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Predication and edge effects

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Abstract This paper investigates the properties of syntactic edges, with special attention being paid to two central issues in cyclic syntax: the domain and the nature of cyclicity. This paper argues for the premise that *predication* domains form a Spell-out domain, and that Spell-out results in *order preservation* of the predication domain. It is shown that elements externally merged at the edge of a predication domain observe a special ordering restriction, the *Edge Generalization*. The ordering restriction is explained by the interaction of two premises of cyclic syntax, coupled with a theory of probe-goal Search. Empirical evidence for the proposal comes from various subextraction phenomena out of edges of predication domains in Korean and Japanese. In particular, the interactions between floating numeral quantifier constructions and (primary and secondary) predication constructions are closely examined. The current proposal poses some interesting challenges to the proposition-based-phase system: it argues against the claim that only strong phases undergo Spell-out, and that edges are spelled out separately from the complement. The proposal also has some implications for the structure and typology of resultative and depictive predicates, and for the finer-grained structure of VP including aspectual adverbs and small clause complements.

Keywords Cyclic spell-out · Cyclic linearization · Edge generalization · Floating quantifiers · Predication · Small clauses · Secondary predicates

1 Introduction

The properties of syntactic edges have been widely discussed in the recent development of syntactic theory. Assuming that certain units of syntax interact with interfaces

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cyclically, a large body of work has discussed special properties of syntactic edges and their consequences for the overall architecture of the grammar. In this paper, I argue for a particular combination of two research programs on cyclic syntax—stated in (1) and (2).

(1) *Inherent Phase* (Den Dikken 2007a)
An inherent phase is a *predication* (subject-predicate structure).

(2) *Cyclic Linearization* (Fox and Pesetsky 2005a)
Ordering among syntactic units is fixed once they undergo cyclic Spell-out.

I attempt to show that when the two research programs are coupled together, we can deepen our understanding of syntactic edges in a novel way. In particular, I propose that as a consequence of the premises in (1) and (2), elements merged at the edge of a *predication domain* observe a special ordering restriction. Specifically, I show that elements externally merged at the edge of a predication domain cannot be separated by their domain-mates—which I call the *Edge Generalization* (EG). Throughout this paper, I claim that a variety of seemingly heterogeneous types of ordering restrictions can be subsumed into one and the same edge effect in the predication domains.

Empirical evidence for my claim comes from various sub-extraction phenomena out of edges of predication domains in Korean and Japanese. In particular, the interactions between floating numeral quantifier constructions and predication constructions are closely examined—which involve 'as' small clauses and resultative constructions (Sect. 3), different types of the aspectual adverb 'again' constructions (Sect. 4), and depictive secondary predicates (Sect. 5).

It is shown that some facts in Korean and Japanese converge, but others diverge, and that a systematic account can be given under the current proposal. The paper also sheds light on debates concerning formal properties of movement, and provides further support for the view that movement is triggered by probe-goal Search instead of Spec-head agreement (see Chomsky 2000, 2001a, 2001b; cf. Koopman 2006; Rezac 2003; Richards 2004). By showing that secondary predication domains can be Spell-out domains, this paper poses some interesting challenges to the view that only transitive v*Ps and CPs are phases (see Sect. 2.1 and references therein; cf. Chomsky 2000, 2001a, 2001b). The evidence collected here also suggests that the edge is linearized together with the head and complement at Spell-out, which in turn provides a puzzle for the claim that edges and complements must be spelled out separately (cf. Chomsky 2000, 2001a, 2001b; Nissenbaum 2000). I also discuss some implications of my arguments for the theories of argument structure, lexical decomposition of verbal predicates, and the position of adverbs and secondary predicates.

2 General proposal

In this section, I lay out the theoretical foundations concerning the nature and domain of cyclic Spell-out, and introduce a general proposal regarding syntactic edges. I then provide initial evidence for my proposal from the restrictions on subject extraction discussed in Ko (2007).

2.1 Theoretical background: on "phases"

Many recent studies have argued for a model in which syntactic operations proceed in some units in a successive cyclic fashion (e.g. Bruening 2001; Chomsky 2000, 2001a, 2001b; Den Dikken 2007a, 2007b; Fox and Pesetsky 2005a, 2005b; Frank 2006; Nissenbaum 2000; Uriagereka 1999; among many others; see also Boeckx and Grohmann 2007 and references therein for an overview). The main results of the research, however, are quite divergent from each other, depending on their perspective on two issues: the *domain* and *nature* of cyclic Spell-out. In particular, it has been a matter of controversy which syntactic units must undergo Spell-out and how much information in syntax must be encapsulated as a consequence of cyclic Spell-out.

As one of the representative models of cyclic syntax, Chomsky's proposition-based phase approach is also built on two central claims. As for the domain issue, Chomsky argues that *v*Ps and CPs are phases (and in fact the only ones), and claims that phases can be characterized as "propositional" in semantics and "isolable" in phonology. As for the Spell-out issue, Chomsky argues that the cycle is so strict that operations cannot look into a phase below its head after Spell-out. Only the head and its edges of a phase are visible to syntactic operations after Spell-out. This was dubbed the *phase-impenetrability condition* (PIC) (3).

(3) The domain of H is not accessible to operations outside HP; only H and its *edge* are accessible to such operations (Chomsky 2001a: 13).

Certainly, Chomsky's phase model has been adopted by many, but at the same time, it has also provoked important research questions both on conceptual and empirical levels. Conceptually, one can raise the question as to why propositions should be the unit of a phase. Even if we take it for granted that propositions must be the unit of a phase, one may wonder why only *v*Ps and CPs are the relevant propositions (see, for instance, Matushansky 2005 for detailed reviews on this point). If we assume that *v*Ps and CPs are the only phases, non-verbal categories are excluded from the discussion of phasehood (cf. Chomsky 2007 for nominal domains). The literature, however, suggests that there exist other "phasal" categories (see Fox and Pesetsky 2005a for VP; Abels 2003 and Sabbagh 2007 for PP; McGinnis 2001 for some variety of Appl(E)-P; Den Dikken 2007a, 2007b for RELATOR-P; Matushansky 2000 for some copular small clauses; Matushansky 2005 for a controversy on DP as a phase, among others).

Empirically, we may also ask whether isolability is a reliable test to single out *v*Ps and CPs as phases and the answer is far from being settled. As shown in (4), it is *not* the case that only *v*Ps and CPs are isolable (a–d), and it is *not* the case that *v*Ps and CPs are always isolable (e,f) (examples in (b–f) are from Matushansky 2005; see also Den Dikken 2006b on criticisms of Legate's (2003) phasehood tests).[1] Thus, it may not be unfair to say that the question of which syntactic unit constitutes a phase is yet to be resolved.

[1] But, a reviewer finds that (4b) is completely ungrammatical and (4f) is awkward but still grammatical.

(4) PF-isolability tests

a. I have been wondering whether, but would not positively want to state that, [$_{TP}$ your theory is correct]. (TP-RNR, Bresnan 1974, cited from Den Dikken 2007c)
b. What Goneril did was [$_{TP}$ to blind Gloster]. (TP-pseudo-clefting)
c. Alice$_1$ seems [t$_1$ happy]. (DP movement)
d. Alice didn't leave – [$_{TP}$ Didn't leave]? What do you mean, [$_{TP}$ didn't leave]?
e. *It's [$_{vP}$ doubt that Desdemona was faithful] that Othello did.
f. *[$_{CP}$ That Cordelia was no longer his favorite daughter]$_1$ it certainly seemed t$_1$.

Chomsky argues that computational complexity is decreased by adopting the PIC and takes this as one of the conceptual merits of the proposition-based phase model. The validity of the claim still needs to be scrutinized, however. As pointed out by Matushansky (2005), it is not a simple matter to measure the reduction of computational complexity. Suppose that computational complexity is calculated on the basis of the number of items in active memory, which Chomsky implicitly assumes. Then, modifiers could pose some serious problems. Since there is no theoretical upper limit on the number of modifiers, unmodified IPs can be less complex than modified *v*Ps with multiple adverbials. Lack of consideration of the fine structure of IPs and CPs is not a trivial matter in that respect. Since the notion of computational complexity has not been defined properly, it is also hard to evaluate the reduction of complexity by the PIC model (see Matushansky 2005 for details).

The empirical consequences of the PIC have yet to be examined as well. Chomsky argues that all phase-external movements must stop at the edge of every phase as a consequence of the PIC. Some studies, however, suggest that sometimes a less restrictive cyclic system must be enforced. For instance, Fox and Pesetsky (2005a, 2005b) argue that Scandinavian Object Shift does not (and must not) proceed via phase-edges though *wh*-movement does move through phase-edges (when the phase is understood to be a VP). Rackowski and Richards (2005) argue that long *wh*-movement in Tagalog proceeds through *v*P-edges, but not through embedded SpecCP when the matrix verb agrees with C. Den Dikken (2007a, 2007b) claims that a phase may lose its phasehood due to phase-extending head movement. The evidence adduced against strict successive cyclicity naturally led researchers to modification of the PIC or development of a new model of cyclic syntax.

Given the controversy on the nature of phases, the goal of this paper is in some sense very modest. Instead of proposing a new phase system that can answer all the questions at once, I investigate the validity of two extant theories, with special attention being paid to the ordering properties of the edges. As Pesetsky (2007: 106) puts it, however, a paper almost always comes with a package of premises and the "unpackaging" of complex proposals into separate components can be a useful device and a source of fresh ideas. In this paper, I pursue such an approach by unpackaging the premises on cyclic syntax into the domain issue and the Spell-out issue. I hope to show that the current approach has nontrivial empirical and theoretical repercussions for our understanding of cyclic syntax. I also wish to show that we can explain

otherwise recalcitrant puzzles and discover new facts about syntactic edges using the current approach, which in turn contributes to the debate on the general theories of cyclic syntax and accompanied hypotheses in some interesting ways.

2.2 Proposal

As for the nature of cyclic Spell-out, I adopt Fox and Pesetsky's (2005a) *Cyclic Linearization* (CL) model. In particular, I adopt the proposal that syntactic structures undergo cyclic Spell-out at the PF-syntax interface, and that as a result of cyclic Spell-out, syntactic units are cyclically linearized. CL can be considered as an operation that flattens hierarchical structure in syntax into a concatenated flat structure interpretable in the phonology at each cycle (see also Uriagereka 1999; and Hornstein et al. 2007 for discussion of linearization). Crucially, under CL, I assume that the whole Spell-out domain undergoes cyclic Spell-out, as stated in (5) (cf. Chomsky 2000, 2001a, 2001b; Nissenbaum 2000).

(5) Information concerning linear precedence of the whole Spell-out domain including the specifier, complement, and head of the Spell-out domain is shipped to PF.

Another distinctive feature of the CL model is its assumption of the monotonicity of syntax. If ordering information established in each cycle cannot be erased at PF, ordering information in an earlier domain must be consistent with ordering information added in the later domains. Otherwise, an ordering contradiction would arise at PF. This property of CL results in *order preservation after Spell-out*, as summarized in (6).

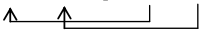
(6) The linear ordering of syntactic units is affected by Merge and Move within a Spell-out domain, but is fixed once and for all at the end of each Spell-out domain.

As we will see shortly, (5) and (6) will serve as crucial ingredients to explain rigid orderings of syntactic edges. It is important to note, however, that the CL model by itself does not make a prediction on linear orderings. Only when we understand constraints on domain-internal movement can we make predictions concerning linear orderings under CL. This is illustrated with (7) and (8). As described in (7), suppose that there are three elements, XP, YP, and ZP, merged in the Spell-out domain D_1. If no domain-internal movement occurs within D_1, we expect that the initial ordering projected from D_1 would be sent to PF at Spell-out, and consequently preserved in the higher domain D_2. Suppose, however, that domain-internal movement happened within D_1 as illustrated in (8a). We then expect that the ordering after domain-internal movement, ZP$<$XP$<$YP, is established after Spell-out of D_1. Hence, the shifted order at D_1 must be preserved at the higher domain D_2 instead of the initial ordering, in contrast to (7b) (see Fox and Pesetsky 2005a, 2005b for the relevant discussions of (inverse) Holmberg's Generalization).

(7) Spell-out without domain-internal movement

a. $[_{D2}$ $[_{D1}$ XP YP ZP]]: XP<YP<ZP order is established at D_1

b. ✓$[_{D2}$ XP YP $[_{D1}$ t_{XP} t_{YP} ZP]]: XP<YP<ZP order is preserved at D_2



(8) Spell-out with domain-internal movement

a. $[_{D2}$ $[_{D1}$ ZP XP YP t_{ZP}]]: ZP<XP<YP is established at D_1

b. *$[_{D2}$XP YP $[_{D1}$ ZP t_{XP} t_{YP} t_{ZP}]]: ordering contradiction between D_1 and D_2

In this vein, Chomsky's (2000, 2001a, 2001b) theory of movement has an important consequence for predicting linear ordering of syntactic edges. Chomsky argues that Agree is a prerequisite for feature-driven movement in syntax, and thus that movement is allowed only when a legitimate probe-goal Agree relationship is established between the target (probe) and the moving element (goal). Specifically, a probe may search and agree with a goal only under strict c-command, as stated in (9) (cf. Chomsky 1995; Koopman 2006; Rezac 2003; and Richards 2004 for a possibility of Spec-head agreement).

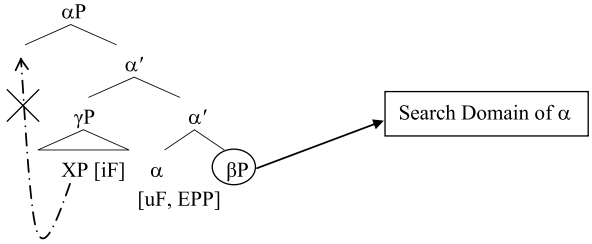
(9) A probe can search a goal only in its c-command domain.

The condition on probe-goal Agree in (9) imposes an interesting restriction on movement in syntax. As described in (10), if an element XP is merged within a specifier domain of a head α, XP cannot agree with the head α. Since the search domain of the head α is confined to its c-command domain βP, XP cannot be probed by α. If probe-goal Agree is a prerequisite for movement, as Chomsky argues, we predict that XP cannot undergo movement within αP. In other words, if (9) is on the right track, we predict that *there is no movement from an inner specifier to an outer specifier of the same head*.[2] This prediction has a special consequence for syntactic edges when we focus on the case where αP is a Spell-out domain, as in (11).

[2]Note that this prediction does not follow from an anti-locality approach such as (i) (Bošković 1994, 2005; Saito and Murasugi 1999; Doggett 2004; Lee 2004, i.a.). (9) not only blocks movement of γP in (10), but also movement of an element dominated by γP in (10). The anti-locality approaches may rule out the former type, but not the latter type of movement.

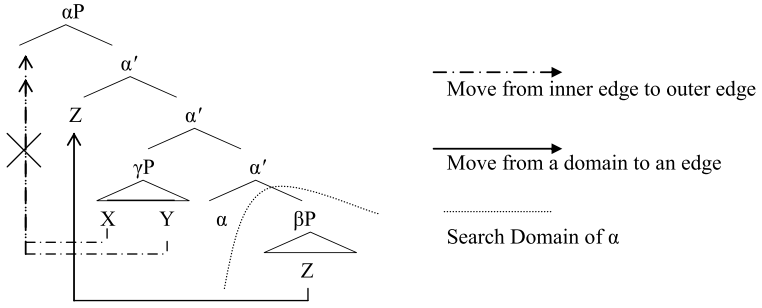
(i) Each chain link must be at least length of 1, where a chain link from A to B is of length *n* if there are *n* XPs that dominate B but not A (Bošković 2005).

(10) Illegal movement



As depicted in (11), if X and Y are externally merged in the specifier of αP as a constituent, their domain-mate Z either precedes X and Y (via movement), or follows both of them. Since elements within the specifier γP are not in the search domain of α, X and Y cannot be probed by α. In other words, X and Y cannot move over Z within αP. Consequently, within αP, the edge elements X and Y cannot be separated by their domain-mate Z. Crucially, if αP is a Spell-out domain, the linear orderings at αP must be preserved in the higher domains under CL (from (5) and (6)). Hence, if αP is a Spell-out domain, the edge elements X and Y, are not separable by their domain-mate Z in higher domains, either (note that this prediction holds whether α precedes or follows the complement βP).

(11) Edge elements merged as a constituent cannot be split by their domain-mate



Put differently, the condition on probe-goal Agree (9) prohibits domain-internal movement of elements merged on the edge. Under CL, the ordering restriction imposed on the syntactic edges must be preserved in higher domains. Thus, we are led to predict a particular ordering restriction on syntactic edges, summarized in (12)—which I call the *Edge Generalization*. (I do not make a distinction between specifiers and adjuncts, and both of them are called edges in this paper.)

(12) *Edge Generalization* (EG) [to be revised]
If X and Y are dominated by a specifier γP of a Spell-out domain αP, X and Y cannot be separated by an αP-internal element Z that is not dominated by γP.

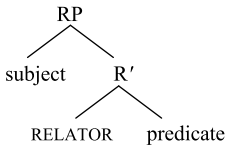
Note, however, that (12) itself is not a testable prediction yet. To examine whether (12) holds, we must return to the domain issue on which projections are considered as Spell-out domains. For this question, I adopt Den Dikken's (2007a) perspective:

(13) *Inherent Phase*
An inherent phase is a *predication* (subject-predicate structure).

Throughout this paper, I argue for the research program that predication constitutes a unit of a Spell-out domain. In the implementation of the idea, however, I depart from the original proposals by Den Dikken (2007a) in some significant ways. Most importantly, departing from Den Dikken, who implemented (13) under Chomsky's phase framework, I couple it with the CL model (see Pesetsky 2007 for a precursor of this approach). In particular, I claim that when a predication relationship is established between a predicate and a subject, cyclic Spell-out and linearization is conducted on the predication unit at PF. In addition to (13), I assume that the root CP, as the final stage of the derivation, undergoes Spell-out (as also assumed in Den Dikken 2007a).[3]

The notion of *predication* itself can be understood differently from framework to framework (see Den Dikken 2006a for an overview). For concreteness, I adopt Den Dikken's (2006a) theory of predication, where a RELATOR (R) head mediates the relationship between the subject and the predicate. The predicate is the syntactic constituent that expresses a property ascribed to the subject (cf. Bowers 1993).[4]

(14)



When (12) and (13) are taken together, we are led to predict that elements merged on the edge of a predication domain will not be separable by their domain-mates, as stated in (15)—which is the final version of the prediction that I will test in this paper. In the remainder of the paper, I show that this prediction holds using the data from Korean and Japanese, and evaluate it against the general theories of cyclic syntax.

