pictures* is not a phase, in contrast to (17)b, where the NP headed by *pictures* is a phase. What we are seeing here is that the numeral essentially voids the phasehood of the NP (just like DP quite generally does it in English). That the numeral phrase has such an effect provides evidence for the highest-phrase-as-a-phase approach, where addition of a phrase on top of X within the same extended projection can change the phasal status of X.[14]

To summarize the discussion in section 2.1, English and SC as well as the seemingly different behavior of numeral and non-numeral contexts with respect to phasehood within SC receive a uniform account under the highest-phrase-as-a-phase approach, which furthermore does not require positing any variation with respect to phasehood of TNPs. In both English and SC, TNP (more precisely, the highest projection in the TNP) works as a phase. As a result, in English DP works as a phase; NP is not a phase. In SC, on the other hand, NP is sometimes a phase, and sometimes it is not. When NP is the highest projection in the TNP, it works as a phase; otherwise it does not. What was particularly informative in the above discussion was the possibility for varying the size of the TNP in the contexts where phasehood tests can be run in SC. The outcome of those tests has provided evidence for the contextual approach to phasehood; more precisely, it has provided evidence that the highest projection in a TNP works as a phase.

In the next section I discuss PPs, providing additional evidence for the

[14]Notice that although under the dynamic approach the phase status of NP, e.g., depends on its syntactic context, no look-ahead is required to accommodate the variable status of NP regarding phasehood. X can either move to the edge of NP or not; if X does not move to the edge of NP and no additional TNP structure is inserted above NP, which means the first merger is with e.g. a V, with V projecting and turning NP into a phase, X will not be able to move out of the NP. If the structure requires movement of X the structure will simply crash. The problem will not arise if X does move to the edge of NP before merger with the verb. Moreover, under Chomsky's (2001) definition of the PIC, X in the complement domain of an NP phase is actually able to move to SpecVP after the NP merges with the verb since PIC effects kick in only when a higher phase head, in this case *v*, is merged. No look-ahead problem then arises here.

highest-projection-as-a-phase approach. More precisely, it will be argued that, as in the nominal domain, the highest projection in the extended projection of PP functions as a phase.

2.2 Phases in PPs

In his discussion of languages that disallow P-stranding, such as SC (see Abels 2003 for diagnostics for true P-stranding), Abels (2003) argues that PPs are phases. P-stranding in (20) is then straightforwardly ruled out by the PIC/anti-locality conspiracy: the NP in (20) has to move to SpecPP, given the PIC, which in turn violates anti-locality. In other words, we are dealing here with another illustration of Abels's (2003) generalization that complements of phase heads do not move.

(20) *Njoj$_i$ on hoda prema t_i.

her he walks toward (SC)

What about languages like English, which allow P-stranding?

(21) What are you looking at?

Abels (2003) argues that PPs are not phases in English, hence the problem noted above with respect to SC does not arise in English. The discussion in section 2.1 opens up another way of looking at this issue. We have seen in section 2.1 that the apparent difference in the phasehood of NP between English and SC can be accounted for without positing any crosslinguistic parameterization in the theory of locality itself, i.e. regarding what counts as a phase. The strategy pursued in section 2.1 regarding superficial differences with respect to phasehood is that what is responsible for the variation with respect to locality is the amount of structure that is projected in a particular domain, which under the highest-phrase-is-a-phase dynamic approach affects phasehood without need to posit any crosslinguistic variation with respect to what counts as a phase. A natural way of accounting for the SC/English difference with respect to P-stranding that preserves Abels's account

of SC under this approach is that the relevant difference between English and SC is that English PPs have a richer structure than SC PPs (this possibility was in fact acknowledged by Abels 2003). If there is an additional projection above PP in English, call it XP, under the highest-phrase-is-a-phase approach XP rather than PP will work as a phase in English. As a result, the NP will have to move to SpecXP, not SpecPP, to satisfy the PIC, which will not involve an anti-locality violation.[15]

A strong argument that this type of analysis is on the right track is provided by Turkish. Turkish is particularly interesting in this context in that in Turkish some prepositions disallow and some prepositions allow P-stranding; in other words, we have both the SC pattern and the English pattern at work here within a single language. Significantly, P-stranding is allowed only where there is overt evidence for rich internal PP structure. More precisely, as noted by Şener (2006), Turkish, which normally disallows P-stranding, allows P-stranding when there is evidence for a richer PP structure. Thus, P-stranding is disallowed in (22)a, containing a simple preposition, but allowed in (22)b, involving a complex preposition which contains an agreement morpheme.

(22) a. * Biz $[_{NP}$ Pelin-in arkadaş-ı$]_i$ dün $[_{PP}$ t_i **için**] para topla-dı-k.
we$_{NOM}$ Pelin$_{GEN}$ friend$_{POSS}$ yesterday for money collect$_{PAST.1PL}$
'Yesterday, we collected money for Pelin's friend.'

b. Ben araba-nın$_i$ dün $[_{PP}$ t_i **önün-de**] dur-du-m.
I$_{NOM}$ car$_{GEN}$ yesterday in.front.of$_{3SG.POSS.LOC}$ stand$_{PAST.1SG}$
'Yesterday, I stood in front of the car (not behind it).'

The anti-locality analysis of SC adopted above can be straightforwardly applied to (22)a: Since PP

[15]The conclusions reached here about the structure of SC PPs, which follow Abels's bare PP line of research, conflict with the conclusions reached by Radkevich (2010), who assigns SC PPs richer internal structure. I leave it open how to reconcile the two (note that the two lines of research are motivated by very different phenomena and theoretical

is a phase, P-complement must move to SpecPP, which yields an anti-locality violation (see (23)a). The problem will not arise in (22)b under the highest-phrase-is-a-phase approach if the PP has a richer structure here, as indicated by its morphological make-up. Şener (2006) in fact posits three projections within the PP, as in (23)b (note, however, that one additional projection suffices for our purposes), in contrast to (22)a, where Şener (2006) argues for a simple PP structure. Given that the highest phrase within the extended PP projection counts as a phase, movement of the complement of the preposition then does not yield an anti-locality violation in this case (see (23)b).

(23) a. $[_{PP}\ NP_i\ [\ _{P'}\ t_i]$ b. $[\ NP_i\ [_{AgrP}\ \ [\ _{PP}\ t_i\ ]]]$

What we are witnessing here is the same pattern as the one discussed in section 2.1 with respect to extraction from SC TNPs. Recall that movement of a nominal genitive complement in SC is unacceptable, but addition of extra structure on top of NP improves such extraction. We have the same situation with P-stranding in Turkish: movement of the P-complement in Turkish is disallowed, but addition of extra structure improves such extraction. If the original unacceptable examples are to be treated in terms of phasehood, we have here strong evidence for the contextual approach to phasehood: the phasehood of XP changes with an addition of YP on top of it. Given that in both the Turkish and the SC case XP and YP belong to the same extended projection, the data under consideration receive a unified account if the highest phrase in the extended projection of a major category (PP and NP in the examples under consideration) counts as a phase.

Turkish is important in that it gives us a clue regarding what may be behind the crosslinguistic variation with respect to the availability of P-stranding: it's the richness of PP structure. Since Turkish exhibits both the SC pattern and the English pattern, extending the account of the two

concerns). For criticism of several exploded PP analyses proposed in the literature, see Abels (2003) (see also Abels 2009 for criticism of the mainstream cartographic approach in general, which is not adopted in this paper).

patterns in Turkish to SC and English seems to be a natural move. This in turn means that English, and P-stranding languages in general, have a richer PP structure than non-stranding languages (which does not have to be transparent morphologically the way it is in Turkish), as a result of which the anti-locality problem that arises with P-stranding in languages like SC does not arise in English. This analysis departs from Abels (2003), who does not assume a structural difference between English and SC. He in fact assumes a bare PP structure for both, placing the relevant point of variation in the domain of phases: PP is a phase in SC, but not English. This parametric approach has a difficulty handling Turkish, where it appears that both (in fact conflicting) values of the parameter in question would have to be posited for a single language. The problem does not arise under the above analysis, which also captures in a natural way the relevance of the richness of PP structure for P-stranding that is overtly manifested in Turkish. Furthermore, the above analysis is in line with the overall approach adopted here, which does not posit any crosslinguistic differences with respect to phasehood, the relevant locality differences resulting from structural differences, i.e. the amount of structure languages project within particular phrases. Significantly, Drummond, Hornstein, and Lasnik (2010) provide very interesting evidence that the traditional PP (TPP) is indeed a phase in English. This favors the above analysis, on which TPP is a phase even in English.

Another otherwise puzzling set of facts can also be accounted for under the current analysis. It is well-known that prepositions can also take PP complements in English. Interestingly, as observed by Hornstein and Weinberg (1981), a PP complement of P cannot be extracted in English, as in (24).

(24) a. They took a shot at him from behind that car.

b. *[Behind which car]$_i$ did they take a shot at him from t_i (Cinque 1990)

If the additional PP structure is case/agreement related, as was in fact suggested by Şener (2006) for Turkish, we may expect it not to be present when a P takes a PP complement. (24)b can then be

easily ruled out by the PIC/anti-locality: Due to the absence of the higher structure (referred to below as XP), the higher PP functions as a phase in (24), as a result of which movement of the PP complement of the higher P inevitably violates either the PIC or anti-locality (see (25)).

(25) $[_{PP1}\ [_{PP2}$ Behind which car$]_i\ [\ _{P1'}$ from $t_i]]$

An obvious alternative would be that the PP in (24) is an island. However, if the PP were an island then no extraction out of it should be possible. Significantly, the second preposition can be stranded in this type of examples, as in *Which car did they take a shot at him from behind*.[16] This is exactly what is predicted under the analysis suggested above (see (26)): XP is present above PP2 given that the head of PP2 takes an NP complement. XP rather than NP then functions as a phase here. NP can move to SpecXP without violating anti-locality (see footnote 6). Given the PIC, from this position the NP must move to the Spec of the higher PP, which is a phase, as discussed above. This movement is, however, also legitimate with respect to anti-locality (i.e. it does not violate Abels's generalization). The relevant part of the structure is given below, with the phases given in bold.