[3]For now, I assume that predication domains and the root CP undergo Spell-out and leave it open whether other domains may also undergo Spell-out (see Den Dikken 2007a; Rackowski and Richards 2005 for relevant discussion; see also Sect. 6 of this paper). I do not consider the possibility of phase extension in this paper. I assume that a predication unit is considered as a Spell-out domain throughout the derivation once it is formed by the external merge. This is compatible with the phase extension theory of Den Dikken (2007a, 2007b) if Korean and Japanese lack head movement. If head movement does exist in K/J (precisely, movement of a RELATOR) however, my arguments may go against the phase extension theory. Since it is controversial whether head movement exists in K/J, I leave the issue concerning phase extension open (see Choi 1999; Hoji 1998; Koizumi 2000; Otani and Whitman 1991; Yoon 1994 for a controversy on verb-raising in K/J; Han et al. 2007 for an overview).

[4]Note that my arguments do not distinguish between (14) and Bowers' (1993) theory of predication. Den Dikken (2006a: 15) argues that the RELATOR is a placeholder for *any* functional head that mediates predication (e.g. copular, preposition, functional category, Topic, or Focus). Bowers (1993: 595), on the other hand, designates a "Pr" head as a functional category that denotes the semantic function of predication and takes lexical categories (VP, AP, NP, or PP) as its complement. In this paper, I confine my discussion to the main predicate and secondary predicate domain, and I will not look into other types of RP such as topic-focus or copular structures. Hence, the reader may take (14) as a modern version of PrP. In fact, no empirical change arises from the shift from (14) to PrP for this paper.

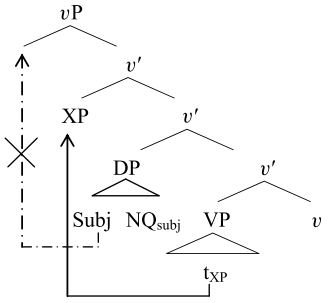
(15) **EG in the predication domain**
If X and Y are dominated by a specifier γP of a predication domain αP, X and Y cannot be separated by an αP-internal element Z that is not dominated by γP.

2.3 *v*P as a predication domain: restrictions on subject extraction

One straightforward prediction that follows from (15) is that the primary predication domain *v*P will show an *Edge Effect*, an effect that follows from the EG. Specifically, we expect that *elements externally merged in the specifier of vP cannot be separated by a vP-internal element*. In fact, this is exactly what is argued for in Ko (2007, 2008)—a precursor of the line of analysis generalized in this paper. Here, I briefly summarize the main results to compare them with new predictions on other predication domains in the following sections.

As described in (16), if the subject and its associate numeral quantifier (NQ_{subj}) are merged together within the specifier of *v*P, neither of them can undergo movement within *v*P since they are not in the search domain of *v* (a condition of probe-goal Agree (9)). Hence, a *v*P-internal element can precede (via *v*P-internal movement) or follow the subject and NQ_{subj}, but crucially it cannot intervene between the two. If a *v*P is a Spell-out domain as a predication unit, we expect that this ordering restriction will be preserved under CL.[5]

(16) *Subject scrambling within *v*P



As extensively discussed in Ko (2007), this prediction is upheld by a number of previous observations (e.g. Gill 2001; Kang 2002; Park and Sohn 1993 for Korean; Fujita 1994; Haig 1980; Kuroda 1983; Miyagawa 1989; Saito 1985; Ueda 1990, among many others, for Japanese). A representative example is given with Korean (17) and Japanese (18) (cf. fn. 6 for judgment variation, and see Ko (2005) for a possible account for it).[6]

[5]I use the term DP theoretically to mark the constituent that contains a host noun and its NQ. There is no theoretical import in the choice of the term DP. It could be NumP or something smaller than DP. Nothing in this paper hinges on the choice of the term as long as the noun and NQ form a constituent in the base structure.

[6]For clarification, it was reported that (17b) and (18b) become less degraded when focus is imposed on the NQ (Kang 2002; Miyagawa and Arikawa 2007). In this paper, I deal with the paradigms without

I refer the reader to Ko (2007) for more examples, which show the same pattern with other *v*P-internal elements such as PP-argument, *v*P-internal adverbs, and indirect object.[7]

(17) a. **haksayng-tul-i** **sey-myeng** maykcwu-lul masiessta. Korean
student-PL-NOM 3-CL_{person} beer-ACC drank
'Three students drank beer.'
b. *__haksayng-tul-i__ maykcwu-lul __sey-myeng__ masiessta.
student-PL-NOM beer-ACC 3-CL_{person} drank

(18) a. **gakusei-ga** san-nin **sake-o** nonda. Japanese
student-NOM 3-CL_{person} sake-ACC drank
'Three students drank sake.'
b. *__gakusei-ga__ sake-o __san-nin__ nonda.
student-NOM sake-ACC 3-CL_{person} drank

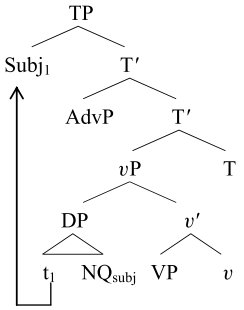
Moreover, we predict that *the elements in the specifiers of vP can be separable by a vP-external element*, in contrast to (16). As described in (19), a *v*P-external element does not enter into the working space when the *v*P is spelled out. Neither the subject nor the NQ_{subj} establishes an ordering statement with respect to the *v*P-external element at the Spell-out of *v*P. Thus, the subject can move to the left of the *v*P-external element, adding a new ordering in the CP domain: namely that, the subject precedes the *v*P-external element. This is exactly what we find. As shown in (20), *v*P-external adverbials such as 'why' and 'evidently' may intervene between the subject and the NQ_{subj}, in contrast to (17) and (18).

focus on NQs (in out-of-the-blue contexts). See Ko (2005: appendix 4B) for focused NQs, where I argued that focused NQs have a different underlying structure from non-focused NQs, which contributes to the improvement of grammaticality of (17b) and (18b) (see also fn. 21). It is also worth noting that when a Case-marker is attached to an NQ, as in (i), the sentence becomes grammatical in Korean (cf. Japanese lacks the counterpart of (i)). Ko (2005) provided a detailed analysis on why Case-marked NQs and Caseless NQs show different distributions, based on the claim that Case-marked NQs are merged as VP-modifiers, whereas Caseless NQs are merged as NP-modifiers (see also Fitzpatrick 2006; Ishii 1998). See Ko (2005: Chap. 4, 2007) for details.

(i) **haksayng-tul-i** maykcwu-lul **sey-myeng-i** masiessta. Korean
student-PL-NOM beer-ACC 3-CL-NOM drank
'Three students drank beer.'

[7]For convenience, I indicate a dependency between a noun and its associate NQ with bold-face, and the one between the subject and secondary predicate with italics (in some cases, however, the predication relationship is only indirect due to the mediation of a null subject in the small clause: see Sects. 3–5). I employ the Yale Romanization to transliterate Korean examples (Martin 1992). The *Kunrei-shiki* system is used for romanization of Japanese examples (for convenience, however, long vowels are marked by doubling short vowels instead of using the circumflex ˆ). I thank Hyondok Park for helping me with transliterating the Japanese examples. For the sake of space, unimportant morphological details are omitted in the glosses, and the list of abbreviations used in the glosses is as follows: ABS=ABSOLUTIVE, ACC=ACCUSATIVE, CL=CLASSIFIER, DAT=DATIVE, DEC=DECLARATIVE, DEP=DEPICTIVE, ERG=ERGATIVE, GEN=GENITIVE, NOM=NOMINATIVE, NPST=NONPAST, PAST=PAST, PL=PLURAL, Q=QUESTION, RES=RESULTATIVE, TOP=TOPIC, TRANSL=TRANSLATIVE.

(19) ✓Subject scrambling over *v*P-external elements in CP



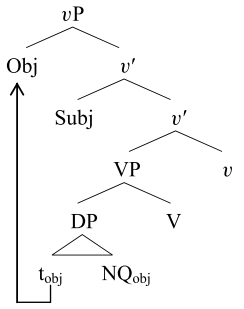
(20) a. **haksayng-tul-i**$_1$ way t_1 **sey-myeng** hakkyo-lul ttenass-nunci
student-PL-NOM why 3-CL school-ACC left-Q
anta. Korean
know
'(I) know why three students left the school.'

b. **haksayng-tul-i**$_1$ pwunmyenghi t_1 **sey-myeng** kong-ul
student-PL-NOM evidently 3-CL ball-ACC
patassta. Korean
received
'Evidently, three students received a ball.'

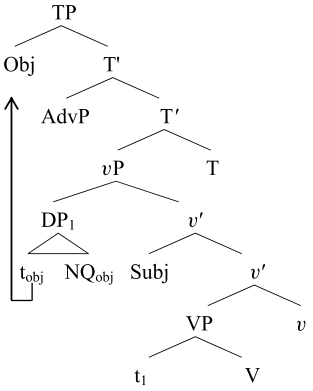
The grammaticality of (20) shows that the distribution of floating numerals for subjects cannot be explained away by the assumption that subjects are just immobile or islands (cf. Saito's 1985 Case/ECP-theoretic approach; Huang's 1982 CED-type theory). The subject is in principle mobile, as illustrated in (20), but *only temporarily immovable* within the domain in which it is externally merged, namely *v*P.

Finally, we make a prediction on movement out of non-edge positions of *v*P: namely that, *the object may be separated from the object-oriented numeral quantifier* (*NQ$_{obj}$*) *"rather freely" either by vP-external or vP-internal elements* (but see Sects. 3–6). This is described in (21) and (22).

(21) ✓Object scrambling within *v*P



(22) ✓Object scrambling within CP



As described in (21), the head v may probe the object in its c-command domain so that the object may undergo scrambling to the outer specifier of v over the subject within vP. After object scrambling, vP is spelled out, and the ordering $O<S<NQ_{obj}$ is established at PF. Note that the subject is not in the search domain of v and thus cannot undergo vP-internal scrambling in (16), whereas the object is included in the search domain of v and thus may undergo vP-internal scrambling in (21). Thus, we predict that the object may strand the NQ_{obj} across the subject. Moreover, it is straightforwardly expected that the object may also move to the left of vP-external elements. As illustrated in (22), vP-external elements do not establish ordering with respect to the object at Spell-out of vP. Hence, the object may move to the left of the vP-external element, adding a new ordering in CP. The two predictions on object scrambling are borne out, as shown in (23)–(24).

(23) **maykcwu-lul** John-i **sey-pyeng** masiessta. Korean
beer-ACC John-NOM 3-CL_{bottle} drank
'John drank three bottles of beer.' (as expected under (21))

(24) **kong-ul** amato **sey-kay** haksayng-tul-i patassulkesita. Korean
ball-ACC probably 3-CL_{thing} student-PL-NOM received
'The students probably received three balls.' (as expected under (22))

In short, the asymmetries and symmetries between the subject and the object in licensing floating NQs can be understood as an instantiation of the EG in the vP domain. The next and more relevant question for the current paper is whether other maximal projections can also constitute a Spell-out domain and show the same effects. Specifically, if *predication units* in general form a Spell-out domain, we expect that the Edge Effect would be observed in other predication domains as well. In what follows, I argue that we in fact find such systematic Edge Effects. The evidence comes from the distribution of the object merged on the edge of (secondary) predication domains.

3 Small clauses and two types of resultative predicates

One straightforward prediction that follows from the current approach is that the object (i.e. the accusative-marked argument) would also show the Edge Effect if it is externally merged as the subject of some predication domain. In this section, I show that this is indeed the case with the ordering patterns in small clause 'as'-constructions and resultative constructions. In doing so, I also explain why the object which functions as the subject of a small clause seems to show a more restricted distribution than the object in simple transitive clauses.

3.1 Small clauses: 'as'-constructions

Given the rather "free" distribution of the object discussed above, one might argue that the asymmetry between the subject in (17)–(18) and the object in (23)–(24) may be attributable to an assumption that the object may always license floating NQs. The following examples present immediate counterevidence for this. Simply put, it is not the case that the object can strand its NQ everywhere. When the object is interpreted as the subject of a small clause, marked by *-lo* 'as' in Korean or *-ni/-to* 'as' in Japanese, the object cannot strand its NQ across the small clause predicate. This pattern is typically obtained when the main verb is an epistemic predicate (see (35)–(36) for episodic predicates). This is shown with the (b) examples in (25)–(26). The (c) examples in (25)–(26) show that it is in principle possible to move the object out of the small clause. Hence, one cannot attribute the ungrammaticality of the (b) examples to the assumption that the object interpreted as the subject of a small clause is frozen *in-situ*.[8]

(25) Korean: 'take' type, epistemic verbs

a. (?)Kim kyoswu-nun ***cencik taythonglyeng-ul*** **sey-myeng** *ceyca-lo*
Kim professor-TOP former president-ACC 3-CL student-as
samassta.
took
'Prof. Kim took three former presidents as (his) students.'

b. *Kim kyoswu-nun ***cencik taythonglyeng-ul*** *ceyca-lo* **sey-myeng**
Kim professor-TOP former president-ACC student-as 3-CL
samassta.
took

c. (?)***cencik taythonglyeng-ul*** Kim kyoswu-nun **sey-myeng** *ceyca-lo*
former president-ACC Kim professor-TOP 3-CL student-as
samassta.
took.

[8] I collected the data using matrix verbs known to take a small clause as their complements (based on the discussion of Kim 1990; Maling and Kim 1992): for Korean, *mantulta* 'make', *khiwuta* 'bring up', *ppoptal chwutayhata* 'select', *chwikuphata* 'treat', *samta* 'take', and *yekita* 'consider'; for Japanese, *sodateru* 'bring up', *minasu* 'consider', and *ninmeisuru* 'appoint'. Epistemic verbs with floating quantifiers (e.g. (25)–(26)) seem to be somewhat degraded regardless of word order, for reasons unclear to me. A clear contrast exists between (a,c) and (b) examples, however. Unless mentioned otherwise, the judgments on Japanese sentences in Sect. 3.1 are from Ito Takayoshi and Mori Kana (p.c.).

(26) Japanese: 'consider' type, epistemic verbs

a. Tanaka kyoozyu-wa ***moto*** ***soori-o*** **san-nin**
Tanaka professor-TOP former prime.minister-ACC 3-CL
tekininsya-to minasita.
best.man-as considered
'Professor Tanaka considered three former prime ministers as (his) best men.'

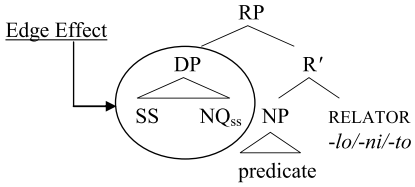
b. *Tanaka kyoozyu-wa ***moto*** ***soori-o*** *tekininsya-to*
Tanaka professor-TOP former prime.minister-ACC best.man-as
san-nin minasita.
3-CL considered

c. ?***moto*** ***soori-o*** Tanaka kyoozyu-wa **san-nin**
former prime.minister-ACC Tanaka professor-TOP 3-CL
tekininsya-to minasita.
best.man-as considered

The obvious question is why the transitive object in (23)–(24) can license the stranded NQ, but the object in (25b), (26b) cannot. I argue that the contrast between the two types of object can be understood as a similar type of asymmetry between the subject and transitive object seen in the previous section. As argued by Den Dikken (2006a), *as*-small clauses are a type of RP, just as *v*P. The only difference between the two is that in the *v*P domain, the complement of the RELATOR head (i.e. *v*) is VP, whereas small clauses can vary in the complement of the RELATOR head so that an adjectival phrase, noun phrase, and prepositional phrase can be the complement (see also Bowers 1993).

Suppose that the accusative-marked element in (25)–(26) is in fact externally merged at the specifier of RP as the subject of a small clause, as described in (27) (for convenience, I call the subject of a small clause *SS*). Assume also that *-lo/-ni/-to* 'as' in Korean and Japanese is a morphological instantiation of the RELATOR head (see Den Dikken 2006a for the status of *as* in English; see also fn. 11 for further discussion).

(27) 'as'-small clauses in Korean/Japanese



The ungrammaticality of the (b) examples in (25)–(26) can then be understood as an EG for the small clause RP: *the SS and its associate NQ cannot be separated by their domain-mates.* This time, the intervening domain-internal element is a small clause predicate. In fact, the prediction is even stronger. Under CL and probe-goal Search, we further predict that the small clause predicate suffixed with 'as' cannot precede the SS or NQ_{ss}. Note that predicate-'as' in (27) is immovable within RP since there is no head that can trigger predicate fronting within RP. If the SS precedes the small

clause predicate in RP, this ordering must be preserved under CL. Hence, we predict that *the small clause predicate may not precede the SS or its associate NQ in the higher domains*, either. This further prediction is borne out, as shown in (28)–(29).[9]

(28) **ceyca-lo* Kim kyoswu-nun ***cencik taythonglyeng-ul*** **sey-myeng**
student-as Kim professor-TOP former president-ACC 3-CL
samassta.
took
'Prof. Kim took three former presidents as (his) students.' (cf. (25))

(29) **tekininsya-to* Tanaka kyoozyu-wa ***moto soori-o*** **san-nin**
best.man-as Tanaka professor-TOP former prime.minister-ACC 3-CL
minasita.
considered
'Prof. Tanaka considered three former prime ministers as (his) best men.' (cf. (26))

Given (28)–(29), one might claim that (25b) and (26b) are ungrammatical due to some constraint that the epsitemic verb and the small clause predicate must be adjacent to each other. The grammaticality of (30)–(31), however, directly challenges such a claim. In (30)–(31), the entire small clause was fronted to the left of the main subject, and the small clause predicate is not adjacent to the main predicate. Though not perfect, (30)–(31) are considerably better than (28)–(29). Furthermore, the "adjacency approach" cannot explain the contrast between (30)–(31) and (32)–(33), either. In (32)–(33), the small clause predicate is not adjacent to the main predicate, just like (30)–(31), but crucially the small clause predicate intervenes between the SS and NQ_{ss}, unlike (30)–(31). If the "adjacency approach" is correct, we expect that all the examples in (30)–(33) would be ungrammatical, contrary to fact.

(30) (?)***cencik taythonglyeng-ul*** **sey-myeng** *ceyca-lo* Kim kyoswu-nun
former president-ACC 3-CL student-as Kim professor-TOP
samassta.
took
'Prof. Kim took three former presidents as (his) students.' Korean

[9] Japanese informants report that (29) is grammatical only when *tekininsya-to* means 'best.man-and', which is irrelevant to the current discussion of small clauses. One might argue that predicate-'as' in (27) cannot precede the SS because R′ is not a visible constituent in syntax and thus cannot move at all. It is not clear whether a bar-level projection is invisible in syntax, but even if the claim is correct, it is too weak to rule out incorrect orderings. Suppose that the small clause subject in (27) moves out of the RP first, and that the RP containing the trace of the SS undergoes fronting to the left of the SS. We would then expect that predicate-'as' linearly precedes the small clause subject, contrary to the facts in (28)–(29). In other words, even if R′ does not undergo syntactic processes, it still remains an issue why predicate-'as' cannot precede the SS. Such orderings are ruled out under CL, however: the ordering at RP (SS<predicate-'as') and the ordering at a higher domain (predicate-'as'<SS) conflict with each other. Instead of CL, one may employ some version of a proper binding condition to rule this out, and it is beyond the scope of the paper to compare the empirical coverage of CL with that of a proper binding condition. The point is clear, however, that the ungrammaticality of (28)–(29) cannot be attributed to the bar-status of predicate-'as' per se. I thank Mamoru Saito and Marcel den Dikken (p.c.) for directing my attention to this issue.

(31) (?)***moto soori-o*** **san-nin** *tekininsya-to* Tanaka kyoozyu-wa
former prime.minister-ACC 3-CL best.man-as Tanaka professor-TOP
minasita. Japanese
considered
'Prof. Tanaka considered three former prime ministers as (his) best men.'

(32) ****cencik taythonglyeng-ul*** *ceyca-lo* **sey-myeng** Kim kyoswu-nun
former president-ACC student-as 3-CL Kim professor-TOP
samassta.
took
'Prof. Kim took three former presidents as (his) students.' Korean

(33) ****moto soori-o*** *tekininsya-to* **san-nin** Tanaka kyoozyu-wa
former prime.minister-ACC best.man-as 3-CL Tanaka professor-TOP
minasita. Japanese
considered
'Prof. Tanaka considered three former prime ministers as (his) best men.'

The present analysis (27), in contrast, may capture all the contrasts observed in (25)–(33) without further stipulation. It is predicted that the small clause predicate cannot be fronted to the left of the SS or NQ_{ss} under CL and probe-goal search. Under the approach, there is no reason to block RP-fronting such as (30)–(31), which are indeed grammatical. Furthermore, (32)–(33) are correctly ruled out since the sentences violate the EG, where the small clause predicate intervenes between the SS and NQ_{ss}.

Note that my analysis remains neutral as to whether the SS in (27) may undergo further raising out of the RP (cf. Bowers 1993), but it implies that the sentences in (25)–(26) may not involve a null subject (e.g. *pro*, PRO) anaphorically related to the direct object of the main verb. In such cases, we expect that the object and the associate NQ may be separated by the small clause predicate, as depicted in (34)—which goes against the facts in (25b) and (26b).[10]

(34) $[_{vP}\ \text{object}_i\ [_{VP}\ [_{RP}\ e_i\ \text{XP-as}\ ]\ \ t\ \ \text{NQ}_{obj}\ \ V]\ \ v\ ]$

[10]For clarification, the same argument holds whether the object is merged within the complement domain as in (34) or in SpecVP as in (i). Since RP-fronting and object scrambling are possible, one can derive the ordering "object<XP-'as'<NQ" from (i) as well (see discussion of (41)). In later sections, we will see that a *pro* subject does exist in some adjunct types of secondary predicates and plays an important role in predicting (lack of) Edge Effects (see Sects. 3.2 and 5). See also Ko (2008) for control verbs and floating NQs in Japanese. As in (ii), if the embedded clause contains a PRO subject, the ordering "S<O<PRO<$NQ_{subj\text{-}PRO}$" is in fact possible, in contrast to (18b) or (iib).

(i) $[_{VP}\ \text{object}_i\ \text{NQ}_{obj}\ [_{RP}\ e_i\ \text{XP-as}\ ]\ V]$

(ii) a. gakusei-ga [sakana-o [**PRO** **san-nin** [tabe]-oe]-ta].
student-NOM fish-ACC 3-CL eat-finish-PAST
'Three students finished eating fish (at that time).'
b. ***gakusei-ga** sakana-o **san-nin** tabe-ta.
student-NOM fish-ACC 3-CL eat-PAST
'Three students ate fish.' (Ura 1996; N. Hasegawa, Y. Endo p.c.)

In this respect, a reviewer's observation of the contrast between episodic and epistemic verbs becomes important. The examples in (35)–(36) show the ordering patterns with episodic verbs, which correspond to the ordering with epistemic verbs seen in (25)–(26).

(35) Korean: 'select' type episodic verbs

a. SNU-nun ***cencik taythonglyeng-ul*** **sey-myeng** *kyoswu-lo*
SNU-TOP former president-ACC 3-CL professor-as
ppopassta.
selected
'SNU hired three former presidents as (their) professors.'

b. %SNU-nun ***cencik taythonglyeng-ul*** *kyoswu-lo* **sey-myeng**
SNU-TOP former president-ACC professor-as 3-CL
ppopassta.
selected
'SNU hired three former presidents as (their) professors.'

(36) Japanese: 'appoint' type episodic verbs

a. Keio daigaku-wa ***moto daizin-o*** **san-nin** *kyoozyu-ni*
Keio univ.-TOP former minister-ACC 3-CL professor-as
ninmeisita.
appointed
'Keio University hired three former ministers as (their) professors.'

b. %Keio daigaku-wa ***moto daizin-o*** *kyoozyu-ni* **san-nin**
Keio univ.-TOP former minister-ACC professor-as 3-CL
ninmeisita.
selected
'Keio University hired three former ministers as (their) professors.'

A reviewer notes that while the judgement on epistemic verb constructions in (25)–(26) is solid, the judgment on episodic verb constructions seems to vary depending on the speaker and contexts. Some speakers find (35b) and (36b) quite degraded, while others accept them (at least marginally). In contrast, (25b) and (26b) are consistently ruled out. More interestingly, the reviewer also points out that episodic verbs may select the object as its sole argument as in (37)–(38), whereas epistemic verbs cannot take the object without a small clause predicate, as shown by (39)–(40).

(37) SM eynthetheyinmenthu-nun **sinin-ul** **twu-myeng**
SM entertainment-TOP newbie-ACC 2-CL
khiwu-ko-iss-ta. Korean
bring.up-PROG-be-DEC
'SM entertainment is bringing up two newbies.'

(38) Tanaka entaateimento-wa **sinzin-o** **huta-ri** sodate-te-iru. Japanese
Tanaka entertainment-TOP newbie-ACC 2-CL bring.up-PROG-DEC
'Tanaka entertainment is bringing up two newbies.'

(39) Kim-un ***haksayng-ul*** **twu myeng** *(*atul-lo*) yeki-ess-ta. Korean
Kim-TOP student-ACC two-CL son-as consider-PAST-DEC
'Kim considered two students as his son.'

(40) ?Tanaka-wa ***gakusei-o*** **huta-ri** *(*musuko-to*) omot-te-ita. Japanese
Tanaka-TOP student-ACC two-CL son-as consider-PAST-DEC
'Tanaka considered two students as his son.'

((40) is acceptable without *musoko-to* when it means that 'Tanaka is concerned about two students', where *omot-te-ita* is interpreted differently from (40).)

The reviewer's two points are correlated with each other. Since episodic verbs may take the object as its sole argument, it is possible that the argument interpreted as the subject of a small clause may be analyzed as the true object of the verb, as in (34) (in addition to the possibility of (27)). Under (34), the object and NQ are not merged in the same RP domain as the small clause predicate. Thus, we expect that the order in (35b) with episodic verbs may be judged acceptable. In contrast, *consider*-type epistemic verbs cannot take the SS as its sole argument at all, as shown in (39)–(40). Thus, the structure (34) is not available, and thus the Edge Effect is obtained uniformly.

On this proposal, we expect a further contrast between epistemic and episodic verb constructions in predicate fronting. If (34) is a viable structure for episodic verbs for some speakers, we expect that a small clause predicate may precede the object and NQ, as described in (41). The judgment varies a lot among speakers: some Korean speakers find (42) quite degraded (4/9); some find it marginally acceptable (4/9); one finds it perfectly acceptable (1/9); one Japanese speaker finds (43) ungrammatical while another speaker accepts it marginally. The judgment variation on predicate fronting can be understood in the same context as the judgment variation on the (b) examples in (35)–(36).

(41) $[_{vP}\ [_{RP}\ e_i$ XP-as$]_1$ S $[_{VP}\ t_1\ [O_i\ NQ_{obj}]$ V$]$ $v]$ (from (34))

(42) %*aidolsuta-lo* SM-un ***gurwup-ul*** **sey-key** khiwuessta. Korean
idol.star-as SM-TOP group-ACC 3-CL made
'SM (entertainment) brought up three groups (to become) idol stars.'

(43) %*aidoru-ni* J.J.-wa ***guruupu-o*** **mit-tu** sodateta. Japanese
idol.star-as J.J.-TOP group-ACC 3-CL made
'J.J. brought up three groups (to become) idol stars.'

If the null subject analysis in (34) is available for some speakers, they may accept (42)–(43) by assuming that the entire RP including the null subject undergoes fronting, as depicted in (41). In fact, Korean speakers who find that (35b) is less acceptable than (35a) also report that (42) is degraded (4/9). Speakers who accepted (35b) to the same degree as (35a) find that (42) is also quite acceptable (3/9). My Japanese consultants find that (36b) is considerably less acceptable than (36a), and they report that (43) is quite degraded (2/2).

On the other hand, predicate fronting shown in (28)–(29) with epistemic verbs was judged ungrammatical for all the speakers that I consulted with (11/11). This is exactly what the present proposal expects. Since the null subject structure in (34) (and (41)) is not available for epistemic verbs, the SS is argued to be externally merged

in the same RP with the small clause predicate in (28)–(29), and thus the ordering between the SS and small clause predicate is expected to be more severely constrained by CL.[11]

The question that remains is why all the speakers do not adopt (34) for episodic verbs, so that the (b) examples in (35)–(36) would be judged grammatical uniformly. I have no precise answer for this question yet. I also remain agnostic about the nature of the null subject.[12] However, it is in some sense expected that the judgment on episodic verb constructions may vary depending on the context since the use of a null subject is highly restricted and subject to many syntactic and semantic constraints (e.g. Han and Kim 2004 for comments on the *pro*-strategy in islands). I acknowledge that a thorough experiment on the null subject strategy is needed to verify this, but the fact that only episodic verb constructions show such a variation seems highly suggestive.

The proposal advanced in this section explains an interesting contrast between a transitive object and an accusative-marked SS in licensing floating NQs. The object in simple transitive clauses seems to move "more freely" than the accusative-marked SS because the former moves from a non-edge position while the latter has to move from the edge of an RP. Extending the same logic, the proposal also captures a previously unexplained correlation among the types of main verbs, predicate fronting, and selectiveness of the object. In the next sub-section, we will see further evidence for the EG with resultatives.

3.2 Resultative constructions

The mirror image of the prediction described in (27) is that the object in a non-edge position will not show Edge Effects. We saw some evidence for this from transitive objects (e.g. (23)–(24)). In this section, I provide further support for this prediction. I argue that the object in resultative constructions in Korean and Japanese behaves differently in line with the prediction. I also derive a previously unnoticed correlation between Simpson's (1983) law and Edge Effects from the argument.

3.2.1 Two different types of resultatives—the case of Korean

The syntax of secondary predication can be represented in two ways, *complementation* or *adjunction* (see Bowers 1993; Den Dikken 2006a; Hale and Keyser 1993;

[11] At first, I considered a possibility that 'as'(*-lo* in Korean and *-ni/-to* in Japanese) is a morphological reflex of Agree between the predicate and the RELATOR head, instead of overt lexicalization of RELATOR. Under the hypothesis, XP-'as' fronting would be possible within RP, assuming the structure (27). I may then explain (42)–(43) without positing the null subject analysis in (34), but in turn I cannot explain the data in (28)–(29) (lack of predicate fronting with epistemic verbs) or the correlation between selectiveness of the object in (37)–(38) and a possibility of predicate fronting in (42)–(43).

[12] In principle, the gap in (41) can be PRO, *pro*, or a trace of an SS. If speakers adopt a PRO/*pro* analysis, they will readily accept the null subject structure so that apparent obviation of the EG is expected. If, on the other hand, a raising analysis is employed, Edge Effects will be obtained in episodic verb constructions just as in epistemic verb constructions. It seems that speakers adopt a different strategy to parse the small clauses with episodic verbs, and thus we observe a wide variety of judgment variations.

Hoekstra 1988; Larson 1988; Stowell 1981; Williams 1994, among others, for complementation analyses; Déchaine 1993; Legendre 1997, among others, for adjunction analyses; see also fn. 30 for complex predicate vs. small clause analysis). English, in particular, is argued to take both options for different constructions. Various syntactic tests for VP-constituency such as VP-preposing, VP-ellipsis, or *do so*-substitution show that resultatives are VP-internal and are attached at the same level as subcategorized PPs, in contrast to depictives.

For instance, a resultative predicate cannot be stranded under VP-ellipsis or VP-fronting ((44b) and (44d)), on a par with a PP argument ((44a) and (44c)). A depictive phrase, on the other hand, can be stranded in those contexts, as shown by the grammaticality of (45) ((44)–(45) are from Levin and Rappaport Hovav 1995: 49). The resultative phrases are relatively easy to extract from islands: (46) (Shim and Den Dikken 2007). A depictive phrase must be further away from the verb when it appears with a resultative predicate: (47). A resultative predicate cannot follow a double object construction suggesting that it competes with one of the objects for a position within VP. A depictive phrase, in contrast, is compatible with double object constructions. These facts can be taken together as evidence for the claim that resultatives are inside the complement domain of V while depictive phrases are adjuncts outside the domain of V (see Baker 2004: 220–221 for discussion).

(44) a. *Jason put the book on the table, and Bill [did so] on the floor.
b. *Bill fastened the shutters open, and Mary [did so] shut.
c. *Jason said he would put the book on the table, and [put the book] he did on the table.
d. *Bill said that he would fasten the shutters open and [fasten them] he did open.

(45) a. Jason wiped the table tired and Mary [did so] wide awake.
b. Jason said that he would even wipe the table tired and [wipe the table] he did tired.

(46) a. Jim hammered the metal flat.
b. ?How flat do you wonder whether Jim hammered the metal _?

(47) a. I washed [[the car clean $_{resultative}$] cold $_{depictive}$].
b. *I washed [[the car cold $_{depictive}$] clean $_{resultative}$]. (Rothstein 1983)

(48) a. *I broke Chris a coconut open.
b. I gave Chris the meat raw. (Williams 1980)

Not all languages, however, employ the English strategy to represent secondary predication. In particular, a major distinction lies in the syntax and semantics of resultatives. Simpson (1983) observes that in English-type languages, resultatives can only be predicated of the (deep) object, not of the verb's external argument. This generalization has often been called *Simpson's law*. For instance, (46a) means that the metal got flat as a result of Jim's hammering. It does not mean that Jim got flat as a result of hammering the metal (see Levin and Rappaport Hovav 1995 for apparent counterexamples and possible accounts; cf. Rappaport Hovav and Levin 2001 for some qualifications). Simpson, however, shows that in languages like Warlpiri, resultatives

are readily predicable of an internal or external argument. For instance, in (49), the resultative predicate 'fat' can be a predicate of the external argument 'the bullocks'.

(49) Puluku-rlu kapu-lu marna nga-rni kuntukuntu-karda. Warlpiri
bullocks-ERG Fut-3PL grass-ABS eat-NPST fat-TRANSL
'The bullocks will eat themselves fat on the grass.' (Simpson 1983: 153)

Simpson (1983) captured this crosslinguistic difference by assuming that resultatives are merged as a complement in some languages (e.g. English) and as an adjunct in others (e.g. Warlpiri). Under the LFG framework, Simpson argues that if the resultative is an argument of the verb, as in English, we may posit a rule in the lexicon which specifies that the subject of the resultative predicate must be equivalent to the verb's object. In contrast, if the resultative predicate is not an argument of the verb, as in Warlpiri, it is hard to state such a dependency—hence, the resultative may take its subject freely (see Hoekstra 1988; Levin and Rappaport Hovav 1995, among others, for alternative accounts).[13]

Turning to Korean, the resultative predicate in Korean shows a similar pattern to the one in Warlpiri-type languages. The resultative predicate in Korean is marked by *-key* or *-tolok* (cf. complement *-key* clauses in (61)–(62); see Lee and Lee (2003); Son (2008); and Yeo (2006) for some differences between *-key* and *-tolok*, but nothing in this paper hinges on the choice between the two). As shown in (50), the resultative predicate *aphu-key* 'in.pain-RES' can either be the predicate of the subject *Susana* or the object *Jim* (Kim and Maling 1997; Shim and Den Dikken 2007; Wechsler and Noh 2001; among others).

(50) *Susana-ka* *Jim-ul* *aphu-key/tolok* ttayli-ess-ta.
Susana-NOM Jim-ACC in.pain-RES hit-PAST-DEC
'Susana$_i$ hit Jim$_j$ so that she$_i$/he$_j$ was in pain.'

Furthermore, resultative constructions in Korean can be further divided into two subtypes: in one case, the argument interpreted as the subject of the resultative predicate (resultative subject: RS, hereafter) is marked by nominative Case, as in (51a) and in the other case, it is marked by accusative Case, as exemplified in (51b).

(51) a. Jim-i *patak-i* *hayah-key* chilha-yess-ta.
Jim-NOM floor-NOM white-RES paint-PAST-DEC
'Jim painted the floor white.' (RS with a transitive verb)
b. Jim-i *patak-ul* *hayah-key* chilha-yess-ta.
Jim-NOM floor-ACC white-RES paint-PAST-DEC
(Shim and Den Dikken 2007)

[13] As Levin and Rappaport Hovav (1995) discuss, many subsequent approaches have been developed to capture Simpson's law. Levin and Rappaport Hovav argue that Simpson's law (Direct Object Rule, in their term) can be best explained by a linking rule: namely that, an NP that refers to the entity that undergoes the change of state in the eventuality described in the VP must be the direct object of the verb or governed by the verb heading the VP. The linking rule is in accordance with Simpson's approach in that only the complement-type resultative phrases are governed by the main verb, and that adjunct-type resultatives would not be affected by the linking rule. I assume that Simpson's description is basically correct. Without attempting to provide a further analysis of Simpson's law, I take it as a diagnostic to distinguish between the complement vs. adjunct types of resultatives.

The two constructions have different semantic and syntactic characteristics (see Hong 2005; Kim 1999; Lee 2006; Shim and Den Dikken 2007; Wechsler and Noh 2001; among others). Syntactically, transitive verbs allow either a nominative or accusative RS, as in (51), whereas intransitive verbs allow only the nominative RS, as in (52). The direct object of the verb can co-occur with the nominative RS, but not with the accusative RS, as shown in (53). Semantically, the accusative-marked RS must be the affected theme of the main verb, unlike the nominative RS. For instance, the sentence in (51b) can only mean that Jim's paintbrush was directly targeting the floor, indicating that *patak-ul* is an affected direct object of the verb. In contrast, (51a) may express a reading in which the floor accidentally gets covered with white paint as a result of Jim's clumsily painting, say, the ceiling.