(26) $[\mathbf{_{PP1}}\ [_{NP}$ Which car$]_i\ [\ _{P'}$ from $[\mathbf{_{XP}}\ t_i\ [_{PP2}\ [\ _{P'}$ behind $t_i]$

To summarize, I have argued that the richness of the internal structure of TPP has the same effect on the extraction out of TPPs as the richness of the internal structure of TNP has on the extraction out of TNPs. These extractions patterns can be all unified under the highest-phrase-as-a-phase approach, which furthermore enables us to account both for crosslinguistic variation and for variation within individual languages with respect to extraction out of TNPs and TPPs discussed above without

[16]See also Abels (2003) for a more general point that the impossibility of P-stranding in languages that quite generally disallow it cannot be handled by assuming that PPs are quite generally islands in such languages.

positing any variation in phasehood itself: NPs and PPs always project phases, with the highest phrase in the extended projection of N and P working as a phase.

3. Ellipsis

I now turn to ellipsis. I will show in this section that the possibilities for ellipsis provide additional evidence for the highest-phrase-as-a-phase approach. In addition to further investigating the issues that I have been concerned so far, in this section I will also argue that ellipsis is phase-governed, i.e. that it is constrained by phases. More precisely, I will argue that only phases and complements of phase heads can be elided, which gives us a rather constrained theory of ellipsis (see also footnote 4). The theory of phases enables us to privilege only two domains for ellipsis: the phase itself and the complement of a phase head (i.e. the spell out domain). There is, e.g., no natural way of privileging the complement of a complement of a phase head. A comparison with Case and X-bar theory may be helpful here. For a while it was a standard assumption that Case can only be licensed under core X'-theoretic relations. This means that a head can assign Case to its Spec and to its complement, but not to the Spec of its complement. This approach led to a particular analysis of ECM in early minimalism; with ECM, a verb appears to assign case to the Spec of its complement, which is not a core X-bar theoretic relation. This has then prompted a re-analysis of ECM constructions where the object undergoes movement that brings it into a core X-bar relation with the higher verb (Spec-Head). In other words, assuming that Case is assigned in core X-bar theoretic configurations allows X to assign Case to its Spec and complement, but not to the Spec of its complement. That gave us a rather constrained theory of Case assignment.[17] Returning to phases, as noted above, assuming that phasehood constrains ellipsis, we can privilege only two domains for ellipsis: the phase itself and the complement of the phase head. I will argue that phases and complements of

[17]Whether this is the correct approach to Case assignment (the issue is actually far from being settled) is beside the point; I am merely giving here an illustration regarding how the domain of a particular phenomenon can be constrained.

phase heads are indeed the only projections that can undergo ellipsis. This is a rather constrained approach to ellipsis which, e.g., disallows ellipsis of complements of non-phasal heads.

There is also rather straightforward empirical evidence that phases and complements of phase heads can undergo ellipsis. It is quite clear that ellipsis of phase complements is in principle possible (see here Boeckx 2009, Gengel 2009, Takahashi 2011, among others). The most straightforward example of such ellipsis is sluicing, which involves IP ellipsis, i.e. ellipsis of the complement of C, a phasal head.

(27) They arrested someone, but I don't know [$_{CP}$ who C ~~[$_{IP}$ they arrested]]~~

Another relevant example concerns NP ellipsis cases like (28), given the assumption that DP is a phase. (28) then involves ellipsis of the NP complement of the D phase head.

(28) You like Jane's book, and I like [$_{DP}$ Peter' s ~~[$_{NP}$ book]]~~

It is also clear that ellipsis of full phases needs to be allowed. Many languages allow so-called argument ellipsis. Thus, Kim (1999), Oku (1998), Saito (2001, 2004, 2007), Şener and Takahashi (2009), Sugawa (2008), D. Takahashi (2008a, b, 2010), Bošković (2011), Takita (to appear a,b), Cheng (in preparation) show that argument ellipsis is allowed in Japanese, Korean, and Chinese. Consider (29)-(30). The null object in Japanese (29) can have either the strict or the sloppy reading, i.e. Hanako can respect either the same teachers Taro does, or different teachers. Pronouns do not support sloppy readings in this context, while ellipsis does; thus, whereas (30)b (as a response to (30)a) does not allow the interpretation where Mary respects different teachers from John, (30)c allows such interpretation. This is one of the arguments given in the literature that Japanese has argument ellipsis, i.e. that (29) involves a full NP object that undergoes ellipsis (notice that (30)d allows sloppy interpretation) rather than a phonologically null pronoun. (The alternative analysis

would be that (29) involves remnant VP ellipsis, with the V undergoing movement out of VP prior to ellipsis (see Otani and Whitman 1991); there is, however, conclusive evidence that argument ellipsis cannot be reduced to remnant VP ellipsis, see the references given above).

(29) a. Taroo-wa sannin-no sensei-o sonkeisiteiru.
Taro-Top three-Gen teacher-Acc respects
'Taro respects three teachers.'

b. Hanako-mo e sonkeisiteiru.
Hanako-also respects
'(Lit.) Hanako respects e, too.' (Japanese, Şener and Takahashi 2009:3)

(30) a. John respects three teachers.

b. Mary respects them, too.

c. Mary does, too.

d. Mary respects three teachers.

Japanese in fact allows ellipsis of all arguments, TNPs, CPs, and PPs (see e.g. Saito 2007, D. Takahashi 2010). As discussed above, these projections in fact correspond to phases; argument ellipsis thus involves phasal ellipsis. I conclude, therefore, that ellipsis of full phases is also in principle possible.[18]

[18]Many languages, including English, seem to disallow argument ellipsis of the kind illustrated by Japanese (29). It is not quite clear what is responsible for this (for relevant discussion, see Oku 1998, Saito 2007, Şener and Takahashi 2009, M. Takahashi 2010, Cheng in preparation); it may in fact be necessary to divide phasal ellipsis into argument and non-argument ellipsis to account for this state of affairs. Note, however, that if right node raising involves ellipsis, as argued by many authors (e.g. Wexler and Culicover 1980, Kayne 1994, Wilder 1997, Hartmann 2000, Bošković 2004b, An 2007), it must be the case that English actually allows argument ellipsis in the context of right node raising, since right node raising can clearly affect arguments (cf. *John likes ~~Susan~~, and Peter dislikes, Susan* and *John believes ~~that Mary will leave~~, and Peter does not believe, that Mary will leave*). Having to block argument ellipsis in some, but not all contexts within a single language further complicates the situation here. At any rate, it is beyond the scope of this paper to deal with this issue. The point of this section is simply to determine what kind of ellipsis processes are *in principle* possible; i.e. what kind of ellipsis UG in principle needs to allow; how to block some of the options that are in principle available in particular languages or constructions is an independent issue. (Lobeck 1990/Saito and Murasugi's 1990 requirement that functional heads whose complements are elided must undergo spec-head agreement might be relevant

To sum up, it is clear that both phasal ellipsis and ellipsis of phasal complements are in principle possible. Obviously, not all languages avail themselves of all the possibilities for ellipsis. Thus, it is well-known that many languages for no apparent reason disallow vP ellipsis, which is allowed in English. Why some options are not used or are restricted to particular contexts in some languages is a serious but an independent issue from the one we are dealing with here.[19] The goal of this paper is to establish what kind of ellipsis is in principle available, i.e. has to be allowed by the grammar (see footnote 18).

3.1. NP ellipsis in Japanese

In this section I will discuss ellipsis within Japanese TNPs. We will see that certain data regarding NP ellipsis in Japanese provide additional evidence that the highest phrase in the extended projection of an NP functions as a phase. What is particularly interesting is that Japanese basically replicates the paradigm we have seen above in the discussion of extraction out of SC TNPs but with respect to a very different phenomenon, namely ellipsis. The phenomenon under consideration is illustrated by (31), which involves partial TNP ellipsis with a possessor remnant.[20]

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here. This requirement is independent of our concerns in the sense that it is an additional requirement imposed on the functional heads whose complements can be in principle elided under the current proposal; more precisely, some phases/phasal complements might be prevented from undergoing ellipsis because they are complements of functional heads that do not undergo spec-head agreement (there are many other factors that can rule out ellipsis of some phases/phasal complements, e.g. such ellipsis could leave a stranded affix). It should be, however, pointed out that the nature of this requirement is rather ill understood (but see Bošković 2010a for an attempt to derive it), and that there are exceptions to it (see footnote 25. Note also that it is shown in Bošković 1997b, 2007 that C's whose Spec is filled by a wh-phrase as a result of successive cyclic movement do not license ellipsis of their complement due to the failure to satisfy the Lobeck/Saito and Murasugi requirement. Since in a number of cases of intermediate VP ellipsis discussed in section 3.2. the only way the Spec of the functional category whose complement is elided can be filled is via successive cyclic movement, we would then need to conclude either that the Lobeck/Saito and Murasugi requirement, which anyway has exceptions, does not hold in this domain, or that successive cyclic A-movement differs from successive cyclic A'-movement with respect to the possibility of satisfying the Lobeck/Saito and Murasugi requirement).

[19] It is actually possible that this is not much different from the well-known variation with respect to overt movement: English has wh-movement, but Japanese does not (in most contexts). The fact that some languages have overt wh-movement indicates that such operation has to be in principle allowed by the computational system.