(52) a. Jim-i *mok-i/*ul* *swi-key* wul-ess-ta.
Jim-NOM throat-NOM/ACC hoarse-RES cry-PAST-DEC
'Jim cried his throat hoarse.' (RS with a unergative verb)
b. hoswu-ka *kokitul-i/*ul* *cwuk-key* el-ess-ta.
lake-NOM fish-NOM/ACC die-RES freeze-PAST-DEC
'The lake froze (and so) the fish died.' (RS with an unaccusative verb)
(Kim 1999)

(53) Jim-i pap-ul *pay-ka/*lul* *theci-key* mek-ess-ta.
Jim-NOM rice-ACC belly-NOM/ACC explode-RES eat-PAST-DEC
'Jim ate (rice until) his belly (got) full.' (Shim and Den Dikken 2007)

Given the properties of resultatives discussed above, Shim and Den Dikken (2007) categorize Korean resultative predication into an adjunct type (following Simpson 1983), and propose the structure (54) for resultative phrases in Korean. Shim and Den Dikken provide independent arguments for (54), based on VP-replacement, VP-topicalization, recursion, and so forth, which are not repeated here for the sake of space (see Shim and Den Dikken for details; cf. Son 2008 and fn. 16 for possible objections and alternatives).

(54) [$_{v}$P2 [TP-adjunct subject-controlled resultative] [$_{v}$P1 subject [VP2 [TP-adjunct object-controlled resultative] [VP1 object V]] v]]

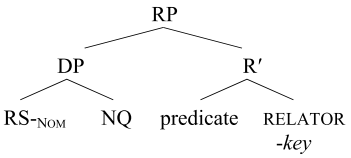
Shim and Den Dikken (2007) further argue that the nominative RS is analyzed as a subject of the RP while the accusative one is the object of the main predicate, as described in (55) (for object-oriented resultatives). In both constructions, resultative phrases are understood as an adjunct of the main verb. A null argument is placed in different positions in the two constructions, however. For the nominative RS construction, the verb may simply be intransitive, or select *pro* as its object if it is transitive, as in (55a). For the accusative RS construction, the verb must be transitive and take the RS as its direct argument, and *pro* is licensed inside the resultative RP, as in (55b). On this proposal, it is naturally expected that the nominative RS can appear either with an intransitive verb or with a transitive verb since it is the subject of an adjunct clause, and that the accusative RS must appear with a transitive verb as an affected theme since it is in fact the *object* of the main verb (cf. Jang 1997; Kang 2001; Kim 1993, 1999; Kim and Maling 1997; Lee and Lee 2003; Lee 2006;

Son and Svenonius 2008; and Wechsler and Noh 2001, among many others, for general discussion of Korean resultatives).[14]

(55) a. [$_{vP}$ S [$_{VP}$ [*resultative* DP-NOM$_i$ predicate-*key*] [$_{V'}$ (pro$_i$) V]]]: (51a), (52a,b)
b. [$_{vP}$ S [$_{VP}$ [*resultative* pro$_i$ predicate-*key*] [$_{V'}$ DP-ACC$_i$ V]]]: (51b)

The proposal in (55) leads us to make a set of predictions concerning the ordering of the edges in resultative constructions. Consider first the case where the RS is marked with nominative Case. If my proposal and (55a) are on the right track, we expect that the nominative RS cannot be separated from its NQ by the resultative predicate as an instance of the EG. Moreover, if *-key* is a morphological Spell-out of the RELATOR head, we further predict that the resultative predicate cannot be fronted to the left of the nominative RS or its NQ. If the predicate marked with *-key* forms R′, there is no probe that can trigger predicate fronting within RP. If RP is a spell-out domain, the ordering at RP, namely RS-NOM < NQ < predicate-*key* must be fixed in the higher domain under CL. This is illustrated in (56).

(56) Nominative-marked resultative subject in Korean



In other words, just like the SS with an epistemic verb seen in the previous section (e.g. (25)–(26)), we predict a rigid order among the RS, NQ, and resultative predicate. As shown in (57), the predictions are borne out. The nominative-marked RS *koyangi-ka* cannot be separated from its NQ *sey-mali* by the resultative predicate *cwuk-key* (or *cwuk-tolok*), as in (57b). Furthermore, the resultative predicate cannot be fronted to the left of the nominative-marked RS, as shown in (57c). The data in (57) thus provide further support for the structure in (55a) and the EG.[15]

[14]One can naturally extend (55) to subject-oriented resultatives so that the *pro*/nominative RS is co-indexed with the main subject (see fn. 17 for related discussion). Wechsler and Noh (2001) argue that Korean resultatives do not allow a *pro* subject (cf. (55b)), but their arguments are misguided by incorrect generalizations. First, they argue that resultative phrases in Korean can undergo fronting, unlike a clause containing a *pro* subject. As shown in (i), however, a *pro*-clause can undergo fronting. Second, they argue that an overt pronoun cannot appear in the position of *pro* in (55b), which is incorrect. As in (ii), it might be redundant to use a pronoun in the resultative clause, but the sentence is still grammatical. They also argue that *-tolok* cannot appear with (55b) type structures. As seen in (50), however, *-tolok* can be used with the (55b) type.

(i) [*pro* John-ul manassta-ko] Mary-ka malhayssta.
John-ACC met-C Mary-NOM said
'Mary said that (she) met John.'

(ii) Jim-i *maltul-ul* [*kukestul-i* motwu *cichi-key*] tallyessta.
Jim-NOM horses-ACC they-NOM all tired-RES ran
'Jim ran the horses until they all got tired.'

[15]Marcel den Dikken (p.c.) asks whether *pro* may leave a floating NQ. The data in (57b) suggest that *pro* cannot license an associated (Caseless) NQ. If *pro* can license an NQ, we would expect that examples like

(57) Nominative-marked resultative subject and NQ

a. Chelswu-nun ***koyangi-ka*** **sey-mali** *cwuk-key/tolok* ttayliessta.
Chelswu-TOP cat-NOM 3-CL die-RES beat
'Chelswu beat three cats dead.'

b. *Chelswu-nun ***koyangi-ka*** *cwuk-key/tolok* **sey-mali** ttayliessta.
Chelswu-TOP cat-NOM die-RES 3-CL beat

c. **Cwuk-key/tolok* Chelswu-nun ***koyangi-ka*** **sey-mali** ttayliessta.
die-RES Chelswu-TOP cat-NOM 3-CL beat

Consider now the case where the RS is marked with accusative Case. We should then make the opposite prediction from (56). If (55b) is on the right track, the accusative-marked RS is in fact the true object of the main predicate, where the object and the secondary predicate are merged in separate predication domains. As described in (58), it is then expected that the object may move across the resultative predicate, stranding an NQ in contrast to the data in (57b).

(58) Accusative-marked object, anaphorically related to the *pro* subject in RP
[VP **Obj-ACC** [RP *pro* predicate-*key*] [DP t **NQ**] V]]

As exemplified in (59), the prediction in (58) is borne out. The accusative-marked RS *koyangi-lul* 'cat-ACC' and its NQ *sey-mali* can be separated by *cwuk-key* 'die-RES' as in (59b), in contrast to the nominative-marked RS in (57b). Note also that the resultative may undergo predicate fronting to the left of *koyangi-lul* in (59c), in contrast to (57c). This is expected because the entire RP including the null subject undergoes fronting in (59c). Since the object and the RP are externally merged in different predication domains, the RP may undergo fronting to the left of the object (and the main subject).[16]

(57b) would be grammatical with the structure in (i), contrary to fact (see Kučerová 2005 for a suggestion that *pro* stays in its θ-position, unlike overt pronouns). Moreover, if *pro* can be a host of a (Caseless) NQ, we would expect that (ii) would be grammatical in Korean, contrary to fact. For the sentence (ii) to be grammatical, a Case-marked NQ (e.g. *sey-myeng-i*) must be used in Korean. This is different from PRO, which can license an NQ (see fn. 10). I do not know where the difference between *pro* and PRO comes from with respect to licensing an associate NQ, but it seems to be an extremely interesting issue to pursue in future research.

(i) [S [cat-NOM$_i$ die-RES] *pro*$_i$ 3-CL beat]

(ii) **pro* sey-myeng maykcwu-lul masiessta. Korean
3-CL beer-ACC drank
'Three (of them) drank beer.'

[16]For clarification, given the analysis in (58), the predication relationship between the object *koyangi-lul* 'cat-ACC' and *cwuk-key/tolok* 'die-RES' is only indirect, and the italics in (59) indicate an (indirect) dependency between the two in their semantic interpretation. Syntactically, the object and the resultative predicate are base-generated in separate predication domains. The same comment applies to all the cases where the object and a small clause predicate are base-generated in different predication domains (note, in particular, the examples for depictive predicates in Sect. 5). Son (2008) argues that a resultative phrase with an accusative-marked RS (e.g. *koyangi-lul* in (59)) must be analyzed as a complementation type whereas a resultative phrase with a nominative-marked RS (e.g. *koyangi-ka* in (57)) must be an adjunct type (following Song 2005; Yeo 2006; cf. Shim and Den Dikken 2007). In fact, Son's split analysis is

(59) Accusative-marked resultative subject and NQ

a. Chelswu-nun ***koyangi-lul*** **sey-mali** *cwuk-key/tolok* ttayliessta.
Chelswu-TOP cat-ACC 3-CL die-RES beat
'Chelswu beat three cats dead.'

b. Chelswu-nun ***koyangi-lul*** *cwuk-key/tolok* **sey-mali** ttayliessta.
Chelswu-TOP cat-ACC die-RES 3-CL beat

c. *cwuk-key/tolok* Chelswu-nun ***koyangi-lul*** **sey-mali** ttayliessta.
die-RES Chelswu-TOP cat-ACC 3-CL beat

Finally, further evidence of the Edge Effect can be found in the *v*P domain with resultative constructions. If the object-oriented resultatives are merged within VP, as in (55), we expect that the main subject and a subject-oriented numeral cannot be separated by the object-oriented resultative predicate since they are all *v*P-domain-mates. This is indeed the case, as shown in (60). Since the subject is on the edge of *v*P, it cannot undergo movement within *v*P. Thus, the *v*P-internal secondary predicate cannot intervene between the subject and the NQ_{subj} within *v*P. Under CL, we correctly predict that this ordering restriction will be preserved. In short, the ungrammaticality of (60b) can be seen as another instance of the EG.

(60) Main subject, resultative predicate, and NQ

a. **haksayngtul-i** **sey-myeng** *koyangi-lul* *cwuk-key/tolok* ttayliessta.
students-NOM 3-CL cat-ACC die-RES beat
'Three students beat a cat dead.'

b. ***haksayngtul-i** *cwuk-key/tolok* **sey-myeng** *koyangi-lul* ttayliessta.
students-NOM die-RES 3-CL cat-ACC beat

In addition, the fact that (60b) is simply ungrammatical is also noteworthy. It indicates that *cwuk-key* cannot be interpreted as a subject-oriented resultative, either. This is in fact perfectly in harmony with Shim and Den Dikken's proposal in (54). Under (54), the subject-oriented resultative is also a domain-mate with the subject and the NQ in the *v*P domain. Thus, we correctly expect to observe another instance of the EG here. If the subject-oriented resultative can be merged outside *v*P, we expect that (60b) would be grammatical with the subject-oriented resultative reading of *cwuk-key*, contrary to fact.[17]

compatible with my proposal as long as the small clause contains a null subject, as in (i). If the resultative predicate and the object are merged in separate predication domains, we expect the patterns reported in (59), whether the RP is an adjunct as in (55b) or a complement as in (i). Due to the evidence adduced by Shim and Den Dikken (2007), I adopt the adjunct analysis for resultatives here. A reviewer reports that s/he strongly prefers the ordering where the object precedes the resultative predicate, as in (i). But I believe that this is only a preference, and clearly there is no fixed order between the object and the resultative predicate, as shown in (59) (cf. (57)). As commented above, even if (i) is a possible structure, it does not affect my main arguments.

(i) $[_{vP}$ Subj $[_{VP}$ $[Obj_i$ (NQ)$]$ $[_{V'}$ $[_{RP}$ e_i predicate$]$ V $]]$ *v*$]$

[17]From (54), we also expect that the direct object of the verb and NQ_{obj} can be separated by a subject-oriented resultative phrase (as depicted in (21)). This expectation is upheld, as in (i). In the same vein, 'die-RES' in (59b) should be ambiguous between a subject-oriented and object-oriented reading, but we

Given the Edge Effect observed with small clauses of a complement type seen in Sect. 3.1, one may wonder whether the same effect can be obtained with complement type *-key* constructions in Korean. As illustrated in (61) and (62), the *-key* morpheme may also be employed in ECM and causative constructions, in addition to the resultative constructions. Interestingly enough, the accusative-marked elements in (61) and (62) behave differently from the ones in resultative *-key* constructions seen above. The accusative-marked argument in ECM and causative constructions cannot be separated from its NQ by the *-key* predicate, and furthermore, the *-key* predicate cannot be fronted to the left of the accusative-marked argument. This is in sharp contrast to the resultative *-key* constructions shown in (59). Note here that the accusative-marked argument in (61) and (62) behaves in the exact same way as the small clause subject of 'as'-constructions with an epistemic verb seen in (25).

(61) ECM type *-key* constructions

a. ?Mina-nun (cakipan) ***kyoswunim-ul*** **sey-pwun** *taytanha-key*
Mina-TOP (self.class) professor-ACC 3-CL excellent-C
sayngkakhanta.
think
'Mina thinks three professors (of her own class) (to be) excellent.'

b. *Mina-nun (cakipan) ***kyoswunim-ul*** *taytanha-key* **sey-pwun**
Mina-TOP (self.class) professor-ACC excellent-C 3-CL
sayngkakhanta.
think

c. ?**Taytanha-key* Mina-nun (cakipan) ***kyoswunim-ul*** **sey-pwun**
excellent-C Mina-TOP (self.class) professor-ACC 3-CL
sayngkakhanta.
think

(62) Causative *-key* constructions

a. ?Mina-nun ***coyswu-lul*** **sey-myeng** *tomangka-key* hayssta.
Mina-TOP inmate-ACC 3-CL run.away-C did
'Mina let three inmates run away.'

b. *Mina-nun ***coyswu-lul*** *tomangka-key* **sey-myeng** hayssta.
Mina-TOP inmate-ACC run.away-C 3-CL did

c. **tomangka-key* Mina-nun ***coyswu-lul*** **sey-myeng** hayssta.
run.away-C Mina-TOP inmate-ACC 3-CL did

The data in (61)–(62) thus suggest that the accusative-marked argument in ECM and causative constructions is externally merged within the complement small clause, and shows strong Edge Effects, on a par with the subject of a small clause with epistemic verbs. It also implies that *-key* small clauses must be sub-divided into two types even

only get the latter reading. I speculate that this is because it is pragmatically implausible for (59b) to mean that 'Chelswu died as a result of his beating three cats'.

(i) *Susana-ka* maynpal-lo **kong-ul** *aphu-key* **twu-kay** chassta.
Susana-NOM barefoot-with ball-ACC in.pain-RES 2-CL kicked
'Susana$_i$ kicked two balls with (her$_i$) bare feet (and so she$_i$ is) in pain.'

though their surface Case properties seem very similar: the resultative *-key* phrase in (59) is an adjunct clause with a *pro* subject, whereas the ECM and causative *-key* constructions in (61)–(62) involve complement clauses, where the accusative-marked argument is directly merged within the small clause.[18]

In this section, we have seen some interesting parallels between resultative and complement small clause constructions. The nominative-marked RS and the subject of a small clause in epistemic/ECM/causative verb constructions show the same distributional property: they cannot be the sole argument of the main verb, predicate fronting is impossible, and the Edge Effects are strongly obtained. On the other hand, the accusative-marked RS and the argument interpreted as the small clause subject in episodic verb constructions behave in the opposite way: they can be interpreted as the sole argument of the main verb, predicate fronting is possible, and NQ-stranding is much freer. My argument shows that the parallel clustering behavior observed in this section is not accidental, but they can be naturally captured by extending the EG to the small clause domain.[19]

3.2.2 Two different types of resultatives—the case of Japanese

In the preceding section, I have argued that Korean resultatives are adjuncts, which do not observe Simpson's law. Interestingly enough, however, Takezawa (1993) shows that Japanese resultatives do obey Simpson's law. As shown in (63), a transitive object and unaccusative subject may be associated with a resultative predicate marked with *-ni*. In contrast, the resultative cannot be a predicate of a transitive subject or unergative subject, as in (64).

(63) Transitive object and unaccusative subject in Japanese

a. John-ga *aisukuriimu-o kotikoti-ni* kooraseta.
John-NOM icecream-ACC solid-RES froze
'John froze the ice cream solid.'

b. *aisukuriimu-ga kotikoti-ni* kootta.
ice cream-NOM solid-RES froze
'The ice cream froze solid.'

(64) Transitive subject and unergative subject in Japanese

a. John-ga *sakana-o makkuro-ni* kogasita.
John-NOM fish-ACC deep.black-RES burned
'*John burned the fish until it became black.'/✓ 'John burned the fish black.'

[18] I thank a reviewer for directing my attention to the contrast between complement and adjunct type *-key* constructions in Korean.

[19] The differences in Case marking can be derived independently. First, it is not surprising that the seemingly "SS" of episodic verbs and transitive resultatives is marked by accusative Case if it is the selected *object*, as argued here. The RS_{NOM} may obtain nominative Case by assuming that the resultative predicate forms an independent Case domain (e.g. Jang and Kim 2001; Shim and Den Dikken 2007). In contrast to resultatives, the complement of the epistemic verbs does not contain any verbal element. I thus assume that 'as'-predicates cannot assign any Case to its argument so that the SS must receive the Case from the verbal head of the main clause—hence, accusative Case. See the concluding parts of Sect. 3.2 and fn. 23 for further discussion.

b. **John-ga kutakuta-ni* odotta.
John-NOM exhausted-RES danced
'John danced until (he was) exhausted.'

If we extend Simpson's typology to Japanese, we are led to assume that Japanese *-ni* resultatives involve complementation structure, unlike their Korean counterparts.[20] Also unlike Korean, Japanese lacks the nominative-marked RS that appears with unergative or transitive verbs (cf. (51a), (52a)) (see also Lee and Lee 2003, and references cited there). This fact is expected if the nominative RS must be licensed within an adjunct type of resultatives, as in (55a), which Japanese lacks. Thus, I assume that resultative phrases in Japanese are merged as a complement of the main verb (unlike Korean), and that the RS is merged within the resultative small clause, and the Case of the RS must be licensed by the main verb so that it must receive accusative Case.

Consequently, we make a prediction for the edges of resultatives in Japanese, which is different from their Korean counterparts. As described in (65), we expect that the RS and its NQ would show the Edge Effect with respect to the resultative predicate since they are all externally merged in the same RP. As demonstrated in (66), this prediction is borne out. As shown in (66), the resultative predicate *makka-ni* and *rippa-ni* cannot intervene between the accusative-marked RS and its NQ. Note also that the unaccusative subject and its NQ cannot be separated by a resultative predicate, as shown in (67b). This is expected if we assume that the unaccusative subject in (67) is externally merged as the subject of the resultative predicate, just like the accusative-marked RS in (66).[21]

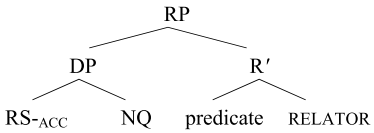
[20]Though Takezawa (1993) did not mention Simpson's law, Takezawa also analyzed the facts in (63)–(64) in such a way as to indicate that *-ni* marked resultative predicates are base-generated in the complement domain of V.

[21]It seems that the ungrammaticality of (66) and (67b) is somewhat weak and subject to speaker variations. Hideaki Yamashita (p.c.) notes that some speakers find the sentences in (66) acceptable in certain contexts (e.g. question-answer pairs). A reviewer notes that some speakers accept (i) and (ii) with unaccusatives as well. The other reviewer reports that Japanese informants find that (69b) is much worse than (66) and (67b) (and they prefer the predicate to be *dorodoro-ni* rather than *doradarake-ni* in (67)). Until I conduct a large-scale experimental study on judgments, I cannot provide a definite answer as to why such variation occurs. One possibility is that speakers may assign focus to the NQ so that the NQ is interpreted as an adverbial (fn. 6). Another possibility is that speakers may employ a null subject strategy for these constructions, with varying degree of acceptance for the null subject (similar to (34) for Korean episodic verb constructions). It is also unclear whether the judgment variation is crucially affected by the types of the verb. For now, I leave these issues open.

(i) ***zyagaimo-ga*** *kuro-ku* **huta-tu/ni-ko** kogeta.
potato-NOM black-RES 2-CL/2-CL burnt
'Two potatoes burnt black.'

(ii) ***enpitu-ga*** *hanbun-ni* **ni-hon** oreta.
pencil-NOM half-RES 2-CL break
'Two pencils broke into half.'

(65) Accusative-marked resultative subject in Japanese (cf. (58) for Korean)



(66) ?*RS-$_{ACC}$ < *-ni* resultative < NQ$_{obj}$

a. ?*John-ga ***kuruma-o*** *makka-ni* **ni-dai** nutta.
John-NOM car-ACC deep.red-RES 2-CL painted
'John painted two cars red.'

b. ?*John-ga ***kodomo-o*** *rippa-ni* **san-nin** sodateta.
John-NOM children-ACC admirable-RES 3-CL raised
'John raised three children to be admirable.'

(Takezawa 1993; I. Takayoshi, S. Miyagawa, p.c.)

(67) ?*Unaccusative subject < *-ni* resultative <NQ$_{subj}$

a. ***syatu-ga*** **san-mai** *dorodarake-ni* yogoreta.
shirt-NOM 3-CL muddy-RES became.dirty
'Three shirts became dirty with dirt.'

b. ?****syatu-ga*** *dorodarake-ni* **san-mai** yogoreta.
shirt-NOM muddy-RES 3-CL became.dirty

(K. Takezawa, I. Takayoshi, p.c.; Takezawa 2000)

Note that the ungrammatical Japanese resultative examples in (66) contrast with the grammatical Korean resultative examples in (59). In Korean (59), the resultative predicate may intervene between the accusative-marked resultative subject and its NQ. In Japanese (66), however, the opposite pattern is observed. Given the assumption that Simpson's law correlates with the complementation analysis of resultatives, we can explain the otherwise unexpected contrasts between the two languages in the distribution of resultatives and floating numerals. It may also be useful to mention that the examples in (66) and (67) show again that the object is not exempt from ordering restrictions in licensing floating numerals. As seen in (68), the object/unaccusative subject seems to strand its associate NQ more freely than the primary subject seen in (18). When the object and its numeral are merged at the edge of a predication domain, however, they show the same type of ordering restriction as the transitive subject. With a simple stipulation that the object may always license floating NQs, the contrast between (66)–(67) vs. (68) would remain a mystery.[22]

[22]Note that the data captured by the EG cannot be explained under the previous proposals that reply on the mutual c-command condition (cf. Miyagawa 1989). Takezawa (1993), for instance, argues that the sentences in (66) are ungrammatical because the *ni*-resultative predicate must be base-generated below the object and the NQ$_{obj}$ to meet the mutual c-command condition, as in (i) (assuming a ternary-branching structure). As in (iii), however, the resultative predicate can undergo scrambling and the object is also movable. Hence, under (i), it is unclear how the derivation (ii) can be ruled out where the object and the predicate undergo scrambling, which is ruled out under the EG. Additionally, the data in (iii) indicates that the null subject strategy may be employed for Japanese resultatives so that the resultative predicate may undergo fronting (cf. (34)). Alternatively, it may suggest that *-ni* is not a RELATOR head (but a reflex

(68) Transitive object and unaccusative subject in Japanese

a. **hon-o** gakusei-ga **go-satu** katta.
book-ACC student-NOM 5-CL$_{book}$ bought
'Student bought five books.'

b. **gakusei-ga** ohuisu-ni **2-ri** kita.
student-NOM office-to 2-CL came
'Two students came to the office.' (Miyagawa 1989:43)

Lastly, we expect that a subject and a subject-oriented NQ cannot be separated by a resultative predicate in Japanese, just as in Korean. We expect to observe the EG in the *v*P domain in both languages. This prediction is borne out, as demonstrated in (69). Thus, the convergence and divergence between Korean and Japanese in interactions of resultatives and NQs cannot be explained away by an assumption that Korean and Japanese resultatives are simply different from each other. The observed pattern should be understood as a matter of structure, not of grammatical function of a particular argument in a particular language.

(69) Japanese: subject < *-ni* resultative < NQ$_{subj}$

a. **gakusei-ga** **san-nin** *kuruma-o* *makka-ni* nutta.
student-NOM 3-CL car-ACC red-RES painted
'Three students painted a car red'

b. *__gakusei-ga__ *makka-ni* **san-nin** *kuruma-o* nutta.
student-NOM deep.red-RES 3-CL car-ACC painted
'Three students painted a car red.' (I. Takayoshi, p.c.)

Before closing this section, a note on the nature of the small clause subject is in order. My arguments developed in this section suggest that there is a certain relationship between Case of the small clause subject and the argumenthood of the small clause. If the small clause is merged as a complement of the main verb (e.g. 'as'-small clause (27), *ni*-resultative in Japanese (65)), the small clause subject is marked with accusative Case. If the small clause is merged as an adjunct (e.g. resultatives in Korean (55a)), the small clause subject is marked with nominative Case. My analysis also implies that there is some relationship between licensing a null subject and argumenthood of the small clause. The adjunct type of small clauses may employ a *pro*-subject (e.g. (55b)). The accusative-marked element interpreted as the subject of a small clause can in fact be analyzed as the true object of the main verb, which is anaphorically related to *pro*. In exactly those cases, we obtain apparent obviation of

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of Agree between the RELATOR and predicate) so that the predicate with *-ni* may undergo RP-internal fronting (cf. note 11 and (56) for predicate fronting in Korean).

(i) (NP-ga) [$_{VP}$ NP-o NQ$_{obj}$ X-ni V]

(ii) [NP-ga NP-o$_1$ X-ni$_2$ [$_{VP}$ t$_1$ NQ$_{obj}$ t$_2$ V]]

(iii) *massiro-ni*$_1$ Mary-ga [John-ga *kabe-o* t$_1$ nutta to] itta.
white-RES Mary-NOM [John-NOM wall-ACC painted C] said
'Mary said that John painted the wall white.' (Takezawa 1993: fn. 13)

the EG (e.g. (59)) (We will see more of this correlation with depictive predicates in Sect. 5).

Though this paper is not based on a particular hypothesis regarding the relationship between Case and argumenthood of the small clause, the consequences described above do not seem to be accidental. If the subject of a small clause is marked with accusative Case, the most natural source of the Case is the main verb. It is not surprising then that the subject of small clauses of complement types, but not of adjunct types, receives accusative Case. The generalization is also in line with the previous proposal that Korean (adjunct) resultative phrases are independent Case domains, which license nominative Case. For instance, Jang and Kim (2001) argue that it is a default Case strategy in Korean. Shim and Den Dikken (2007) argue that Korean resultatives contain a Tense projection that licenses nominative Case. If the *pro* subject is licensed only in independent Case domains, it is also expected that *pro* can be readily licensed in small clauses of an adjunct type such as Korean resultatives. It is also noteworthy that a wide range of judgment variations is observed exactly when speakers are forced to take a null subject analysis for complement small clauses in order to obviate the EG. It suggests that the null subject strategy is most felicitous with small clauses of an adjunct type, and is adopted for complement small clauses only marginally with much variation (fn. 12 and 21).

4 The object on the edge 'again'

We have seen that the diagnostics developed from the EG may explain interesting symmetries and asymmetries among small clauses, both crosslinguistically and intralinguistically. In this section, I provide further support for the proposal from a previously unnoticed correlation between the interpretation of the adverb 'again' and Edge Effects.

4.1 Background: the syntax of 'again'

It is known that the meaning of the adverb 'again' is ambiguous when combined with telic verbs. The distinctions are commonly called the repetitive and restitutive readings. For instance, the English sentence (70) is ambiguous between the two readings listed in (71) (but see (87) for further discussion). In the repetitive reading, it asserts that Sally opened the door twice. In the restitutive reading, it merely denotes that the door returned to the state of being open (see Bale 2007; Beck and Johnson 2004; Dowty 1979; Nam 2005; von Stechow 1996; Yoon 2007; among others).

(70) Sally opened the door again.

(71) a. Sally opened the door and that had happened before. (repetitive)
b. Sally opened the door and the door had been open before. (restitutive)
(Beck and Johnson 2004: 106)

von Stechow (1996) argues that 'again' has basically one meaning, and that the ambiguity observed with 'again' must be attributed to scopal differences (cf. semantic/lexical ambiguity analysis of 'again', e.g. Dowty 1979; Jäger and Blutner 2003;

Yoon 2007). Specifically, the semantic contribution of 'again' is always repetition, but ambiguity arises depending on what event is repeated. The proposal is sketched with the informal structure of *v*P in (72). When *again* is merged higher than the BECOME verb and takes scope over it, *again* expresses the repetition of the whole event, as in (71a). When *again* takes scope under BECOME, on the other hand, it indicates the repetition of the original state, as in (71b).

(72) [$_{vP}$ Subj *v*-CAUSE [$_{VP}$ BECOME [$_{SC}$ the door open $again_{res}$]] $again_{rep}$]

The same type of ambiguity is observed with Korean *tasi* 'again', as shown in (73). More interestingly, in Korean, the two readings of 'again' can be disambiguated by using a different lexical item. The adverb *tto* 'again' represents the repetitive reading of 'again', but not the restitutive one. Conversely, the adverb *tolo* 'again' is compatible only with the restitutive reading of 'again' (when *tolo* is forced to be interpreted as repetitive 'again', speakers find awkwardness). Thus, when *tasi* is replaced with *tto* in (73), it unambiguously denotes a repetitive reading. With *tolo*, (73) is felicitous only with a restitutive reading (see Yoon 2007 for further discussion of the three types of 'again' in Korean).

(73) Sally-ka ku mwun-ul tasi yel-ess-ta.
Sally-NOM that door-ACC again open-PAST-DEC
'Sally opened that door, and she had done that before.' (repetitive *tto* 'again')
'Sally opened that door, and the door had been in the state of being open before.' (restitutive *tolo* 'again')

The three-way distinction of 'again' in Korean can be seen more clearly in a context where one of the two readings is implausible to derive. For instance, it is extremely odd to use *tolo* with verbs of creation since the relevant event does not contain the original state that can be repeated, as in (74a). It is also infelicitous to use *tolo* with pure activity predicates such as 'play the violin' for which it is hard to set an original state of the event. If (74b) is ever possible, it means that Irene resumed playing the violin after some disruption. Crucially, however, *tolo* in (74b) lacks the repetitive reading 'Irene played the violin once more', which *tto* clearly carries. Conversely, we can also find contexts where the repetitive *tto* is absurd to use. For instance, if the preceding context makes it clear that the agent was not involved in the preceding event, it is not acceptable to use *tto,* but one can still use *tasi* or *tolo* felicitously. This is shown with (75) (I use '#' to indicate unacceptable sentences with 'again', based on the claim that the unacceptability comes from presupposition failure. See von Stechow 1996; Bale 2007 for presupposition of 'again').

(74) a. Chelswu-ka khwukhi-lul tasi/tto/#tolo kwuessta.
Chelswu-NOM cookie-ACC again baked
'Chelswu baked cookies again.' (repetitive, #restitutive)

b. Irene-ka vaiollin-ul tasi/tto/#tolo yencwuhayssta.
Irene-NOM violin-ACC again played
'Irene played the violin again.' (repetitive, #restitutive)

(75) [Context: 'This beautiful cave had never been closed before the avalanche in 1929. But the great avalanche closed the cave completely. Everybody worked very hard to open the cave, and finally . . . ']

kwunintul-i ku tongkwul-ul tasi/tolo/#tto yelessta.
soldiers-NOM that cave-ACC again opened
'Soldiers opened the cave again.' (restitutive, #repetitive)

Adopting the structural analysis of 'again' by von Stechow (1996), I argue that there are three different types of 'again' in Korean which have different external merge sites (cf. Yoon 2007). In particular, *tasi* can be merged either under or over the BECOME verb, just like English *again*. In contrast, *tolo* must be merged below BECOME, whereas *tto* must be merged higher than BECOME.[23]

4.2 Edge Effects and 'again'

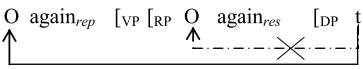
4.2.1 Korean 'again'

The different types of 'again' provide us with a probe into the fine internal structure of *v*P, which has a consequence for my proposal on edges. Following von Stechow (1996) and Beck and Johnson (2004), let us assume that the different readings of 'again' are represented by the different syntactic positions mentioned above. Suppose also that the direct object of the verb with 'again' originated from the subject position of the small clause, which denotes the original state of the event (von Stechow 1996; Beck and Johnson 2004; Baker 2004). We then expect that the Edge Effect would emerge for the object with respect to a particular type of 'again'. Specifically, we predict that the object and its NQ can be separated by the repetitive 'again', but not by the restitutive 'again'. To be concrete, the prediction is described with the diagram in (76).

[23] von Stechow (1996) notes that *wieder* 'again' in German lacks the restitutive reading if it precedes the object, as in (i). The same fact does not hold in Korean, however. As in (ii), *tasi/tolo* 'again' may retain the restitutive reading when it precedes the object (see (90) for further discussion). Thus, I do not adopt his claim that the object must "overtly" raise to AgrO-P out of *v*P for Case-checking so that 'again' must receive a repetitive reading when it precedes the object. Instead, I adopt the Agree approach by Pesetsky and Torrego (2007). More specifically, I assume the Case theory developed in Ko (2009), which adopted Pesetsky and Torrego's (2007) proposal that Case is a Tense feature on a nominal head and is valued when it shares the T-feature with a Tense head (which bears unvalued interpretable [iT]) and a verbal head (which contains a valued uninterpretable [uT*val*]). On this proposal, nominative Case marking is understood as T-feature sharing among T, *v*, and Case-bearing maximal projections inbetween. Accusative Case marking can be understood as T-feature sharing among *v*, V, and Case-bearing maximal projections (cf. Pesetsky and Torrego 2004). Hence, as long as the object is placed between V and *v*, it can receive accusative Case. Under this proposal, the object does not have to move to Spec*v*P (overtly or covertly) for Case purposes. For a general discussion of Case theory, I refer the reader to Ko (2009).

(i) Ali Baba wieder Sesam öffnete.
Ali Baba again Sesam(door) open
'Ali Baba opened the door again.' (only repetitive)

(ii) Sally-ka tasi/tolo ku tongkwul-ul yelessta.
Sally-NOM again that cave-ACC opened
'Sally opened the cave again.' (restitutive with *tolo/tasi*, repetitive with *tasi*)

(76) 

As depicted in (76), the object and NQ_{obj} belong to the same predication domain as the restitutive 'again'. Under probe-goal Search, we expect that the edge elements, the object or the NQ_{obj} cannot undergo movement within RP. The restitutive 'again' may be merged higher or lower than the object and the NQ_{obj}, but it cannot be merged in between the object and the NQ_{obj}. Thus, if the predication domain is a Spell-out domain, we predict that the object and the NQ cannot be separated by their domain-mate, the restitutive 'again'. In contrast, we expect that the repetitive 'again' can separate the object and the NQ_{obj}. After the Spell-out of RP, the object may undergo movement over the repetitive 'again', being probed by the higher head, say, v. If the object-oriented numeral is stranded in SpecRP, we obtain object<repetitive 'again'<NQ_{obj} ordering without any contradiction.

To be more specific, if my proposal and the structural analysis of 'again' are on the right track, we predict that the readings of *tasi* will be disambiguated when it intervenes between the object and the NQ_{obj}. Specifically, it will be compatible only with the repetitive reading. Furthermore, *tolo* (restitutive 'again') would be implausible to use when it is placed between the object and the NQ_{obj}. In contrast, *tto* would be compatible with such orderings since *tto* represents the repetitive reading of 'again'. The set of predictions are borne out. As shown in (77), it is in principle possible to get two readings of 'again' with an object-oriented numeral. Notably, however, it is difficult to get the restitutive reading of 'again' in (78). In (78), *tasi* and *tto* represent the repetitive reading of 'again'. Hence, it is most natural to assume that there were two instances of avalanches occurring, which closed the cave twice. It is unacceptable or awkward to use *tolo* in (78). If (78) is ever possible, *tolo* is forced to receive the same interpretation as *tasi* or *tto*, so that (78) is incompatible with the context such as (75).

(77) sansathay-ka **tonggwul-ul** **twu-kay** tasi/tto/tolo makassta.
avalanche-NOM cave-ACC 2-CL again closed
'Avalanche closed two caves again.' (repetitive, restitutive)

(78) sansathay-ka **tonggwul-ul** tasi/tto/#tolo **twu-kay** makassta.
avalanche-NOM cave-ACC again 2-CL closed
'Avalanche closed two caves again.' (repetitive, #restitutive)

In (79), a preceding context is devised in such a way that it is incompatible with the repetitive reading of 'again'. So, if the sentence can be felicitous, it may be acceptable only with the restitutive reading of 'again'. The unacceptability of (79b) demonstrates that when the repetitive reading is suppressed, 'again' cannot intervene between the object and NQ_{obj}.

(79) [Context: This is a brief history about two famous bridges. In 1940, the government started to build two bridges in this village. Unfortunately, before the government finished building the bridges, the War broke out, so the bridges were left unfinished. But some U.N. soldiers came to the village and finished building the bridges by connecting unfinished parts of them. Just before the

War ended, however, the opponent party invaded the village, and destroyed the two bridges.]

a. chimlyakkwun-i **tali-lul** **twu-kay** tasi/tolo/#tto kkunhessta.
invaders-NOM bridge-ACC 2-CL again broke
'Invaders destroyed two bridges again.' (restitutive, #repetitive)

b. chimlyakkwun-i **tali-lul** #tasi/#tolo/#tto **twu-kay** kkunhessta.
invaders-NOM bridge-ACC again 2-CL broke
'Invaders destroyed two bridges again.' (#restitutive, #repetitive)

Ko (2007) has argued that the unaccusative subject can be separated from its NQ by *v*P-internal adverbs, in contrast to the unergative subject, as shown in (80)–(81). This is because the unaccusative subject is merged below the *v* head so that it can move over the *v*P-internal adverbs, unlike unergative subjects (recall the contrast between (16) vs. (21))

(80) **UFO-ka** coyonghi **sey-tay** salaciessta.
UFO-NOM quietly 3-CL disappeared
'Three UFOs disappeared quietly.'