[20] Saito, Lin, and Murasugi (2008) (SLM) provide a DP account of (31) that is crucially based on an argument-adjunct asymmetry regarding what kind of elements survive the ellipsis. More precisely, their crucial assumption is that examples like (31) involve movement of an argument to SpecDP, followed by NP ellipsis, hence only arguments can survive such ellipsis under their analysis. However, Takahashi (2011) shows that the underlying generalization cannot be maintained as adjuncts can survive such ellipsis, which provides evidence against the crucial ingredient of SLM's

(31) [Taroo-no taido-wa] yo-i ga, [$_{TNP}$ Hanako-no [$_{NP}$ ~~taido~~]-wa]
Taro-Gen attitude-Top good-pres though Hanako-Gen attitude-Top
yoku-na-i.
good-not-Pres
'Though Taro's attitude is good, Hanako's isn't.' (Saito, Lin, and Murasugi 2008: 253)

Partial TNP ellipsis is also possible with numerals, i.e. such ellipsis can also strand numerals.[21]

(32) Amerikagun-wa nizyu-pun-no kougeki-o keikakusi-ta-ga (Takahashi 2011)
U.S. Army-Top 20-minute-Gen attack-Acc plan-Past-though
nihongun-wa [rokuzyu-pun-no [~~kougeki~~]-o] keikakusi-ta.
Japan Army-Top 60-minutes-Gen attack-Acc plan-Past
'lit. the U.S. army planned attack of 20 minutes, but the Japanese army planned attack of 60 minutes

(33) Taroo-wa yon-satsu-no hon-o kat-ta ga, sono-uti
Taro-Top four-CL-Gen book-Acc buy-Past though that-out.of
[ni-satu [~~hon~~]-o] sudeni yomi-oe-ta.
two-CL book-Acc already read-finish-Past
'Taro bought four books, but he already finished reading two of them.' (Watanabe 2010)

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analysis. Some data are given in (i)-(ii) below (the remnant in (ii) is a relative clause); notice also that the possessor in (31) needs to be analyzed as an adjunct given that Japanese possessors pattern with SC possessors with respect to the binding tests discussed in section 2.1 (see below). Additionally, as discussed in Takahashi (2011), examples in (32)-(33) are also problematic for SLM's analysis.

(i) Sin-no sinnen-wa kawar-anai-ga, nise-no ~~sinnen~~-wa sugu kawa-ru
true-Gen conviction-Top change-not-though fake-Gen conviction-Top easily change-Pres
'The true conviction never changes, but the fake (one) easily changes.' (Kadowaki 2005: 194)

(ii) [John-ga su-ru-tumori]-no kougeki-wa seikousu-ru-darou-ga (Takahashi 2011)
John-Nom do-Pres-intend-Cop attack-Top succeed-Pres-probably-though
[Mary-ga su-ru-tumori]-no ~~kougeki~~-wa seikousi-na-i-darou.
Mary-Nom do-Pres-intend-Cop attack-Top succeed-Neg-Pres-probably
'lit. An attack John intends to do will probably succeed, but an attack that Mary intends to do probably will not succed.'

[21]There are some restrictions on the occurrence of *no* with such ellipsis that are not relevant to the main point of this section, see Takahashi (2011) (Takahashi also gives an account of *no* which readily fits into the system adopted here).

Note now that, as noted in Bošković (2010a) (see also Cheng in preparation and Takahashi 2011), Japanese, an article-less language, patterns with SC regarding the binding tests from section 2.1, which provides evidence that a projection is present above the possessor only with the numerals.[22] Following the account of SC from section 2.1, the possessor would be NP adjoined in both (34) and (35). However, a QP above the NP in (35) confines the c-command domain of the possessor in (35).

(34) a. *Kurosawa$_i$-no saisin-no eega-wa hontooni kare$_i$-o rakutans-ase-ta.
Kurosawa-GEN latest-GEN movie-Top really him-ACC disappoint-cause-past
'Kurosawa's latest movie really disappointed him'

b. *Kare$_i$-no saisin-no eega-wa hontooni Kurosawa$_i$-o rakutans-ase-ta.
Him-GEN latest-GEN movie-Top really Kurosawa-ACC disappoint-cause-past
'His latest movie really disappointed Kurosawa.' (Bošković 2010a)

(35) a. Go-nin-no John$_i$-no tomodachi-ga kare$_i$-no kekkonsiki-ni kita
five-CL-GEN John-GEN friends-NOM he-GEN wedding-DAT come
'Five of John's friends came to his wedding.' (Bošković 2010a)

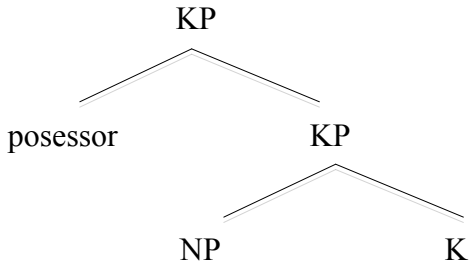
b. Go-nin-no kare$_i$-no tomodachi-ga John$_i$-no kekkonsiki-ni kita.
5-CL-gen he-nom friends-nom John-gen wedding-dat came

Note, however, that the topic particle in (31) survives ellipsis (case particles survive it too). Since the particle survives ellipsis it appears that we need to place it in a separate projection outside of the ellipsis site, which is the NP. Takahashi argues that topic/case particles in Japanese are located in

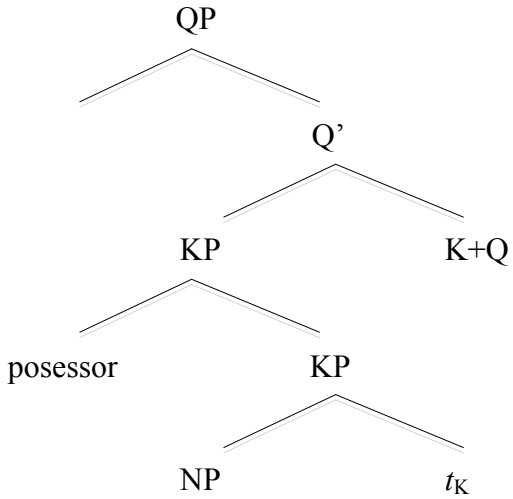
[22] For some (but not all) speakers of Japanese relational nouns behave differently from nouns like the one in (34). For an account of such constructions see Takahashi (2011), who, following Partee and Borshev (1998), shows that for these speakers the possessor with relational nouns is a true argument (i.e. a complement, not an adjunct). I put this case aside

the head position of KP (which takes NP as its complement), moving to Q in (32)-(33).[23] The possessor is then adjoined to KP (instead of to NP, as in SC), which enables us to extend Despić's account of the binding properties of possessors in SC to Japanese—a KP adjoined possessor c-commands out of the TNP in (36) but not in (37).

(36)



(37)



Given this much background, let us turn to the account of (31). The crucial ingredients of the account are the following assumptions.[24] [25]

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below; see Takahashi (2011) for discussion of ellipsis with such nouns. (Takahashi shows that ellipsis is not possible in this case, which is not surprising given the N complement status of the possessor; see the discussion below.)

[23] It should be noted that I do not assume that KP is necessarily present in all languages, not even languages with overtly realized case. Japanese case markers have a rather special behavior and differ in many respects from, e.g., SC case inflection (note that they can even be free-standing, see footnote 25). In fact, a number of authors have argued that some or all Japanese case markers should not be treated as morphological realization of abstract case, but rather a different phenomenon often referred to as contextual markers or simply a different type of nominal inflection (see, e.g. Fukui and Sakai 2003, An 2009, Saito 2011). In other words, case in fact may not be the appropriate term at all for the elements in question (recall that the relevant elements do not comprise only the traditional case markers but also the topic marker *–wa*), which in fact do not seem to be present at all in a language like SC.

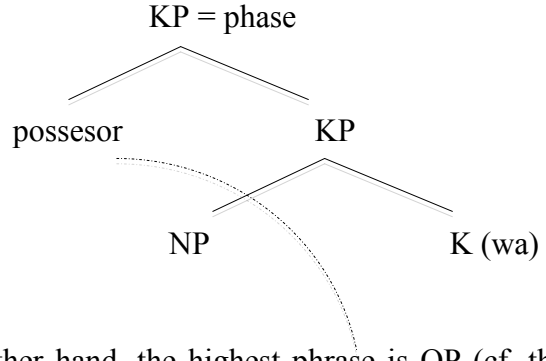
[24] In the alternative account of the Japanese NP ellipsis data given in Takahashi (2011) (where Case is assumed to determine phasehood), it was assumed that only complements of phase heads can be elided (see also Boeckx 2009,

(38) a. Only phases and complements of phase heads can undergo ellipsis.

b. The highest projection in a TNP is a phase.

(38)a was discussed in section 3, while (38)b is the main claim of this paper. Consider now (31) in light of (38). In (31), KP is the highest projection in the TNP involving ellipsis, hence a phase. (31) then involves ellipsis of the complement of a phase head, in accordance with (38)a.

(39)



In (32)-(33), on the other hand, the highest phrase is QP (cf. the binding data in (34)-(35)). This projection, rather than KP, then functions as a phase here, given (38)b. The example then again

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Gengel 2009). This assumption in fact suffices to account for the Japanese data discussed in this section. The relevant pieces of structure discussed in this section involve only one phase, which furthermore dominates the elided phrase. There is then no possibility of eliding the whole phase. Recall, however, that Japanese allows ellipsis of full arguments, which are phases (cf. (29), which involves ellipsis of the full TNP phase, in particular QP). We thus independently need to allow for the possibility of phasal ellipsis in Japanese to account for the availability of argument ellipsis in the language. We will see in section 3.2. that this possibility also needs to be allowed in order to account for the distribution of VP ellipsis in English.

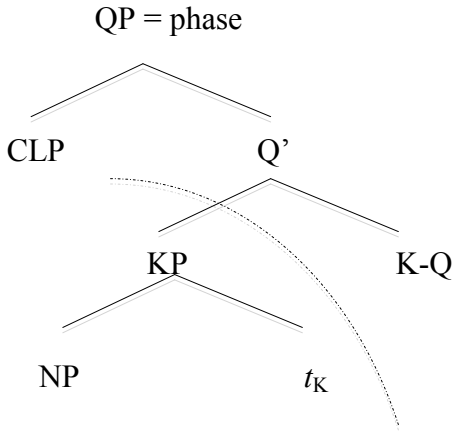
[25] According to Takakashi (2011), ellipsis of the complement of a phasal head in Japanese also requires phonological realization of the edge of the relevant phase head, which is a restatement of the Lobeck (1990)/Saito and Murasugi's (1990) Spec-Head requirement on ellipsis (see footnote 18; for Lobeck/Saito and Murasugi, a functional head whose complement is elided needs to undergo Spec-Head agreement; for Takahashi, such heads need to have a phonologically realized edge (Spec or adjunct)). It should be noted, however, that the phonological realization/Spec-Head agreement requirement does not hold in all cases for the Japanese ellipsis construction under consideration (see Sato and Ginsburg 2007, Sato 2011, Otaki 2011), as illustrated by (i) (topic particle *–wa* can also be stranded this way):

(i) Naomi-mo moo tsuki-masi-ta ka?
Naomi-also already arrive-Pol-Past Q
'Has Naomi already arrived?'
~~Naomi~~ -Ga mada tsuki-mase-n
Naomi-Nom yet arrive-Pol-Neg
'She has not arrived yet.'

Since such constructions have limited distribution I leave the issue in question (whether the Lobeck/Saito and Murasugi's Spec-head agreement requirement or Takahashi's edge version of it holds) open here (note that the Lobeck/Saito and Murasugi requirement has been claimed not to hold exceptionally anyway, see, e.g., Saab 2009 and Aelbrecht 2010 for relevant discussion).

involves ellipsis of a phase head complement, in accordance with (38)a.[26]

(40)



The crucial data, noted by Takahashi (2011), are given in (41)-(43), (41) being the antecedent sentence for the examples in (42)-(43), which involve ellipsis.[27] As (42)-(43) show, when both QP and a KP possessor are present, the QP element can survive ellipsis, but the possessor cannot.

(41) A sensei-wa subete-no Taroo-no tikoku-o yurusi-ta.
Pro. A-Top all-Gen Taro-Gen tardiness-Acc forgive-Past
'lit. Prof. A forgave all Taro's tardiness.'

(42) *B sensei-wa hotondo-no Ziroo-no ~~tikoku-~~o yurus-anakat-ta.
Prof.B-Top most-Gen Ziro-Gen tardiness-Acc forgive-Neg-Pat
'lit. Prof. B didn't forgive most of Ziro's tardiness.'

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[26] Following Takahashi (2011), I place *rokuzyupuno/nisatu* in SpecQP.

[27] Recall that some quantifiers are located in QP in SC. Takahashi argues that this also holds for Japanese, and places *subete* in the Spec of QP. The lack of a binding violation in (i-ii), which patterns with (35) and contrasts with (34) and (iii) in the relevant respect, confirms that an extra projection is present above KP with this quantifier.

(i) Subete-no John$_i$-no tomodachi-ga kare$_i$-no kekkonsiki-ni kita.
all-gen John-gen friends-nom he-gen wedding-dat came
'All of John's friends came to his wedding.'

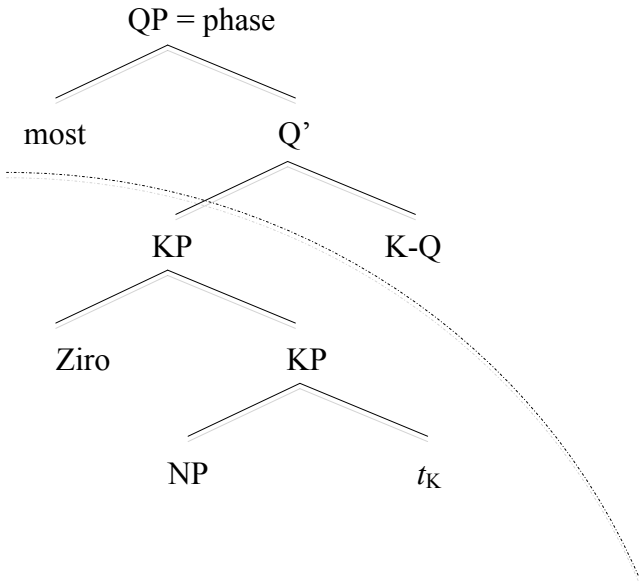
(ii) Subete-no kare$_i$-no tomodachi-ga John$_i$-no kekkonsiki-ni kita.
all-gen he-gen friends-nom John-nom wedding-dat came
'All of his friends came to John's wedding.'

(iii) cf. *Kare$_i$-no tomodoachi-ga John$_i$-no kekkonsiki-ni kita.
he-gen friends-nom John-gen wedding-dat came

(43) B sensei-wa hotondo ~~Taroo-no tikoku-~~o yurus-anakat-ta.
Prof.B-Top most Taro-Gen tardiness-Acc forgive-Neg-Past
'lit. Prof. B didn't forgive most of Taro's tardiness.' (Takahashi 2011)

This is exactly what is expected under the highest-phrase-is-a-phase approach: In this context QP is the phase (QP is the highest phrase in the TNP), hence KP, its complement, can be elided, which yields (43) (see the structure in (44)).

(44)



Notice, however, that, in contrast to (31)/(39), where KP is the highest phrase in the TNP hence its NP complement can be elided, KP is not the highest phrase in the TNP in (42)-(43) (see the structure in (44)), which means that KP does not function as a phase in (42)-(43). As a result, the NP complement of KP in (42)-(43) is not a phasal complement hence it cannot be elided, in contrast to the NP complement of K in (31) (compare the structures in (39) and (44)). As a result, the possessor cannot survive ellipsis in (42), in contrast to (31).

The data under consideration provide strong evidence for the claim that the highest head in a

'His friends came to John's wedding.'

TNP functions as a phase, and for the contextual approach to phasehood in general. As discussed above, this approach provides a straightforward explanation for why NP can be elided in (31) (and (43) as part of a larger ellipsis operation) but not in (42) (i.e. why the possessor can survive ellipsis in (31) but not in (42)). Most importantly, we now have converging evidence from two very different domains. Japanese ellipsis basically replicates the paradigm discussed with respect to extraction from TNPs in SC: adding the same elements that change the possibilities for extraction out of SC TNPs changes the possibilities for ellipsis within Japanese TNPs, in fact in pretty much the same way. (Recall that the elements in question also change binding relations in exactly the same way in both Japanese and SC.) The highest-projection-as-a-phase analysis enables us to explain the SC extraction paradigm and the Japanese ellipsis paradigm in exactly the same way, unifying the two phenomena.

3.2. VP ellipsis

I now turn to complex VP ellipsis in English. The goal will be to account for the data in (4) noted by Sag (1976), repeated here with the elided part indicated.

(45) *Betsy must have been being hassled by the police, and Peter must ~~have been being hassled.~~

(46) Betsy must have been being hassled by the police, and Peter must have ~~been being hassled…~~

(47) Betsy must have been being hassled by the police, and Peter must have been ~~being hassled…~~

(48) *Betsy must have been being hassled by the police, and Peter must have been being ~~hassled.~~

I emphasize here that my goal in this section is not to provide a comprehensive account of the full paradigm pertaining to the domain of VP ellipsis in English (hence I will not discuss alternative approaches); rather, I will focus here on certain constructions that will help us shed light on the larger theoretical issues that are the main topics of this paper which concern the theory of phases and the theory of ellipsis, namely what exactly counts as a phase and what determines the

possibilities for ellipsis.[28] Regarding the former issue, I will use VP ellipsis to investigate how the general contextual approach to phases argued for so far applies to the VP domain (which will require investigating the issue of where the verbal phasal domain stops). Regarding the latter issue, in line with the discussion in the beginning of sec. 3, I will argue that the VP ellipsis constructions considered here confirm that ellipsis is phase-constrained; furthermore, these constructions require that complements of phasal heads as well as phases themselves be in principle elidable.

In the following sections I will lay down the ingredients for the analysis of (45)-(48) to be proposed below.[29]

3.2.1. Ellipsis and phases

We have seen above that if ellipsis is determined by phasehood, only phases and complements of phasal heads can in principle undergo ellipsis; phrases that are neither phases nor complements of phasal heads cannot undergo ellipsis. This approach will be tested below with respect to ellipsis in

[28]I will not discuss infinitives here since there is disagreement in the literature regarding when ellipsis is possible within infinitives even in basic cases without auxiliaries (and it would be way beyond the scope of the current paper to settle those factual disagreements); compare, for example, Wurmbrand (2011), where it is claimed that basic ellipsis is possible pretty much in all types of infinitives (which can be easily incorporated into the current system), with Martin (2001), where it is claimed that basic ellipsis is disallowed in several types of infinitives (which, if correct, would require additional but rather straightforward assumptions within the system proposed below; for relevant discussion of ellipsis in infinitives see also Johnson 2001 and references therein). An additional complicating factor regarding infinitives is that it is not quite clear where *to* is located (it is standardly placed in T, but see Wurmbrand 2001). I will also not discuss ellipsis in gerunds, which is subject to additional constraints not discussed here and also displays considerable speaker variation (see also footnote 37 regarding certain derivations that will be ignored in the paper.) I will also not discuss the patterns of traditional VP fronting, since the possibilities for VP fronting do not always pattern with the possibilities for VP ellipsis in complex auxiliary/modal examples.