(81) ?*__haksayng-tul-i__ sikkulepkey **twu-myeng** cenhwahayssta.
student-PL-NOM loudly 2-CL telephoned
'Two students spoke on the telephone loudly.'

If the current analysis is on the right track, however, we expect that Edge Effects would also be obtained with the unaccusative subject with respect to an RP-internal adverb. In particular, we expect that the unaccusative subject cannot be separated by the restitutive 'again' from the associate numeral. This prediction can be tested with (counter) directional verbs, which show interesting meaning differences with respect to different types of 'again'. When the unaccusative verb 'fell down' is combined with 'again', as in (82), it may mean that the aircraft fell down first and then fell down further. This is a repetitive reading of 'again' for 'fell down'. Interestingly, however, the sentence may also mean that the aircraft fell down first, and then went up, and fell down again. This is understood as a restitutive reading of 'again', which indicates the restitution to the previous state of falling ((82) is based on von Stechow's 1996 discussion of German data).

(82) pihayngki-ka tasi/tolo/tto hakanghayssta.
aircraft-NOM again fell.down
'The aircraft fell first and fell down again.' (repetitive, with *tasi* and *tto*)
'The aircraft fell and went up and fell again.' (restitutive, with *tasi* and *tolo*)

Given the ambiguity of (82), we expect that only the repetitive reading of 'again' is possible when it intervenes between the unaccusative subject and its numeral, as an instance of the EG, and the prediction is borne out. As shown in (83), the sentence without a split between the subject and its numeral is compatible with both the restitutive and repetitive reading. In contrast, however, only the repetitive reading is allowed in (84). If *tolo* is ever acceptable in (84), it is forced to be interpreted in the

same way as *tasi* and *tto*. It cannot represent the restitutive reading seen in (82) and (83).[24]

(83) **pihayngki-ka** **sey-tay** tasi/tto/tolo hakanghayssta.
aircraft-NOM 3-CL again fell.down
'Three aircraft fell down again.' (repetitive, restitutive)

(84) **pihayngki-ka** tasi/tto/#tolo **sey-tay** hakanghayssta.
aircraft-NOM again 3-CL fell.down
'Three aircraft fell down again.' (repetitive, #restitutive)

Finally, we can also test the current proposal with the transitive subject on the *v*P edge. If the subject and its NQ cannot be separated by their domain-internal element, as discussed in Sect. 2, we predict that the restitutive 'again' cannot be placed between the subject and its NQ either. This is prediction is upheld, as shown by the unacceptability of the restitutive reading in (86) (to be precise, (85) is somewhat degraded for reasons unclear to me, but there is a clear contrast with *tolo* between (85) and (86) as indicated here).

(85) ?**kwunintul-i** **sey-myeng** ku tonggwul-ul tolo yelessta.
soldiers-NOM 3-CL that cave-ACC again opened
'Three soldiers opened that cave again.' (restitutive)

(86) #**kwunintul-i** tolo **sey-myeng** ku tonggwul-ul yelessta.
soldiers-NOM again 3-CL that cave-ACC opened
'Three soldiers opened that cave again.' (#restitutive)

The behavior of repetitive 'again' with respect to the transitive subject calls for special attention as well. Under von Stechow (1996), the repetitive reading of 'again' is obtained as long as 'again' is merged above the BECOME verb. Thus, 'again' may carry a repetitive reading whether it is merged outside *v*P or within *v*P as long as it is merged above BECOME. Von Stechow called the latter possibility *an intermediate reading,* but left it open whether there is a strong semantic motivation for it (von Stechow 1996: 99). Bale (2007), however, convincingly shows that the two types of repetitive readings of 'again' are semantically distinct from each other. If 'again' is merged below the agent but above VP (which contains the verb and the object), 'again' denotes mere repetition of action, possibly by a different agent. If 'again' is merged above the agent above *v*P, it denotes repetition of action by the same agent. Bale (2007) calls the former *subjectless presupposition*. For instance, the example in (70), repeated here as (87), is in fact ambiguous in three ways, as described in (a–c) (see Bale 2007 for independent evidence that *subjectless presupposition* is not a restitutive reading).

[24]Marginally, (84) could mean that there were two discontinuous events of three aircraft that fell down. At first, three aircraft fell down and there was some disruption. After a while, it happened again that three aircraft fell down. I assume that this is distinct from the restitutive reading of 'again', but it is beyond the scope of the paper how to represent it in semantics.

(87) Sally opened the door again.
  a. Sally opened the door twice. (repetitive 'again')
  b. Somebody opened the door twice. (subjectless presupposition of 'again')
  c. The door had been in the state of being open twice. (restitutive 'again')

More directly relevant to our discussion, Bale (2007) argues that the readings of 'again' interact with the scope of quantifiers within *v*P. If a QP scopes over 'again', the sentence is true when the participants identified by the QP's variable in the presupposed event are the same as the participants identified by the QP's variable in the asserted event, as in (88a). If 'again' scopes over a QP, the participants identified by the QP's variable in the presupposed event can be different from those identified in the asserted event, as in (88b).

(88) Esme hugged some dolls again.
  a. For some dolls, it is the case that Esme hugged them again.
  b. Again, Esme hugged some dolls.

The two different merge sites of repetitive 'again' lead us to different predictions for Edge Effects.[25] If the repetitive 'again' in Korean must be merged within *v*P (but above BECOME), we would expect that the repetitive 'again' cannot intervene between the subject and its NQ (i.e. an instance of Edge Effects in *v*P). If repetitive 'again' may be merged outside *v*P, we would expect that *tto* or repetitive *tasi* may intervene between the subject and its NQ, but that 'again' must scope over the subject, as in (88b). In other words, the quantification domain of the QP in the presupposition may be different from the one in the assertion. This prediction is tested with (89).

(89) (#)/?**kwunintul-i** tasi/tto **sey-myeng** ku tonggwul-ul yelessta.
soldiers-NOM again 3-CL that cave-ACC opened
'Three soldiers opened that cave again.' (%repetitive, #restitutive)

Korean speakers vary on the judgment on 'again' with a repetitive reading (e.g. *tto, tasi*) in (89), but in the expected ways. Some speakers (2/7) find the sentence in (89) with *tto/tasi* is quite degraded. Others accepted the sentence with *tto/tasi* in (89) (5/7). Crucially, all the speakers who accepted (89) report that the participants identified by the QP's variable in the presupposed event *can be different* from those identified in the asserted event. (In fact, some speakers (3/5) preferred the different-agent reading over the same-agent reading.) In other words, it is a possible reading of (89) that two different sets of three soldiers opened the cave. The result shows that speakers either consistently reject (89) or accept it when 'again' scopes over the indefinite 'three soldiers'. This is exactly what we expect. If the EG is on the right track, we expect that the speaker either rejects (89) as an instance of the EG in *v*P, or if the speaker accepts it, 'again' must scope over the subject QP since 'again' must be merged outside *v*P (like a high adverb seen in Sect. 2). Thus, the overall result supports my general arguments for Edge Effects and Bale's fine-grained semantic theory of 'again'.

[25] I thank Marcel den Dikken (p.c.) for directing my attention to the two different types of repetitive 'again'. I also thank Yu-mi Jo for helpful discussions on various types of 'again' in Korean and English.

If we may extend Bale's (2007) analysis of subjectless presupposition to small clause domains, we make a further prediction for object QPs and two types of restitutive 'again'. As illustrated in (90), if restitutive 'again' is externally merged higher than an object QP ($again_{res2}$), the different-object-reading may be possible, where the quantification domain of the QP in the presupposition may be different from the one in the assertion (similar to (88b)). In contrast, if restitutive 'again' is externally merged lower than the object QP ($again_{res1}$), the same-object-reading must be obtained (similar to (88a)). Furthermore, since both types of restitutive 'again' are merged on the edge of the same RP as the object, the ordering in RP must be fixed under CL and probe-goal Search. In other words, the linear order between restitutive 'again' and object QP must reflect their scope relationship in base position.

(90) $[_{RP}\ again_{res2}$ object (NQ_{obj}) $again_{res1}$ predicate RELATOR]

The predictions are tested with (91)–(92). When *tolo/tasi* 'again' precedes *tonggwul-ul*, the different-object-reading is possible, as shown in (91). In contrast, when *tonggwul-ul* precedes 'again', as in (92), only the same-object-reading is possible. The contrast between (91)–(92) in the restitutive reading of 'again' thus confirms the predictions that follow from (90). Note also that the point still remains that restitutive 'again' cannot intervene between the object and NQ whether it is merged higher or lower than the object, as in (93).[26]

[26]I note, however, that interactions between 'again' and other types of constructions (e.g. inchoatives, passives, double object constructions) require much further research. For instance, if inchoative-causative counterparts are transformationally related in syntax, we would expect that the inchoative subject and its NQ cannot be separated by a restitutive 'again'. Contrary to this expectation, restitutive 'again' may intervene between the inchoative subject and NQ, as in (i). The contrast between (i) and (ii) seems to suggest that inchoatives and causatives are not transformationally related (cf. an unaccusative approach by Baker 1988; cf. a detransitivation approach by Levin and Rappaport Hovav 1995). Rather, they are different constructions which share the same verbal root, as argued by Pylkkänen (2008). Furthermore, the grammaticality of (i) suggests that the inchoative subject and 'again' do not show the Edge Effect, which is puzzling given my account. At this moment, I do not have a developed story on this. Adopting Den Dikken (2007a), I may assume that the verbal root undergoes head-raising to the inchoative head so that the Spell-out domain is extended to *v*P (from RP). The inchoative subject may then undergo domain-internal movement to the left of the restitutive 'again' before Spell-out of *v*P. I admit, however, that this claim is stipulative unless I show independent evidence that inchoative verbal root undergoes head-raising (while transitive verbal roots do not). I leave it for future research how head-raising interacts with CL. I also refer the reader to Ko (2005: Chap. 4) for further discussion on the interactions between the scope of 'again' and the structure of ditransitive constructions (cf. Simpson et al. 2009 for diversity of ditransitive constructions).

(i) **tonggwul-i** tasi **twu-kay** yel-li-ess-ta.
cave-NOM again 2-CL open-INCHOATIVE-PAST-DEC
'Two caves opened again.' (✓ restitutive reading, ✓ repetitive reading assuming an implicit agent)

(ii) kwunintul-i **tonggwul-ul** tasi **twu-kay** yel-ess-ta.
soldiers-NOM cave-ACC again 2-CL open-PAST-DEC
'Soldiers opened two caves again.' (#restitutive reading, ✓ repetitive reading)

I thank a reviewer for all the stimulating questions on the interaction between QPs and two types of restitutive readings of 'again'.

(91) kwunintul-i tolo/tasi **tonggwul-ul** (**twu-kay**) yelessta.
soldiers-NOM again cave-ACC 2-CL opened
'Soldiers opened two caves again.' (restitutive2: different-object-reading possible)

(92) kwunintul-i **tonggwul-ul** (**twu-kay**) tolo/tasi yelessta.
soldiers-NOM cave-ACC 2-CL again opened
'Soldiers opened two caves again' (restitutive1: same-object-reading only)

(93) kwunintul-i **tonggwul-ul** #tolo/tasi **twu-kay** yelessta.
soldiers-NOM cave-ACC again 2-CL opened
'Soldiers opened two caves again.' (repetitive reading)

Lastly, a cautionary note on 'again' constructions and Simpson's law is in order. In this section, I have argued that the distribution of 'again' and floating numerals supports a decompositional analysis for telic predicates like 'open' in Korean. This may seem to fit in somewhat poorly with the discussion of resultatives in Sect. 3. In Sect. 3, I argued that Korean resultatives introduced by *-key/-tolok* involve adjunction. The discussion on 'again', however, suggests that the resultative state introduced by the decomposition of a verb involves a complement structure of the abstract verb BECOME.[27]

In a more general sense, however, the current claim does not conflict with the overall argument in Sect. 3. Unlike resultatives marked by *-key/-tolok*, the subject of the small clause containing the restitutive 'again' and the decomposed verb must be the underlying object (i.e. an object of a telic verb or unaccusative subject). The transitive subject or unergative subject cannot be the subject of a small clause containing the restitutive 'again' (see Bale 2007 for further evidence). In other words, the small clauses discussed in Sect. 4 do obey Simpson's law. Thus, the overall claim that complementation structure correlates with Simpson's law is still tenable. This in fact directs us to a more interesting issue of why there is a structural difference between a resultative phrase introduced by a lexical item such as *-key/-tolok* and a result state introduced by general cause-effect constructions (see Rappaport Hovav and Levin 2001 for an insightful discussion on the differences between inchoatives/resultatives and causatives in event structure). I leave this issue for further research.

4.2.2 Japanese 'again'

In Sect. 3, we have seen that Japanese resultative constructions behave differently from Korean resultatives. The former involves complementation, whereas the latter represents adjunction. It would be useful to note, however, that this asymmetry disappears with respect to 'again' constructions. As shown in (94), Japanese *mata* and *hutatabi* 'again' may have both repetitive and restitutive readings, like Korean *tasi*.[28]

[27] I thank Marcel den Dikken (p.c.) for raising this issue to me.

[28] *Mata* is more colloquial than *hutatabi,* but there is no significant meaning difference between the two words. My informant also reports that there is no lexical item like *tolo* 'restitutive again' in Japanese. For instance, (i) is grammatical with *mata/hutatabi* in Japanese, unlike *tolo* in Korean (74b).

(94) Sally-ga sono doa-o *mata/hutatabi* hiraita.
Sally-NOM that door-ACC again opened
'Sally opened that door, and she had done that before.' (repetitive 'again')
'Sally opened that door, and the door had been in the state of being open before.' (restitutive 'again') (I. Takayoshi, p.c.)

Just as in the Korean counterparts, the orderings among object, NQ_{obj}, and restitutive 'again' show the Edge Effect. As illustrated in (95), when 'again' intervenes between the object and the NQ_{obj}, it has the repetitive reading only, as expected under the EG.

(95) a. yamakuzure-ga **dookutu-o** **huta-tu** mata/hutatabi husaida.
avalanche-NOM cave-ACC 2-CL again closed
'Avalanche closed two caves again.' (repetitive, restitutive)
b. yamakuzure-ga **dookutu-o** mata/hutatabi **huta-tu** husaida.
avalanche-NOM cave-ACC again 2-CL closed
'Avalanche closed two caves again.' (repetitive, #restitutive)

As also expected, the unaccusative subject cannot be separated from its associate numeral by restitutive 'again', just like the Korean counterparts in (84). This is illustrated in (96). Subject scrambling also shows the Edge Effect with respect to the restitutive 'again', as shown in (97).[29] Since Korean and Japanese show the same type of distribution with respect to 'again', I conclude that the current analysis for Korean extends to Japanese. This is in fact expected if the semantics of 'again' is the same in Korean and Japanese.[30]

(i) Irene-ga baiorin-o mata/hutatabi ensoosita. Japanese
Irene-NOM violin-ACC again played
'Irene played the violin again.' (repetitive)

[29]My informant reports that it is in general better to place *mata/hutatabi* near the verb to facilitate the restitutive reading of 'again'. Thus, one may attempt to attribute the differences between (a) and (b) in (97) to mere proximity/processing effects. Crucially, however, there is difference between (97b) and (i) without NQ. In contrast to (97b), it is possible, if not perfect, to obtain restitutive reading of 'again' with (i) when the offending numeral is missing.

(i) gunzin-ga hutatabi/mata sono dookutu-o hiraita.
soldier-NOM again that cave-ACC opened
'Soldiers opened that cave again.' (?restitutive, repetitive) (I. Takayoshi, p.c.)

[30]In Ko (2005), I explained some of the facts in Sects. 3–4, adapting a VP-shell analysis on resultative and 'again' constructions (cf. Bowers 1993; Embick 2004; Hale and Keyser 1993; Larson 1988). There, I assumed that VP is a Spell-out domain and that the object is merged in SpecVP when it functions as a (local) subject of the VP. In this paper, I was led to a small clause analysis for several reasons (cf. Den Dikken 2006a; Hoekstra 1988; Kratzer 2005): (i) the evidence collected in Ko (2005) comes from the context where the object is interpreted as the subject of a secondary or decomposed predicate in VP. Ko (2005), in fact, had no convincing evidence that VP forms a Spell-out domain when the object is a complement of a simple transitive V such as an activity verb. Thus, it is more precise to say that we observe the Edge Effect with small clauses and secondary predicates, rather than with VPs in general. (ii) Given that resultatives are adjuncts in Korean (which Ko 2005 did not take into account), Edge Effects observed within Korean resultatives cannot be straightforwardly accommodated under the VP-as-phase analysis. (iii) The VP-as-phase analysis somewhat obscured the semantics of restitutive 'again', too. In Ko (2005), I argued that restitutive 'again' is merged within a verbal component denoting the original state,

(96) a. **hikooki-ga** **san-dai** hutatabi kakoosita.
aircraft-NOM 3-CL again fell.down
'Three aircraft fell down again.' (repetitive, restitutive)

b. **hikooki-ga** hutatabi **san-dai** kakoosita.
aircraft-NOM again 3-CL fell.down
'Three aircraft fell down again.' (repetitive, #restitutive)

(97) a. **gunzin-ga** **san-nin** sono dookutu-o hutatabi/mata hiraita.
soldier-NOM 3-CL that cave-ACC again opened
'Three soldiers opened that cave again.' (repetitive, restitutive)

b. **gunzin-ga** hutatabi/mata **san-nin** sono dookutu-o hiraita.
soldier-NOM again 3-CL that cave-ACC opened
'Three soldiers opened that cave again.' (repetitive, #restitutive)

Our overall discussion further supports von Stechow's structural analysis of 'again' over the semantic/lexical ambiguity approaches (cf. Dowty 1979; Jäger and Blutner 2003; Yoon 2007). If 'again' sentences are ambiguous due to a non-syntactic ambiguity of 'again', we would not expect such an intricate interaction between the position of 'again' and floating numerals observed here.

5 Depictive secondary predicates

In this section, I examine some predictions of my proposal for depictive secondary predicate constructions. Using the EG, I will attempt to explain some interesting differences between depictive and resultative predicates and their interactions with floating numerals. A depictive secondary predicate describes the state of the referent of an NP at the time when the action denoted by the primary predicate occurs. In Japanese, depictive phrases are marked with the *-de* suffix. The following sentences are typical examples of *-de* depictive constructions. For convenience (and following Koizumi 1994), I call a subject-oriented depictive phrase an SDP and object-oriented depictive phrase an ODP.