[29]A point that the reader should bear in mind: In the discussion of modals I will mostly confine myself to epistemic *must* since epistemic *must* does not inflect for Tense and does not take scope below negation (Roberts 1998); this is standardly taken to indicate that it does not start below T, which in turn simplifies the relevant derivations. Epistemic modals that inflect for Tense and especially deontic modals (which can scope under negation) might be associated with richer structure; in fact, it is not completely out of question that they could even project their own phasal domains at least in some cases under the approach to phases discussed below (they differ from pure auxiliary verbs like *have* and *be*, which are essentially not semantically contentful once the semantic contribution of aspectual affixes is factored out hence are not taken to project phasal domains here although they are generated under VP-like projections). The reader should therefore bear in mind that the discussion of *must* below should not be necessarily taken to extend to all modal verbs in exactly the same way (this will be noted below in some cases where it is relevant). In other words, as noted above, the goal of this section is not to provide a comprehensive account of the full paradigm pertaining to the domain of VP ellipsis in English; rather, I will focus here on certain constructions that will help us shed light on the larger theoretical issues that are the main topics of this paper.

the middle/aspectual field of English. The beauty of the phenomenon, and this is what makes traditional VP ellipsis in English particularly enlightening in this respect, is that it is very productive: English does not appear to have any arbitrary constraints on the availability of ellipsis in this domain (recall that some languages for no apparent reason completely disallow ellipsis in this context; for some relevant discussion regarding crosslinguistic variation with respect to VP ellipsis, see Zagona 1988, McCloskey 1991, Lobeck 1995, Aelbrecht 2010, among others). In fact, I will argue below that in this domain English avails itself of all the options for ellipsis that are in principle allowed by the grammar: ellipsis of both phases and phasal complements is always possible. This is then a perfect testing ground for what kind of ellipsis should not ever be allowed (even in principle). The claim defended below is that English in fact allows all cases of ellipsis of phases and complements of phases in its aspectual/middle field, but nothing else: it is a perfect instantiation of the possibilities for ellipsis that are claimed here to be in principle available by UG.

3.2.2. On the structure of the aspectual field: what you see is what you get

Before we can dive into the complex paradigm of ellipsis within English middle field, a note is in order regarding the structure of the constructions we will be examining. Constructions with complex middle fields will obviously require positing additional structure between vP and TP. Additional structure has in fact been sometimes assumed even for simple finite constructions. There is nothing wrong in principle with positing projections that are phonologically null; such projections do indeed exist. However, positing such projections requires independent evidence. In the absence of such independent evidence they should not be posited. The null hypothesis is then always that what you see is what you get. I will show below that this null hypothesis in fact suffices for the complex patterns of VP ellipsis in English. More precisely, we will see below that the what-you-see-is-what-you-get analysis accounts for the data under investigation.[30]

[30]I am not necessarily claiming here that there are no null projections in the middle field of English in any construction; my claim is confined to the examples discussed here (see also the discussion below (50)).

Assuming only morphologically motivated projections for the middle/aspectual field gives us the following structure for (45)-(48): the modal should be generated under T, and the auxiliaries, being verbal-like elements, should be generated under VP. (The exact label of the phrase will reflect the featural make up of the auxiliaries, which are not true lexical verbs. I will use VP_f to indicate their functional nature.) The only other projections should be those headed by *–en* and *–ing*. This yields the structure in (49) for complex constructions like (4). (Since *–en* and *–ing* are aspectual elements I am labeling the phrases where they are located AspectP. Note that since I am focusing here on the structure of the middle, i.e. T/Aspect field, for ease of exposition I am omitting the internal structure of the projection(s) where the main verb is located, simply using VP for this part of the structure. As is standard, I do assume that additional projections are present in this part of the structure when the main verb is inflected for *–en* or *–ing*. However, apart from a few cases noted below, the presence of these projections has no effect on the analyses to be proposed, hence they are omitted here to simplify exposition.)

(49) $[_{TP}$ must $[_{VPf1}$ have $[_{AspectP1}$ en $[_{VPf2}$ be $[_{AspectP2}$ ing $[_{VPf3}$ be $[_{VP}$

All the projections in (49) are morphologically motivated, there are no null AspectPs (see also below for evidence against the existence of null AspectPs in English), in fact no null projections at all.

Although I will be adopting the structure in (49) it should be noted that the analysis to be proposed is compatible with a range of options; i.e. it is compatible with some modifications of the structure in (49). Thus, nothing would change in the analysis below if both *be*-s start below the aspectual projections, as in (50).

(50) $[_{TP}$ must $[_{VPf1}$ have $[_{AspectP1}$ en $[_{AspectP2}$ ing $[_{VPf2}$ be $[_{VPf3}$ be $[_{VP}$

All the projections in (50) are still morphologically motivated. Note, however, that the analysis to be proposed can also be maintained if *must* starts below TP, e.g. in some kind of ModP, or even if *have* undergoes movement in (49), possibly to some kind of Infinitival Phrase, which would fit with its belonging to the clausal phasal domain, see the discussion in section 3.2.3 (base generating *have* below AspectPs on a par with other auxiliaries, as in (50), would in fact require movement of *have* to ensure that its final position is above AspectPs). Given that the strategy adopted here will be not to posit null projections unless they are needed, I will not be assuming the movements in question since they would lead to positing additional projections that do not have clear morphological motivation (and are anyway not needed to explain VP ellipsis patterns). Still, the reader should bear in mind (and can verify) that if such projections/movements turn out to be needed for other reasons, they can be easily incorporated into the analysis to be proposed below.

3.2.3. Phases in the middle field

The question that needs to be addressed now is what projections should function as phases in this structure under the general approach to phasehood argued for in this work, which is a contextual approach where the highest phrase in the extended projection of a major/lexical category counts as a phase. Above we have discussed NPs and PPs. What about VPs? The standard assumption is that vP, which can be naturally considered to be part of the extended projection of VP, is the phase here. Considering vP but not VP a phase thus rather naturally fits into the approach to phasehood argued for in this work. CPs are, however, also considered to be phases. In the current system, it must then be the case that CP is not part of the extended projection of VP. In fact, given Chomsky's (2008) CP-TP association approach, where C and T basically work together with respect to a number of phase-sensitive phenomena, TP should belong to the CP domain. The traditional CP may need to be split into several phrases at least in some cases (see Rizzi 1997).[31] An issue that still needs to be

[31]Although the issue is not completely settled, it appears that if there is split CP, the highest projection within the split CP should work as a phase (hence it would be the obligatory target of successive cyclic movement), which again fits into

addressed is what precisely is behind the cut between the two phasal domains here: the VP domain and the TP/CP domain. The real issue here is actually what makes the TP/CP domain a phasal domain. Given that all major categories project phases, the NP, PP, AP, and VP domain are expected to project phases; the TP/CP domain, which bellow I will refer to as the clausal domain, still awaits principled incorporation into the system, an issue that unfortunately I will not be able to address here. Obviously, the highest projection within the clause is expected to function in the current system as a phase due to its being the highest projection in the domain of X, but how to precisely determine the X in a way that would capture its relation with other phrases in the domain in question in a principled manner still remains to be determined.

This uncertainty has consequences for the status of projections that lay on the border of the clausal and the VP domain. Given the unclear nature of the X-CP connection, it is really not possible to determine strictly on theoretical grounds whether the frontier projections should belong to the VP domain or the clausal domain. In this paper, I will argue for a particular position regarding this issue primarily on empirical grounds. In particular, I will argue that AspectP belongs to the VP domain (the claim was actually originally made in Wurmbrand 2011 based on rather interesting evidence concerning aspectual interpretation and successive cyclic movement). The intuition here is that temporal-related information/structure is split into two domains, with tense belonging to the clausal domain and aspect to the verbal domain. Given that aspectual projections are often interspersed with various verbal projections, the fact that in many languages aspect is expressed through derivational verbal morphology (e.g. in Slavic) or through free standing particles in the VP domain (e.g. English particles like *up*) as well as the well-known fact that aspect in many languages affects case assignment, more precisely, the case that is supposed to be assigned by v-V (in fact, Aspect, not v, has been argued by many authors to be the source of verbal case assignment; for the

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the general approach to phases adopted here. Since this paper does not deal with the clausal phasal domain I will not investigate this issue here.

effect of aspect on case assignment to the object see Borer 1994, 2005, Dubinsky and Hamano 2003, Kiparsky 1998, 2001, Kratzer 2004, Laka 2006, Nelson 1998, Ramchand 1993, Svenonious 2002a,b, Tamm 2006, Tenny 1987, Travis 2010, and van Hout 1996, among many others), it seems natural to assume that Aspect belongs to the VP domain. Under the current proposal that the highest projection within the extended domain of a major category works as a phase, this means that in a structure where AspectP dominates vP, it will be AspectP, not vP that will work as a phase. Furthermore, if there is a series of AspectPs, it is the highest AspectP that will work as a phase. The claim is then that AspectP closes the lexical VP domain, with the clausal domain starting right above the highest AspectP. Regarding the structure in (49), the only phase in the middle field of this structure will then be AspectP1, with the clausal domain starting right above this phrase.[32]

(51) $[_{TP}$ must $[_{VPf1}$ have $[_{\textbf{AspectP1}}$ en $[_{VPf2}$ be $[_{AspectP2}$ ing $[_{VPf3}$ be $[_{VP}$

While the above reasoning concerning the phasal delineation of the middle field seems rather intuitive, admittedly the theoretical reasoning behind the proposal is not sufficient to justify it conclusively; the burden of argumentation will therefore lie in the empirical domain. I will in fact show below that the end result that the above reasoning has lead us to enables us to explain several otherwise puzzling facts regarding complex VP ellipsis. To the extent that the analysis presented below is successful, it can therefore be taken as an empirical argument for the approach to phases argued for here.[33]

[32]Recall that auxiliary VP_fs, which are essentially semantically non-contentful, i.e. light (and functional), do not project VP phasal domains of their own (AuxP may actually be a more appropriate label than VP_f.)

[33]Languages differ considerably in the way they express aspect, in fact, the variation in this domain seems considerably larger than in the tense domain. Given this variation, it is not completely out of question that languages could differ with respect to the phasal housing of the aspect domain, i.e. it is not completely out of question that in some languages Aspect could belong to the clausal, not the VP domain. This will obviously have consequences for the phasehood of aspectual projections. An analysis that would appeal to crosslinguistic variation of this sort should however attempt to correlate any claimed crosslinguistic differences in the phasal domain of Aspect with other independent aspectual differences between the languages in question, not simply stipulate a phasal difference.

3.2.4. *Be* shift

There is one more issue that needs to be addressed before we can plunge into the account of VP ellipsis. A number of authors have argued that some but not all non-finite verbs in English undergo movement. Since what will be important for our purposes is the structures involving aspectual forms *-en* and *-ing* I will focus on these forms here. Akmajian and Wasow (1975), Iwakura (1977), Lobeck (1987), Bošković (2004a), and Thoms (2010) have argued that *be* in *been* undergoes movement while *be* in *being* does not. One argument to this effect concerns floating quantifiers. Consider (52).

(52) *The students are being all arrested by the police.

The ungrammaticality of (52) indicates that quantifier float in the main verb domain is not possible here.[34]

(53) *The students$_i$ are being [$_{VP}$ all+t_i arrested t_i] by the police.

Significantly, although not perfect, quantifier float with the *been* form in (54) is better than quantifier float with the *being* form in (52).

Another interesting line of inquiry here opens up with the claim, made in Bošković (2010a), that some languages lack TP (such languages in fact tend to be rather rich aspectually). If the lack of TP fundamentally changes the clausal domain it is not out of question that in (some) languages of this type Aspect gets pushed into the clausal domain to make up for the lack of TP (see in this respect Lin 2003, 2005 and Smith and Erbaugh 2005 for accounts where aspect fully determines temporal interpretation in Chinese). The proposals made here for English VP ellipsis thus have rather wide consequences, and open up new avenues for capturing crosslinguistic differences. Exploring these issues in any detail would however go way beyond the scope of this paper (in fact, any paper-length work).

[34]The structure in (53) is actually easily ruled out by anti-locality since it involves movement from the complement to the Spec position of the same phrase (under Sportiche's 1988 stranding account of floating quantifiers). Recall, however, that an additional projection associated with passive morphology should be present above VP in (52)/(53). Quantifier float is apparently not possible within this projection. There is a principled way of ruling out such quantifier float which I will not go into here due to space limitations and because this would take us too far from our main concerns. (I address the issue separately in work in preparation, arguing that we are dealing here with a more general issue regarding interaction between voice and quantifier float/adverbial modification; anyway, for our current purposes it does not really

(54) ?The students have been all arrested by the police.

Given that quantifier float in the main verb domain is not possible in this context, as indicated by (52)/(53), it must be the case that the quantifier is floated in a higher Spec in (54). This, however, requires movement of *be* here. If *be* here undergoes movement, there is room to float a Q outside of the main verb VP.

(55) The students$_i$ have been$_j$ [$_{VPf}$ all+t_i t_j [$_{VP}$ arrested t_i] by the police.

The same point can be made with simple adverbials, where the contrast between the *been* form and the *being* form is quite sharp (see also Lobeck 1987).

(56) a. They have been often terrorized by prejudice.
b. ?*They are being often terrorized by prejudice.
c. ?Updates have been often released for this.
d. *Updates are being often released for this.

3.2.5. Accounting for the distribution of VP ellipsis

Armed with the above assumptions I now turn to the account of the paradigm in (45)-(48). Given the above discussion, the second conjunct has the structure in (57). Given that the highest projection in the extended domain of VP, which comprises AspectPs, works as a phase the only phase in the middle field is the highest AspectP, given in bold.[35]

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matter what is responsible for the impossibility of floating a quantifier in the main verb domain here and nothing in the account referred to in this footnote affects the analyses proposed below.)

[35]See also the discussion of (66) and footnote 40 below regarding phases in such examples. As noted above, nothing in the analysis proposed here would change if *have* in (57) also undergoes movement to a higher projection as long as this projection is not an Aspect Projection (in this respect, notice that this *have* is not aspect-inflected (see also the

(57) [$_{TP}$ Peter$_i$ must [$_{VPf1}$ have [$_{\textbf{AspectP1}}$ en [$_{VPf2}$ be [$_{AspectP2}$ ing [$_{VPf3}$ be [$_{VP}$ hassled t_i by the police

Recall now that, as discussed above, the *–en* inflected verb *be* undergoes movement, while the *–ing* inflected verb *be* does not. The affixation of *be* to *–en* can then be implemented by having *be* move to *-en*. As for the latter, given that *be* does not undergo movement here and Bobaljik's (1995) claim that affixation can be achieved either through syntactic head movement or PF merger/affix hopping under PF adjacency, we are left with PF merger as the way of implementing the affixation of *–ing* to *be* here, with *-ing* hopping onto *be* located in VP_f3 in PF. This then leaves us with the following syntactic structure for the example in question.(I am ignoring potential intermediate traces of *Peter*.)

(58) [$_{TP}$ Peter$_i$ must [$_{VPf1}$ have [$_{\textbf{AspectP1}}$ be$_j$+en [$_{VPf2}$ t_j [$_{AspectP2}$ ing [$_{VPf3}$ be [$_{VP}$ hassled t_i by the police

Consider now the possibilities for ellipsis in the middle field of the structure in (58), given that only phases and complements of phase heads can undergo ellipsis. Since VP_f1 is neither the complement of a phase head nor a phase itself VP_f1 cannot be elided. This accounts for the unacceptability of (45). AspectP1, on the other hand, can be elided since AspectP1 is a phasal projection. This ellipsis option yields the sequence in (46), accounting for the grammaticality of this construction. Since VP_f2 is a complement of a phase head VP_f2 can also be elided, which accounts for the grammaticality of (47). Notice now that nothing below VP_f2 can be elided. AspectP2, VP_f3, and VP are neither phases nor complements of phasal heads, hence they cannot undergo ellipsis. We then account for the ungrammaticality of the remaining example in (48).[36] The proposed model thus accounts for the full paradigm in (45)-(48).

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discussion below for evidence against the existence of null AspectPs in English) or if *must* moves to T from Mod. I will therefore not discuss the possibility of these movements in the text.

[36] As discussed above, in the approach to phasehood argued for here major categories project phases, more precisely, the highest projection in the extended projection of every major category works as a phase. Above, I gave evidence to

There is an interesting contrast between constructions like (4) and examples where the first head in the modal/auxiliary sequence is an auxiliary. Thus, if *have* is the initial element in the middle field, ellipsis after the first element is possible. The rest of the paradigm remains the same.

(59) Betsy has been being hassled by the police, and Peter

a. has too.

b. has been too.

c. *has been being too. (Sag 1976)

This is in fact exactly what is expected under the current analysis. The examples in (59) have the structure in (60).

(60) $[_{TP}$ Peter$_k$ has$_i$ $[_{VPf1}$ t_i $[_{\textbf{AspectP1}}$ be$_j$+en $[_{VPf2}$ t_j $[_{AspectP2}$ ing $[_{VPf3}$ be $[_{VP}$ hassled t_k by the police]]]]]

Being a phase, AspectP1 can be deleted, which yields (59)a, accounting for the contrast between (59)a and (4)a. Other options for ellipsis in (59) can be handled in the same way as the rest of the paradigm in (4).

I now turn to the simpler paradigm in (61). The relevant structure is given in (62).[37]

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this effect for NPs, PPs, and VPs. Below, I will give an argument that the same holds for APs, as expected since it would be difficult to exempt only APs from phasehood in a principled manner. From this perspective, notice that the grammaticality status of (48) does not change if the verb is replaced by an adjective:

(i) *Betsy must have been being noisy, and Peter must have been being too.

I take this to mean that just like the aspectual projections are part of the extended domain of VP when they the dominate VP, they are part of the extended domain of AP when they dominate AP (note that there are many languages where adjectives are inflected for aspect). The above account of (48) then straightforwardly extends to (i).

[37]Superficially, there appears to be some speaker variation with respect to some examples that are similar to (61)a. This is, however, due to the availability of an irrelevant ellipsis option. Thus, Wurmbrand (in preparation) observes that *John might have called and Bill might too* is acceptable but only on the here irrelevant *John might have called and Bill might*

(61) Jane must have been hassled by the police, and Sue

a. *must too.

b. must have too.

c. must have been too.

(62) [$_{TP}$ Sue$_i$ must [$_{VPf1}$ have [$_{\textbf{AspectP1}}$ be$_j$+en [$_{VPf2}$ t$_j$ [$_{VP}$ hassled t$_i$ by the police]]]]]

The only projections in the middle field of (62) that can be elided are AspectP1 and VP_f2. This way we derive the acceptable examples in (61). Crucially, VP_f1 cannot be elided (since it is neither a phase nor a phase complement), which accounts for the ungrammaticality of (61)a.

I turn now to a simpler example where only an *–ing* inflected auxiliary verb is present.

(63) Jane is being hassled by the police and Sue

a. is too.

b. *is being too.