(98) Subject-oriented Depictive Phrases (SDP) in Japanese

a. *Taroo-ga* *hadaka-de* hon-o yonda.
Taro-NOM naked-DEP book-ACC read
'Taro read a book naked.'

b. *Hanako-ga* *kimono-sugata-de* odotta.
Hanako-NOM kimono-dress-DEP danced
'Hanako danced in kimono.' (Koizumi 1994: 27)

and that the object must be in SpecVP outside the domain that contains 'again'. Semantically, however, the restitutive reading must come from a domain containing both the object and 'again'. Thus, Ko (2005) had to make some departure from von Stechow's (1996) analysis of 'again' to reflect this discrepancy. All these issues can be resolved if we adopt the small clause analysis and the predication-as-phase-model.

(99) Object-oriented Depictive Phrases (ODP) in Japanese

a. Taroo-ga *katuo-o* *nama-de* tabeta.
Taro-NOM bonito-ACC raw-DEP ate
'Taro ate the bonito raw.'

b. Hanako-ga *kuruma-o* *tyuuko-de* katta.
Hanako-NOM car-ACC secondhand-DEP bought
'Hanako bought a car used.' (Koizumi 1994: 27)

Koizumi (1994) argues that SDPs and ODPs are base-generated in different positions, as described in (100). In particular, SDPs may be base-generated outside a verbal projection "VP" which contains internal arguments such as indirect object and direct object.[31] The ODP, on the other hand, must be base-generated inside "VP". Specifically, Koizumi proposes that the ODP must be base-generated as a sister of V and the object assuming a ternary branching structure. Koizumi provides supporting arguments for (100) from various types of VP-constituency tests such as VP-preposing, pseudo-clefting, and VP-replacement. I reproduce his arguments with the VP-preposing test in (101).

(100) [$_{IP}$ Subj [SDP ["$_{VP}$" SDP ["$_{VP}$" Obj ODP V]] I]]

As shown in (101), VP-preposing is possible when the preposed "VP" contains all the internal arguments.[32] As in (102), the SDP may optionally be included in a preposed VP. The ODP, on the other hand, must be included in a preposed VP, as shown in (103). Given the constraint on VP-fronting in (101), Koizumi argues that the contrast between the SDP and the ODP in (102)–(103) implies that the SDP can optionally be base-generated outside "VP". In contrast, the ODP must be merged within "VP" together with the internal arguments.

(101) Japanese: VP-preposing (Koizumi 1994: 32–33)

a. [sono hako-no naka-ni ringo-o ire-sae]$_1$ John-ga t_1 sita.
that box-GEN inside-in apple-ACC put-even John-NOM did
'Even put an apple in that box, John did.'

b. *[ire-sae]$_1$ John-ga [sono hako-no naka-ni ringo-o t_1] sita.
put-even John-NOM that box-GEN inside-in apple-ACC did

c. *[ringo-o ire-sae]$_1$ John-ga [sono hako-no naka-ni t_1] sita.
apple-ACC put-even John-NOM that box-GEN inside-in did

[31] Koizumi (1994) does not assume the *v*P-internal subject hypothesis. To avoid potential confusion due to the differences in terminology, I will use "VP" to represent the VP in Koizumi's structure.

[32] As Danny Fox (p.c.) notes, Koizumi's argument tacitly assumes that there is no trace of the subject or trace of internal arguments in the preposed VPs in (101). Norvin Richards (p.c.) raises the questions of how the order in (101) can be derived under CL. I suggest that the VP projection may scramble to the left of the subject *John-ga* within *v*P (cf. anti-locality in fn. 2). Alternatively, one might argue that *John-ga* is externally merged higher than [Spec,*v*P] (as an argument of *sita*) and the fronted "VP" in (101) is in fact a *v*P that contains *pro* associated with *John-ga*. I leave it to future research how to resolve this issue.

(102) Japanese: SDP and VP-preposing (Koizumi 1994: 34)

a. [katuo-o tabe-sae]$_1$ *Taroo-ga* *hadaka-de* t_1 sita.
bonito-ACC eat-even Taro-NOM naked-DEP did
'Even eat the bonito, Taro did naked.'

b. [*hadaka-de* katuo-o tabe-sae]$_1$ *Taroo-ga* t_1 sita.
naked-DEP bonito-ACC eat-even Taro-NOM did

(103) Japanese: ODP and VP-preposing (Koizumi 1994: 35)

a. *[*katuo-o* tabe-sae]$_1$ Taroo-ga *nama-de* t_1 sita.
bonito-ACC eat-even Taro-NOM raw-DEP did
'Even eat the bonito, Taro did raw.'

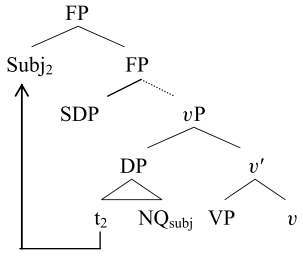
b. [*nama-de* *katuo-o* tabe-sae]$_1$ Taroo-ga t_1 sita.
raw-DEP bonito-ACC eat-even Taro-NOM did

Let us now consider the implications of Koizumi's argument for the present proposal. Under the framework assuming the *v*P-internal subject hypothesis, Koizumi's observations may roughly be translated into the following:

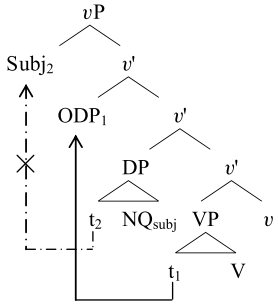
(104) The SDP may optionally be externally merged outside or inside *v*P, but the ODP must be externally merged within *v*P. More specifically, the ODP must be merged within a verbal projection containing the object and the verb (roughly corresponding to VP).

The hypothesis in (104) directs us to a set of predictions regarding the interactions of depictive predicates and scrambling in Japanese. Consider first an immediate prediction concerning subject scrambling. If (104) is on the right track, we predict that the subject and the subject-oriented NQ can be separated by the SDP, but not by the ODP—which is by now a familiar instance of the EG. Since the subject and the SDP can be merged in separate Spell-out domains (104), the subject can move over the SDP without causing any contradiction. On the other hand, the ODP must be merged in the same domain as the subject and the NQ_{subj}, so we predict an Edge Effect for them. Schematic representations are given in (105) and (106).

(105) $S < SDP < NQ_{subj}$



(106) *S<ODP<NQ_{subj}



The predictions in (105) and (106) are borne out, as illustrated in (107) and (108). Thus, the contrast between the SDP and the ODP in (107) and (108) again supports my proposal on the EG in the *v*P-domain (see also discussion on (112) for an alternative account on (108b)).

(107) Japanese: subject-oriented NQ and SDP [S<SDP<NQ_{subj}]

a. ***gakusei-ga*** **san-nin** *hadaka-de* katuo-o tabeta.
student-NOM 3-CL naked-DEP bonito-ACC ate
'Three students ate the bonito naked.' (Koizumi 1994: 32)

b. ?***gakusei-ga*** *hadaka-de* **san-nin** katuo-o tabeta.
student-NOM naked-DEP 3-CL bonito-ACC ate

(108) Japanese: subject-oriented NQ and ODP [*S<ODP<NQ_{subj}]

a. **gakusei-ga** **san-nin** *nama-de* *katuo-o* tabeta.
student-NOM 3-CL raw-DEP bonito-ACC ate
'Three students ate the bonito raw.' (Koizumi 1994: 32)

b. ***gakusei-ga** *nama-de* **san-nin** *katuo-o* tabeta.
student-NOM raw-DEP 3-CL bonito-ACC ate

Korean depictive phrases, marked with the *-lo* suffix, add further evidence for the EG. Koizumi's arguments for (104) straightforwardly extend to Korean counterparts. As expected, the subject in Korean can be separated from its NQ by an SDP, but not by an ODP, just like the Japanese counterparts in (107)–(108). This is illustrated in (109).

(109) Korean: Edge Effects and depictive predicates

a. ?***haksayngtul-i*** *nachey-lo* **sey-myeng** chamchi-lul mekessta.
students-NOM naked-DEP 3-CL tuna-ACC ate
'Three students ate the tuna naked.' [S<SDP<NQ_{subj}]

b. ***haksayngtul-i** *nal-lo* **sey-myeng** *chamchi-lul* mekessta.
students-NOM raw-DEP 3-CL tuna-ACC ate
'Three students ate the tuna raw.' [S<ODP<NQ_{subj}]

Let us now turn to object scrambling and the Edge Effect. Since Koizumi employed a ternary "VP" structure in (104), it is not obvious what the precise prediction of the EG for the object and an ODP is under the binary structure that I assume here.

However, the distribution of the ODP with respect to the object and the NQ_{obj} provides us with an initial clue on the finer structure of "VP". As shown in (110), an ODP may intervene between the object and the NQ_{obj}. This fact at least suggests that the object and the ODP have not been merged in the same predication domain. If the object and the ODP were externally merged as domain-mates, we would wrongly predict that (110) would be ungrammatical.

(110) Japanese: object<ODP<NQ_{obj}

Taroo-ga ***katuo-o*** *nama-de* **san-biki** tabeta.
Taro-NOM bonito-ACC raw-DEP 3-CL ate
'Taro ate three pieces of bonito raw.' (S. Miyagawa, I. Takayohi, p.c.)

To explain the grammaticality of (110) under the present proposal, I hypothesize that depictive secondary predicates in Japanese are merged as an adjunct to a verbal projection, unlike resultative phrases seen in Sect. 3.2.[33] All the other arguments provided by Koizumi can then be incorporated into the binary structure (111) without any substantial changes.

(111) Revised hypothesis: depictive predicates in Japanese

$[_{FP}$ SDP $[_{vP}[S$ $NQ_{subj}]$ $[_{VP}$ SDP **O** ODP $[$ t **NQ_{obj}**$]$ V $]$ v $]$ F $]$

To be more specific, the object is merged as a complement of the main verb and the ODP is merged as an adjunct within VP. Put differently, the object is not on the edge of the ODP. Hence, we would not expect an Edge Effect for the object and the ODP. The object may move to the left of the ODP via scrambling. Whether object scrambling targets SpecVP or Spec*v*P, we obtain the correct results explaining (110). Under the hypothesis (111), we further predict that the object and the NQ_{obj} can be separated by an SDP as well since the object may move over an SDP by being probed by V or *v*. This prediction is borne out, as shown with (112).

(112) Japanese: O<SDP<NQ_{obj} (I. Takayoshi, p.c.)

a. *Taroo-ga* *hadaka-de* **katuo-o** **san-biki** tabeta.
Taro-NOM naked-DEP bonito-ACC 3-CL ate
'Taro ate three pieces of bonito naked.'

b. ?*Taroo-ga* **katuo-o** *hadaka-de* **san-biki** tabeta.
Taro-NOM bonito-ACC naked-DEP 3-CL ate

The grammaticality of (112b) is also important to rule out an alternative hypothesis regarding ungrammaticality of (108b) with ordering of S<ODP<NQ_{subj}. One might argue that (108b) is ungrammatical because of some processing difficulty: when the

[33] Note that this hypothesis is not novel. As discussed in Sect. 3.2, English is known to take the same strategy as Japanese: depictives occupy an adjunction position while resultatives are placed in the complement domain of the verb. As discussed in Hoekstra (1988), English depictives may take either the transitive subject or the object as its subject (e.g. $John_i$ brought $Bill_j$ home $PRO_{i/j}$ drunk), unlike resultatives seen in (46). Note that the same contrast holds in Japanese: the subject of resultatives in Japanese must be the (deep) object while the subject of depictives can be either the transitive subject (SDP) or the object (ODP).

depictive is surrounded by the subject and NQ_{subj} on both sides, it may be difficult to assign an object-related reading for the depictive in (108b). The grammaticality of (112), however, shows that this approach is incorrect. In (112b), the depictive receives a subject-oriented reading even though it is surrounded by object-related materials. One may also assume that (108b) is ungrammatical because the object follows the ODP whereas in (112b), the subject precedes the SDP. Note, however, that such an account explains neither the grammaticality of (108a), nor the ungrammaticality of (113). In contrast, the present analysis based on the EG can explain the depictive paradigms without any further assumptions. The examples in (108b) and (113) are instances of the EG, and (108a) is grammatical since ODP may be merged above the object as a VP-adjunct.

(113) **katuo-o* **gakusei-ga** *nama-de* **san-nin** tabeta.
bonito-ACC student-NOM raw-DEP 3-CL ate
'Three students ate the bonito raw.' (cf. (108b)) (I. Takayoshi, p.c.)

The interactions among depictives, resultatives, and the scope of 'again' provide further tests for the present proposal. Consider first the case in which one sentence contains an object, an ODP, and *mata* 'again', as in (114). In (114), the sentence is ambiguous in two ways: under the repetitive reading, it means that John bought an old (second-hand) car twice. Naturally, the two cars may be different from each other. Under the restitutive reading, it means that John bought a car, and somehow he lost it, and bought it again. On this reading, the used car is the same car which was possessed by John in two distinct time periods.[34]

(114) John-ga (sono) *kuruma-o tyuuko-de* mata katta.
John-NOM that car-ACC used-DEP again bought
'John bought (that) car second-hand again.' (restitutive, repetitive)

Under the analysis of 'again' provided in Sect. 4, we predict that the object and the NQ_{obj} can be separated by an ODP, but not by restitutive *mata* 'again'. This prediction is upheld, as shown by the contrast between (115a) and (115b). In (115a),

[34] As von Stechow (1996) notes, lexical decomposition is necessary to explain scope ambiguity of 'again' with a mono-morphemic verb. For instance, *fing* 'catch' in the German example (i) is decomposed into 'CAUSE BECOME in the state of a PRISONER', as described in (ii) (see von Stechow 1996 for discussion). Similarly, my arguments for (114)–(115) and (119) necessarily assume that 'x buy y' is decomposed into 'x CAUSE y to BECOME in the possession of x'. However, the judgments are admittedly very subtle and further research is needed to solidify the claim. My informants report that (114)–(115a) are compatible with a story that John bought a car, lost it and bought it again. This is certainly expected from a restitutive reading of 'again' but it could also be a special case of repetitive 'again', where two buying events share the same object accidentally. If decomposition of 'buy' is freely available, (114)–(115a) must also be compatible with a scenario that John simply inherited a car, lost it, and bought it. But, I was not able to check the relevant judgment. More research should be done with other verbs and restitutive 'again' to support the decompositional analysis of a mono-morphemic verb.

(i) Randi den Bockhirsch wieder fing.
Randi Bockhirsch again caught
'Randi caught Bockhirsch again.' (restitutive/repetitive)

(ii) [again [$_{VP}$ Randi [again [$_{SC}$ Bockhirsch PRISONER]] BECOME] CAUSE]]

it is possible to get a reading in which John bought the same old car twice so that he owned it in two distinct time periods, but (115b) strongly suggests that John bought two different old cars (maybe of the same type).[35]

(115) a. John-ga ***kuruma-o*** *tyuuko-de* **iti-dai** mata katta.
John-NOM car-ACC used-DEP 1-CL again bought
'John bought one car second-hand again.' (repetitive, restitutive)

b. John-ga ***kuruma-o*** *tyuuko-de* mata **iti-dai** katta.
John-NOM car-ACC used-DEP again 1-CL bought
'John bought one car second-hand again.' (repetitive, #restitutive)
(I. Takayoshi, p.c.)

Similarly, consider the case in which an object, an NQ_{obj}, an ODP, and a resultative predicate all appear in one clause, as in (116). As in the case of (115), we expect that the ODP may intervene between the object and the NQ_{obj}, but the resultative predicate cannot. This prediction is borne out, as shown in (116).

(116) Japanese: object, ODP, and resultative predicate

a. Taroo-ga ***sakana-o*** *hanbun-ni* *nama-de* kit-ta.
Taro-NOM fish-ACC half-RES raw-DEP cut-PAST
'Taro cut fish in half raw.'

b. *Taroo-ga *nama-de* ***sakana-o*** *hanbun-ni* **ni-hiki** kit-ta.
Taro-NOM raw-DEP fish-ACC half-RES 2-CL cut-PAST
'Taro cut two pieces of fish in half raw.'

c. Taroo-ga *hanbun-ni* ***sakana-o*** *nama-de* **ni-hiki** kit-ta.
Taro-NOM half-RES fish-ACC raw-DEP 2-CL cut-PAST
'Taro cut two pieces of fish in half raw.' (K. Takezawa, p.c.)[36]

In short, the restitutive *mata* and resultative predicate behave in the same way with respect to object scrambling because the object is merged on the edge of the same predication domain with them. In contrast, the ODP is an adjunct and does not form a constituent with the object within the same RP. Hence, the object may scramble over

[35]The contrast shown in (115) is also crucial to rule out an alternative hypothesis for (111). Suppose that the object is merged with an ODP within the same predication domain, but somehow the ODP is merged in SpecRP and the object is merged in the complement domain of RP (e.g. something like *reverse predication* in the spirit of Den Dikken 2006a). We may then account for (110), but (115) would remain a mystery. If the object could move over the ODP probed by RELATOR in (110), one would also expect that (115b) would be grammatical with the restitutive reading of 'again' for the same reason: the object may also move over *mata* (and the ODP) probed by RELATOR. Thus, the fact that (115b) lacks a restitutive reading indicates that (111), but not the alternative hypothesis, is on the right track.

[36]One of my informants found (116b) easier to process than (116c) (I. Takayoshi, p.c.). Crucially, however, the same speaker also reports that (i), where an ODP *nama-de* is an intervener, is more acceptable than (116b) where *hanbun-ni* is the intervener. The informant reports that he prefers a resultative predicate to be closer to the main verb, and I speculate that this processing factor may play a role in the judgment for (116).

(i) Taroo-ga ***sakana-o*** *nama-de* **ni-hiki** *hanbun-ni* kit-ta.
Taro-NOM fish-ACC raw-DEP 2-CL half-RES cut-PAST
'Taro cut two pieces of fish in half raw.' (I. Takayoshi, p.c.)

the ODP, stranding the NQ_{obj} as predicted by the EG. Under the current proposal, it is naturally explained why Japanese depictive phrases behave in the same way as Korean resultatives: they are both adjuncts.

The depictive predicates in Korean behave in the same way as Japanese for object scrambling, further confirming the EG. The object and the object-oriented NQ can be separated by an SDP or ODP: (117)–(118). This is expected if the object, an SDP and an ODP are base-generated in different predication domains, as argued for the Japanese counterparts.

(117) *Chelswu-ka* **thokki-lul** *nachey-lo/maynson-ulo* **sey-mali**
Chelswu-NOM rabbit-ACC naked-DEP/bare.hand-DEP 3-CL
capassta.
caught
'Chelswu caught three rabbits with bare.hands/naked.' [O<SDP<NQ_{obj}]

(118) Chelswu-ka ***chamchi-lul*** *nal-lo* **sey-cokak** mekessta.
Chelswu-NOM tuna-ACC raw-DEP 3-CL ate
'Chelswu ate three pieces of tuna raw.' [O<ODP<NQ_{obj}]

As shown in (119b), the object and the NQ_{obj} cannot be separated by a restitutive 'again', just like Japanese (115b)—which is also expected under the EG since the object and restitutive 'again' are argued to be merged in the same predication domain.