(64) [$_{TP}$ Sue$_i$ is$_j$ [$_{VPf1}$ t$_j$ [$_{\textbf{AspectP2}}$ ing [$_{VPf2}$ be [$_{VP}$ hassled t$_i$ by the police]]]]]

~~*call*~~ option (see below for such cases), not on the *John might have called and Bill might* ~~*have called*~~ option (Wurmbrand demonstrates this by using conflicting time specifications for the two conjuncts). Sag (1976), Lobeck (1987), and Johnson (2001) also observe that such examples are unacceptable on the latter (i.e. matching) option, though there is a bit of confusion in the literature regarding such examples since some authors are apparently not taking into consideration the possibility of the non-matching ellipsis option, simply marking such examples as acceptable without discussing the possible derivations. What further complicates the situation is that speakers seem to differ with respect to the availability of the first option noted above, where the ellipsis site is not completely identical to the antecedent (there also appear to be some differences across different modals, with, e.g., *must* being more resistant to it hence more useful for our purposes). Throughout the paper I will ignore mismatching derivations since the current paper does not deal with the issue of Recoverability of Deletion which is crucially involved in such cases. Consequently, I mark the judgments only for the readings where the ellipsis site matches the antecedent.

It is worth noting here that Aelbrecht (2010) shows that Dutch allows examples somewhat similar to (61)a (her examples are actually simpler). However, she also shows that Dutch modals occur in a different structure from English modals and argues that this kind of constructions in Dutch involve deletion of AspectP, which can be incorporated into the current system since this AspectP would be a phase in this system.

While the *–ing* AspectP2 is not a phase in (58), this AspectP is a phase in (64), being the highest projection in the domain of the lexical verb (AspectP2 is the only phase here). Given that only phases and complements of phase heads can be elided in principle, only AspectP2 and VP_f2 can be elided in (64). The former yields (63)a, and the latter results in a stranded affix *ing*. (If affix hopping could take place prior to the ellipsis, then this option would also yield (63)a.) (63)b is underivable since it would require deletion of VP, which is neither a phase not a phasal head complement.

Consider now the following constructions.

(65) John must be hassling the police, and Peter must be too.

(66) John must be hassled by the police, and Peter must be too.

Recall that auxiliaries that are not inflected for aspect belong to the clausal phasal domain, not the VP domain. The active VP in (65) projects its own phasal domain, which functions as the complement of the auxiliary *be*. This phasal domain undergoes deletion in (65) in accordance with the current approach to phases, which allows ellipsis of phases (and phasal complements).[38]

Notice, however, that ellipsis is also possible in (66). It must then be the case that the complement of *be* in (66) is also a phasal domain. While this goes contrary to the claim about verbal phases made in Chomsky (2000, 2001), it is actually straightforwardly accommodated, even expected, under the current approach to phases. Under the current approach to phasehood, the highest projection in the extended domain of a verb functions as a phase. Under this approach we would actually expect passive verbs to project phases. Not having vP with passive verbs would not affect anything here. Whatever the highest projection is in the extended domain of the verb is still a phase a here. If we only had VP here, then this VP would be the phase. There should, however, be at

[38]The relevant phase would actually be the projection housing *–ing* if this projection is located above vP (otherwise, vP would be the phase).

least the projection associated with passive morphology here, which should then function as the phase and undergo ellipsis.[39]

(67) Peter must be [~~passive *en* [$_{VP}$ hassle~~]]

Under the current approach to phases we thus expect passive verbs to also project phases, an option that is in fact realized in (66).[40] Additional independent evidence to this effect is given in Legate (2003). I emphasize here that the current approach to phasehood does not require passive verbs to have exactly the same structure as their active counterparts to project phases, i.e. it does not require them to project vP, which means that vP can still be associated with external theta role assignment, hence lacking in passive constructions (see also footnote 44 below).

Recall that in the system adopted here all major categories project phases. I have provided evidence above to this effect for NPs, PPs, and VPs, but we would also expect the same to hold for APs (it would in fact be rather difficult to exempt only AP from phasehood in a principled manner). Under the current analysis of ellipsis (68) provides evidence that adjectives indeed project phases, more precisely, that the highest projection in the extended domain of AP works as a phase.

(68) John must be tired, and Peter must be too.

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[39]We actually have a confirmation for the presence of this phrase (which can be labeled VoiceP) from simple examples like *John$_i$ was [passive en [$_{VP}$ hassle t_i]]* (i.e. *John was hassled*). Without the passive projection, VP here would be the phase; *John* would then have to move to the Spec of this VP, in violation of Abels's generalization (this would be an instance of phasal complement movement). The passive projection resolves this problem (movement of *John* to the Spec of this projection does not violate anti-locality).

Notice also that examples like *John seems to live in London, and Mary does ~~seem to live in London~~ too* provide evidence that, like passive verbs, raising verbs project phases, as expected in the current system (see also Legate 2003). Notice, however, that given the discussion of pseudogapping below, voice should be specified outside of VP in all constructions, active as well as passive, which means that the voice-specifying projection will be the phase in this example, not VP (in fact, this means that there is no bare VP phase).

[40] The same actually holds for (45)-(48), whose structure is given in (58) (as well as (61)/(62) and (63)/(64)), where the highest AspectP is a phase by virtue of being the highest projection in the extended domain of the passive verb.

What is elided in (68) is a projection of AP. Since this projection is not a complement of a phase head (recall that *be* is not a phase head in such examples) it must then be the case that the projection is itself a phase. (68) then provides evidence that APs also project phases, as expected under the approach to phases argued for here (see also footnote 36, where it is shown that the highest projection in the extended projection of AP is in fact a phase).[41]

Consider finally basic ellipsis examples like (69).

(69) John lives in London, and Peter does too.

An issue that arises here is whether an AspectP is present in this example, given that the example does not involve overt aspectual morphology. As discussed above, phonologically null projections should not be posited unless they are needed. (69) can in fact be accounted for in the current system even if it does not involve a null AspectP. In that case, vP is the highest projection in the extended domain of the verb, hence a phase. (69) can then involve ellipsis of the vP phasal projection.

(70) John lives in London, and Peter does [$_{vP}$ ~~live in London~~]

Eliding the VP complement of the v phasal head is actually also a possibility here, which is potentially problematic. To avoid blocking this option by stipulation, which will enable us to

[41] Notice also the ungrammaticality of (i).

(i) *John must be hassled by the police/hassling the police, and Peter must too.

This example can be rather straightforwardly accounted for in the current system. What is elided here is the projection where *be* is located, which is outside of the VP phasal domain (recall that middle field auxiliaries that are not inflected for aspect are outside of the VP/aspectual phasal domain). In other words, as discussed above, the projection in question is neither a phase nor a complement of a phase head (since *must* is not a phase head). As a result, it is not allowed to undergo ellipsis in the current system.

While many examples of this type are unacceptable with other modals too, some are acceptable (thus, Wurmbrand in preparation observes that *should* patterns with *must*, but *can* does not although even with this modal the *–ing* option is degraded; see also here footnote 37). It is beyond the scope of this paper to account for this ill-understood variation; I refer here the reader to Wurmbrand (in preparation), who pursues an analysis on which the relevant factor

maintain the "purity" of English VP ellipsis (no stipulations of this sort were needed so far), in order to account for the impossibility of the verb being stranded under ellipsis, as in **John lives in London, and Peter lives ~~in London~~ too*, we can assume that the verb does not move to v hence it cannot survive ellipsis of the VP complement of the phasal head v. This can be the case quite generally (the evidence for overt V-to-v movement is actually rather thin), or only in ellipsis cases. Lasnik (1999a) and Gengel (2007, 2009) actually provide very convincing justification for the latter, observing that we are dealing here with a broader effect; thus, Lasnik observes that I-to-C movement that normally takes place in English questions does not take place when ellipsis occurs, as in the sluicing example: *Mary will see someone. Who ~~Mary will see~~*? vs. **Who will ~~Mary see~~*? I therefore adopt the latter analysis here, where V-to-v movement does not take place under ellipsis, on a par with the failure of I-to-C movement under ellipsis.

There is also an alternative analysis of basic ellipsis examples like (69) that relies on the presence of a null AspectP. If AspectP is present in (69) (above vP), the example can be derived by eliding either AspectP (the phase) or vP (the phasal head complement).

(71) John lives in London, and Peter does [$_{\text{AspectP}}$ [$_{\text{vP}}$ live in London]

Under this analysis the issue of VP ellipsis does not arise, since VP is neither a phase nor a phase head complement hence cannot be elided.[42]

I conclude therefore that both the VP ellipsis and the vP ellipsis account of basic examples like (69) are compatible with the current system. There is actually some disagreement in the literature regarding the issue of which phrase undergoes deletion in simple VP ellipsis cases (see, for example, Johnson 2001, Merchant 2008, Gengel 2009, Baltin 2010 for relevant discussion). Of

involves aspectual/temporal differences which are reflected in additional projections that affect phasehood under the contextual approach (which in turn affects the possibilities for ellipsis; see here footnote 29).

interest to us here is that in the current system resolving this issue has bearing on a thorny (and difficult to resolve) question of whether null AspectP is present in constructions without overt aspectual morphology. Recall that under the null aspect analysis simple VP ellipsis must involve vP deletion, VP deletion is not a possibility. On the other hand, under the no-null-aspect analysis, simple VP ellipsis can involve either vP or VP deletion. The data regarding voice mismatches with VP ellipsis discussed by Merchant (2008) can help us tease apart the two analyses in this respect.[43]

Merchant (2008) notes VP ellipsis tolerates voice mismatches (see also the references cited by Merchant). He assumes that voice is specified in the v head (i.e. vP).[44] He further argues that since the two conjuncts in (72) have different voice specifications, the v head in the second conjunct must be outside of the ellipsis site (otherwise there would be a voice mismatch between the antecedent and the elided structure), which means that the example should involve VP, not vP ellipsis.

(72) The problem was to have been looked into, but obviously nobody did [$_{\text{vP-active}}$ ~~[$_{\text{VP}}$ look into]~~]
(Merchant 2008)

One could try to argue that we are dealing here with an issue related to Recoverability of Deletion and that (72) simply indicates that there is no problem with Recoverability if an elided active verb has a passive verb as its antecedent. But that would leave a very interesting contrast between VP ellipsis and pseudogapping unaccounted for. Merchant (2008) observes that, in contrast to VP ellipsis, pseudogapping does not tolerate voice mismatches. Thus, (73) contrasts with (72).

(73) *Roses were brought by some, and others did lilies.

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[42] Notice also that the presence of negation, as in *John lives in London and Peter doesn't*, does not affect anything here, given that NegP is higher than AspectP/vP (in fact, outside of the VP phasal domain).

[43] I leave addressing Johnson's (2001) argument regarding the level VP ellipsis targets based on the interpretation of *again* for future research.

[44] I am simply following Merchant regarding the label of the relevant phrase. Note, however, that nothing substantial in the discussion below would change if vP is simply VoiceP or if VoiceP is a separate projection on top of vP (even if vP is missing in passives; see the discussion above. For an analysis of ellipsis that assumes VoiceP that is separate from vP, see Baltin 2010.) The reader therefore should not attach too much importance to the actual 'label' here.

(74) Cf. Some brought roses and others lilies. (Merchant 2008)

Pseudogapping is generally treated in terms of ellipsis, with the internal argument that survives pseudogapping undergoing movement outside of the phrase to be elided prior to the ellipsis (see, e.g., Kuno 1981, Jayaseelan 1990, Lasnik 1995, 1999b, Johnson 2001, Baltin 2002). Merchant (2008) argues that the contrast between (72) and (73) provides evidence that VP ellipsis and pseudogapping target different phrases. In particular, pseudogapping must involve deletion of vP; (73) is then unacceptable because the antecedent and the elided constituent have different voice specifications, which Merchant argues is not allowed (in other words, the presence of the voice head inside the ellipsis site triggers a failure of identity in the pseudogapping case).[45]

(75) *Roses were brought by some, and others did lilies ~~[vP active [VP bring]]~~

Following Kim (1997), Depiante (2000), Jayaseelan (2001), Gengel (2007, 2009), Winkler (2005), among others, Merchant assumes that pseudogapping involves focus movement of the remnant to a focus position above vP (notice that the remnant is focused), which is followed by vP ellipsis.[46] This analysis can be rather straightforwardly incorporated into the current system. A number of authors have argued that in addition to the high, clausal focus position, a number of languages have a low focus position within the VP domain (in addition to the references cited above in connection with the focus movement account of pseudogapping, see Bošković 1997a, Stjepanović 1999, Belletti 2004, Belletti and Shlonsky 1995, Drubig 2003, Kuo 2009, Bastos 2011, among many others). Assume that this is indeed correct and that this low focus position belongs to the VP phasal

[45]Merchant presents another argument for the different level of ellipsis with pseudogapping and traditional VP ellipsis based on the different behavior of the two with respect to floating quantifiers. This argument can also be maintained under the analysis proposed below.

domain. Under the no-null-aspect-head analysis, (73) then has the structure in (76) (prior to ellipsis), while (72) has the structure in (77), with phases indicated in bold.

(76) …others did [**FocP** lilies [vP-active [VP bring]]

(77) …obviously nobody did [**vP**-active [VP look into]]

While (77) allows VP deletion, given that VP is a complement of a phasal head, (76) does not. Foc is the relevant phasal head in (76). Being the complement of a phasal head, vP can undergo deletion. VP, on the other hand, cannot undergo deletion in (76) since, in contrast to the VP in (77), it is neither a phase nor a phasal head complement.

Merchant's account of the VP ellipsis/pseudogapping difference can thus be rather straightforwardly incorporated into the current system. There is, however, an added benefit in that the current system explains why pseudogapping and VP ellipsis differ with respect to the level of the structure that is elided (which was not done in Merchant 2008). However, this is so crucially only if the constructions discussed above do not contain a null aspect head. As discussed above, if a null aspect head is present in the examples considered here even (77) can only involve vP ellipsis. (VP is not a complement of a phase head in (78).)

(78) …obviously nobody did [**AspectP** [vP-active [VP look into]]

Furthermore, Merchant's analysis provides a strong confirmation of the current contextual approach to phasehood. As discussed above, the status of VP regarding phasehood must be different in (76) and (77): VP is a phase head complement in (77) (hence can be elided) but not in (76) (hence cannot

[46]It is actually not crucial to the discussion below that the movement in question involves focus movement (see Lasnik 1999b and Gengel 2007, 2009, among others, for more general discussions). I do, however, assume that ellipsis targets

be elided), which means that vP works as a phase in (77) but not in (76). The variable status of vP with respect to phasehood in the constructions under consideration falls out straightforwardly under the current system. In both (76) and (77) the highest phrase in the VP domain functions as a phase: while vP is the highest head in this domain in (77) it is not in (76), where pseudogapping introduces an additional projection into the VP domain.

Merchant's analysis of the different behavior of pseudogapping and VP ellipsis with respect to voice mismatches thus provides a confirmation of the current contextual approach to phasehood. Incorporated into the current system, it also provides evidence against the existence of morphologically unmotivated null Aspect projections, in line with the current attempt to minimize phonologically null structure.[47]

To summarize, in section 3.2 I have provided an account of a rather complex paradigm regarding the traditional VP ellipsis in English which has consequences for the structure of the middle/aspectual field in English, the general theory of phases, and the general theory of ellipsis. Regarding the structure of the aspectual field, the analysis required that only the structure that is morphologically manifested in the constructions under consideration be posited, with the auxiliary undergoing movement to the *–en* affix, but not to the *–ing* affix. Regarding the general theory of ellipsis, I have argued that ellipsis is phase-constrained: only phases and complements of phasal heads can be elided (in principle). This yields a rather constrained theory of ellipsis which, for example, disallows ellipsis of complements of non-phasal heads. With respect to the general theory of phases, the analysis presented in this section provides additional evidence for the contextual approach to phasehood argued for in the previous sections, where the highest projection in the extended domain of a phasal head counts as a phase. I have argued that Aspect belongs to the verbal,

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only full phrases (in fact, only full phrases can work as phases/phasal complements).

[47]The conclusions are somewhat tentative due to the ill-understood nature of pseudogapping, which is subject to several constraints that are not operative with VP ellipsis (see Levin 1986). One of them is that pseudogapping is not possible in

not clausal, phasal domain (see also Wurmbrand 2011); Aspect in fact typically delineates the verbal phasal domain, with projections above AspectP belonging to the clausal phasal domain. The highest projection that works as a phase in the verbal domain is AspectP (when present; otherwise the highest projection in the absence of AspectP is the phase), with crucially the highest AspectP working as a phase in verbal domains with more than one AspectP (as a result, the *–ing* AspectP sometimes works as a phase, and sometimes it doesn't, depending on whether the *–en* AspectP is present above it). I have argued that the ellipsis paradigm also provides evidence that adjectives project phases, as expected under the current approach where all major categories project phases. I have argued that passive verbs also project phases (the same holds for raising verbs), which is again expected under the current analysis: while the lack of vP (if vP is indeed missing with passives, which is not clear) may affect what counts as the highest projection in the extended domain of the verb in a passive construction it cannot affect its phasehood; passive verbs are still expected to project phases. Finally, pseudogapping has been argued to involve an additional projection which affects the phasehood of vP in a manner that provides an explanation for Merchant's (2008) claim regarding the different behavior of pseudogapping ellipsis and simple VP ellipsis with respect to the target of ellipsis.

4. Conclusion

To conclude, I have argued for a contextual approach to phases on which the highest projection in the extended domain of a lexical category counts as a phase. Since lexical categories do not always project the same structure, what counts as a phase within a particular domain varies. Thus, in the traditional noun phrase, DP is the phase in English and NP is typically the phase in SC, a language that lacks DP, except when a numeral/quantifier, which projects QP above NP, is present: in such cases QP functions as a phase and NP ceases to be a phase; in Japanese, another language that lacks

multiple modal/auxiliary constructions (see Levin 1986, Agbayani and Zoerner 2004, Gengel 2007, among others), which prevents us from using the current system to investigate the exact position of the pseudogapping remnant.

DP, KP, which dominates NP, is the phase except in the cases where a QP is projected above KP, in which case QP functions as a phase. While superficially we seem to have a great deal of variation here (both crosslinguistically and within individual languages) regarding what counts as a phase, in all these cases it is the highest projection within the TNP that counts as a phase, hence all these facts can be unified if the highest projection within the TNP works as a phase. This in itself provides strong evidence for the contextual and against the rigid approach to phasehood: only the former allows the phasal status of X to be affected by the syntactic context in which X occurs (here the phasal status of NP is affected by the syntactic context in which it occurs). I have also applied this approach to phasehood to PPs, the crucial case here being Turkish, where the richness of PP structure affects the phasehood of PPs, as well as APs and VPs. Regarding the verbal domain, where based on VP ellipsis I have argued that AspectP or vP functions as a phase depending on what the highest projection within the extended domain of the verb is; only the highest AspectP works as a phase if there is more than one AspectP, with Aspect itself delineating the verbal phasal domain (when present). I have argued that passive verbs and adjectives also project phases, as expected under the approach to phases where every major category projects a phase (potential absence of one projection with passives cannot affect their phasehood under this approach). The current approach to phasehood also goes a long way toward resolving a serious conceptual question regarding how to choose phasal projections: there is nothing to choose here, all major categories project phases. I have also shown that the overall approach to phasehood argued for here enables us to account for (in fact provide a unified account of) a number of otherwise puzzling facts regarding extraction and ellipsis. Finally, I have argued for a particular approach to ellipsis where ellipsis is phase-constrained, to the effect that only phases and complements of phasal heads can undergo ellipsis.

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