(119) a. Chelswu-ka ***catongcha-lul*** *cwungko-lo* **han-tay** tasi/tolo/tto
Chelswu-NOM car-ACC used-DEP 1-CL again
sassta.
bought
'Chelswu bought one car second-hand again.' (repetitive, ?restitutive)

b. Chelswu-ka ***catongcha-lul*** *cwungko-lo* tasi/tto/#tolo **han-tay**
Chelswu-NOM car-ACC used-DEP again 1-CL
sassta.
bought
'Chelswu bought one car second-hand again.' (repetitive, #restitutive)

As illustrated in (120a), the object and NQ can be separated by the ODP, just like the Japanese example in (116c). Resultative phrases in Korean, however, show a different distribution from their Japanese counterparts, as shown in (120b). Unlike Japanese (116b), an object-oriented resultative predicate may intervene between the object and NQ_{obj} regardless of the presence of an ODP in Korean. This is expected since Korean resultatives are merged as an adjunct, unlike Japanese ones. Thus, we expect that a resultative predicate in Korean may intervene between the object and the NQ_{obj}, as in (120b).

(120) a. Chelswu-ka ***sayngsen-ul*** *nal-lo* **twu-mali** *pan-ulo* callassta.
Chelswu-NOM fish-ACC raw-DEP 2-CL half-RES cut
'Chelswu cut two fish in half raw.' [O<ODP<NQ_{obj}]

b. Chelswu-ka *nal-lo* ***sayngsen-ul*** *pan-ulo* **twu-mali** callassta.
Chelswu-NOM raw-DEP fish-ACC half-RES 2-CL cut
'Chelswu cut two fish in half raw.' [O<object-oriented resultative<NQ_{obj}]

6 Concluding remarks

In this paper, we have observed a variety of types of ordering restrictions in scrambling: the (transitive) subject cannot be separated from its NQ_{subj} by a *v*P-internal element such as the direct object, *v*P-internal adverb, resultative predicate, restitutive 'again', or object-oriented depictive. The subject and its NQ_{subj}, however, can be separated by a *v*P-external element such as a *v*P-external adverb or subject-oriented depictive predicate. A simple transitive object can be separated from its NQ_{obj} either by a *v*P-internal or *v*P-external element. When the accusative-marked "object" is externally merged as the subject of a secondary predicate, however, it shows similar ordering patterns as the transitive subject. It can be separated from the NQ by a predicate-external element (e.g. repetitive 'again', subject-oriented depictives, object-oriented depictives), but not by a predicate-internal element (e.g. 'as'-predicates, restitutive 'again', object-oriented resultatives). We have also seen that Korean and Japanese show differences in licensing floating NQs in resultative constructions, which correlates with Simpson's law. I have argued that the seemingly heterogeneous types of ordering restrictions can be understood as one and the same effect observed at the edges of the predication domain, *Edge Generalization*—which follows from an interaction of Cyclic Linearization (Fox and Pesetsky 2005a)and the predication-as-phase model (Den Dikken 2007a).

The current proposal not only captures the dynamic relationship between edge elements and their domain-mates, but also has some interesting consequences on argument structure. The paper implies that depictive phrases are adjuncts in Korean and Japanese, but that resultative phrases are complements in Japanese, but adjuncts in Korean. The overall discussion supports Shim and Den Dikken's (2007) approach to Korean resultatives and Simpson's (1983) typological approach to resultatives. The paper also leads us to assume that *pro* or a nominative-marked subject is licensed by adjunct type secondary predicates. The paper also shows that the multiple readings of 'again' are derived from structural ambiguity, not from lexical ambiguity, further supporting von Stechow (1996). The observed contrast between an SDP and an ODP with respect to a floating numeral further supports Koizumi's (1994) claim that the two types of depictive phrases occupy different structural positions. The diverse restrictions in the distribution of NQs present evidence against the approach that floating NQs are adverbials (cf. Dowty and Brodie 1984; Kayne 1975; Nakanishi 2003; among many others). Instead, the evidence collected here suggests that the NQs employed in this paper must be merged with the host nominal, supporting Sportiche-style approaches (Kuroda 1983; Sportiche 1988; Ueda 1990, i.a.).

The proposal also contributes to the debate on the general properties of cyclic syntax. Under Chomsky's *phase* theory, only transitive *v*P and CP are considered to be strong phases. Intransitive *v*Ps including unaccusative verbal phrases and small clauses do not qualify for Spell-out. Under the assumption that predication is a formative for Spell-out, as understood here, however, small clauses, transitive or intransitive *v*Ps are all understood to be Spell-out domains (Den Dikken 2007a; cf. Matushansky 2000). Hence, my arguments for the EG can be taken as a challenge for the view that only propositions are phases (cf. Chomsky 2000 and its successors).

The evidence for the EG provides support for the proposal that cyclic Spell-out results in linearization of the "whole" Spell-out domain. The EG holds only when the

edge of a Spell-out domain is linearized together with the head and the complement of the Spell-out domain (Fox and Pesetsky 2005a). If the edges are escape hatches and thus do not undergo Spell-out with the complement of the same phase head, there is no principled reason to expect that the orderings between edges and their domain-mates are fixed at Spell-out. Thus, the array of facts explained as an instance of the EG may constitute interesting puzzles for the phase approach in which the edges and complements must be spelled out separately (cf. Chomsky 2000, 2001a, 2001b; Nissenbaum 2000; among others).

The argument for the EG also has a consequence for the theory of movement. The EG is crucially based on the assumption that domain-internal movement of an edge element is impossible due to the condition on probe-goal Agree (Chomsky 2000, 2001a, 2001b). Hence, the arguments for the EG would pose a question to the line of approaches arguing that Spec-head agreement is a possible source of movement (cf. Koopman 2006; Rezac 2003; Richards 2004; Ura 1996). If Spec-head agreement is a possible trigger for movement, one would expect that edge elements may undergo movement within the domain in which they are externally merged. The facts discussed in this paper would then remain a mystery.

As I focused mainly on two particular premises of cyclic syntax, however, there are many interesting issues left uncovered in this paper. I have argued that a predication domain must be a Spell-out domain, but I left it open whether other domains may also constitute a Spell-out domain. I confined my interest to predicational phrases within verbal projections, but one may also explore whether non-verbal predications would show the same type of Edge Effects. One could also evaluate the current claim with respect to information structure where the topic is considered as the subject of the comment. My evidence in this paper mainly comes from the interactions of floating numerals and scrambling in Korean and Japanese. The EG, however, should not be a property of a particular language or of a particular construction. So, if the current proposal is on the right track, one should be able to find evidence for Edge Effects from other types of split constructions in languages. I hope that this paper helps us to investigate such new questions on syntactic edges and provides a useful background to probe into cyclic syntax in future research.

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References

Abels, Klaus. 2003. Successive cyclicity, anti-locality, and adposition stranding. PhD dissertation, University of Connecticut, Storrs, CT.

Baker, Mark. 1988. *Incorporation: A theory of grammatical function changing*. Chicago: University of Chicago Press.

Baker, Mark. 2004. *Lexical categories: Verbs, nouns, and adjectives*. Cambridge: Cambridge University Press.

Bale, Alan Clinton. 2007. Quantifiers and verb phrases: an exploration of propositional complexity. *Natural Language & Linguistic Theory* 25: 447–483.
Beck, Sigrid, and Kyle Johnson. 2004. Double objects again. *Linguistic Inquiry* 35: 97–124.
Boeckx, Cedric, and Kleanthes K. Grohmann. 2007. Remark: Putting phases in perspective. *Syntax* 10(2): 204–222.
Bošković, Željko. 1994. D-structure, θ-criterion, and movement into θ-positions. *Linguistic Analysis* 24: 247–286.
Bošković, Željko. 2005. On the locality of left branch extraction and the structure of NP. *Studia Linguistica* 59: 1–45.
Bresnan, Joan. 1974. On the position of certain clause-particle in phrase structure. *Linguistic Inquiry* 5: 614–619.
Bowers, John. 1993. The syntax of predication. *Linguistic Inquiry* 24: 591–656.
Bruening, Benjamin. 2001. Syntax at the edge: Cross-clausal phenomena and the syntax of Passamaquoddy. PhD dissertation, MIT, Cambridge, MA.
Choi, Young-Sik. 1999. Negation, its scope, and NPI licensing in Korean. In *ESCOL '99*, eds. Rebecca Dalyand and Anastasia Riehl, 25–36. Ithaca: CLC Publications.
Chomsky, Noam. 1995. *The minimalist program*. Cambridge: MIT Press.
Chomsky, Noam. 2000. Minimalist inquiries. In *Step by step: Essays on minimalism in honor of Howard Lasnik*, eds. Roger Martin, David Michaels, and Juan Uriagereka, 89–155. Cambridge: MIT Press.
Chomsky, Noam. 2001a. Derivation by phase. In *Ken Hale: A life in language*, ed. Michael Kenstowicz, 1–52. Cambridge: MIT Press.
Chomsky, Noam. 2001b. Beyond explanatory adequacy. *MIT Occasional Papers in Linguistics* 20: 1–28.
Chomsky, Noam. 2007. Approaching UG from below. In *Interface + recursion = language?* eds. Uli Sauerland and Hans-Martin Gärtner, 1–29. Berlin: Mouton de Gruyter.
Déchaine, Rose-Marie Anne. 1993. Predicate across categories: towards a category-neutral syntax. PhD dissertation, University of Massachusetts, Amherst.
Den Dikken, Marcel. 2006a. *Relators and linkers: The syntax of predication, predicate inversion, and copulas*. Cambridge: MIT Press.
Den Dikken, Marcel. 2006b. A reappraisal of *v*P being phasal: A reply to Legate. Manuscript, CUNY Graduate Center.
Den Dikken, Marcel. 2007a. Phase extension: Contours of a theory of the role of head movement in phrasal extraction. *Theoretical Linguistics* 33: 1–41.
Den Dikken, Marcel. 2007b. Phase extension: A reply. Reaction to commentaries on 'Phase extension: contours of a theory of the role of head movement in phrasal extraction. *Theoretical Linguistics* 33: 133–63.
Den Dikken, Marcel. 2007c. Phase and successive cyclicity. Lecture notes distributed at *the 9th Seoul International Conference on Generative Grammar*. August, 2007.
Doggett, Teal Bissell. 2004. All things being unequal: Locality in movement. PhD dissertation, MIT, Cambridge, MA.
Dowty, David. 1979. *Word meaning and Montague grammar*. Dordrecht: Reidel.
Dowty, David, and Belinda Brodie. 1984. A semantic analysis of "floated" quantifiers in a transformationless grammar. In *Proceedings of WCCFL 3*, eds. Mark Cobler, Susannah MacKaye, and Michael T. Wescoat, 75–90. Stanford: Stanford University.
Embick, David. 2004. On the structure of resultative participles in English. *Linguistic Inquiry* 35: 355–392.
Fitzpatrick, Justin. 2006. The syntactic and semantic roots of floating quantification. PhD dissertation, MIT, Cambridge, MA.
Fox, Danny, and David Pesetsky. 2005a. Cyclic linearization of syntactic structure. *Theoretical Linguistics* 31: 1–46. In *Object shift*, ed. Katalin É. Kiss, a special issue.
Fox, Danny, and David Pesetsky. 2005b. Cyclic linearization and its interaction with other aspects of grammar: A reply. *Theoretical Linguistics* 31: 235–262. In *Object shift*, ed. Katalin É. Kiss, a special issue.
Frank, Robert. 2006. Phase theory and tree-adjoining grammar. *Lingua* 116: 145–202.
Fujita, Naoya. 1994. On the nature of modification: A study of floating quantifiers and related constructions. PhD dissertation, University of Rochester, Rochester, NY.
Gill, Kook-Hee. 2001. Floating quantifiers, case and scrambling. *Harvard Studies in Korean Linguistics* 9: 328–337.
Haig, John. 1980. Some observations on quantifier floating in Japanese. *Linguistics* 18: 1065–1083.

Hale, Kenneth, and Samuel Jay Keyser. 1993. On argument structure and the lexical expression of syntactic relations. In *The view from building 20*, eds. Kenneth Hale and Samuel Jay Keyser, 53–109. Cambridge: MIT Press.

Han, Chung-hye, and Jong-Bok Kim. 2004. Double relative clauses in Korean? *Linguistic Inquiry* 35: 315–337.

Han, Chung-hye, Jeffrey Lidz, and Julien Musolino. 2007. V-raising and grammar competition in Korean: Evidence from negation and quantifier scope. *Linguistic Inquiry* 38: 1–47.

Hoekstra, Teun. 1988. Small clause results. *Lingua* 74: 101–139.

Hoji, Hajime. 1998. Null object and sloppy identity in Japanese. *Linguistic Inquiry* 29: 127–152.

Hong, Soo-min. 2005. Exceptional Case-marking and resultative constructions. PhD dissertation, University of Maryland, College Park.

Hornstein, Norbert, Howard Lasnik, and Juan Uriagereka. 2007. The dynamics of islands: Speculations on the locality of movement. *Linguistic Analysis* 33: 149–175.

Huang, Cheng-Teh James. 1982. Logical relations in Chinese and the theory of grammar. PhD dissertation, MIT, Cambridge, MA.

Ishii, Yasuo. 1998. Floating quantifiers in Japanese: NP quantifiers, VP quantifiers, or both? In *Grant-in-Aid for COE research report 2: Researching and verifying on advanced theory of human language*, 149–171. Chiba: Kanda University of International Studies.

Jäger, Gerhard, and Reinhard Blutner. 2003. Competition and interpretation: The German adverb wieder ("again"). In *Modifying adjuncts*, eds. Ewald Lang, Claudia Maienborn, and Cathrine Fabricius-Hansen, 393–416. Berlin: Mouton de Gruyter.

Jang, Youngjun. 1997. On the so-called adjunct predicates in Korean. *Texas Linguistic Forum* 38: 149–159.

Jang, Youngjun, and Siyoun Kim. 2001. Secondary predication and default case. In *ZAS working papers in linguistics 26: Papers on the syntax of predication*, 113–126. Berlin: ZAS.

Kang, Beom-Mo. 2002. Categories and meanings of Korean floating quantifiers—with some references to Japanese. *Journal of East Asian Linguistics* 11: 375–398.

Kang, Eungyeong. 2001. The *-key* constructions in Korean: Predicate head or complementizer. In *Harvard Studies in Korean Linguistics 9*, eds. Susumu Kuno, Ik-Hwan Lee, John Whitman, Joan Maling, Young-Se Kang, and Young-Joo Kim, 433–442. Seoul: Hanshin Publishing Company.

Kayne, Richard. 1975. *French syntax: The transformational cycle*. Cambridge: MIT Press.

Kim, Jong-Bok. 1993. Syntax and semantics of Korean resultative constructions. In *Harvard Studies in Korean Linguistics V*, eds. Susumu Kuno, John Whitman, Young-Se Kang, Ik-Hwan Lee, and Sung-Yun Bak, 471–482. Seoul: Hanshin Publishing Company.

Kim, Jong-Bok. 1999. Constraints on the formation of Korean and English resultative constructions. In *Proceedings of NELS 29*, eds. Pius Tamanji, Masako Hirotani, and Nancy Hall, 137–151. Amherst: GLSA.

Kim, Young-Joo. 1990. The syntax and semantics of Korean case: The interaction between lexical and syntactic levels of representation. PhD dissertation, Harvard University, Cambridge, MA.

Kim, Soowon, and Joan Maling. 1997. A cross-linguistic perspective on resultative formation. In *Texas linguistic forum 38: The syntax and semantics of predication*, eds. Ralph Blight and Michelle Moosally, 189–204. Austin: University of Texas.

Ko, Heejeong. 2005. Syntactic edges and linearization. PhD dissertation, MIT, Cambridge, MA.

Ko, Heejeong. 2007. Asymmetries in scrambling and cyclic linearization. *Linguistic Inquiry* 38: 49–83.

Ko, Heejeong. 2008. A numeral classifier on the edge: Evidence from Japanese. *Journal of the Linguistic Society of Korea* 51: 3–28.

Ko, Heejeong. 2009. Multiple case sharing and syntactic structure. *Studies in Generative Grammar* 19: 423–451.

Koizumi, Masatoshi. 1994. Secondary predicates. *Journal of East Asian Linguistics* 3: 25–79.

Koizumi, Masatoshi. 2000. String vacuous verb movement. *Journal of East Asian Linguistics* 9: 227–285.

Koopman, Hilda. 2006. Agreement: in defense of the "Spec head configuration". In *Agreement systems*, ed. Cedric Boecks, 159–199. Amsterdam: John Benjamins.

Kratzer, Angelika. 2005. Building resultatives. In *Event arguments in syntax, semantics, and discourse*, eds. Claudia Maienborn and Angelika Wöllenstein-Leisten, 177–212. Tübingen: Niemeyer.

Kučerová, Ivona. 2005. The T-extension condition. In *Proceedings of WCCFL 24*, eds. John Alderete, Chung-hye Han, and Alexei Kochetov, 227–235. Somerville: Cascadilla Press.

Kuroda, Sige-Yuki. 1983. What can Japanese say about government and binding? In *Proceedings of WCCFL 2*, eds. Michael Barlow, Daniel P. Flickinger, and Michael T. Westcoat, 153–164. Stanford: Stanford University.

Larson, Richard. 1988. On the double object construction. *Linguistic Inquiry* 19: 335–392.
Lee, Ju-eun. 2004. Ditransitive structures and (anti-)locality. PhD dissertation, Harvard University, Cambridge, MA.
Lee, Mijung. 2006. Transitive-based resultative patterns and a case alternation. In *Harvard Studies in Korean Linguistics XI*, eds. Susumu Kuno, Ik-Hwan Lee, John Whitman, Joan Maling, Young-See Kang, Peter Sells, and Hyang-Sook Sohn, 631–641. Seoul: Hanshin Publishing Company.
Lee, Junkyu and Chungmin Lee. 2003. Korean resultative constructions. In *The Proceedings of the 9th International Conference on HPSG*, eds. Jong-Bok Kim and Stephen Wechsler, 169–186. Stanford: Stanford University.
Legate, Julie Anne. 2003. Some interface properties of the phase. *Linguistic Inquiry* 34: 506–516.
Legendre, Géraldine. 1997. Secondary predication and functional projections in French. *Natural Language & Linguistic Theory* 15: 1–45.
Levin, Beth, and Malka Rappaport Hovav. 1995. *Unaccusativity: At the syntax-lexical semantics interface*. Cambridge: MIT Press.
Maling, Joan, and Soowon Kim. 1992. Case assignment in the inalienable possession construction in Korean. *Journal of East Asian Linguistics* 1: 37–68.
Martin, Samuel E. 1992. *A Korean reference grammar*. Rutland, VT/Tokyo: Charles E. Tuttle.
Matushansky, Ora. 2000. The instrument of inversion: instrumental case in the Russian copula. In *Proceedings of WCCFL 19*, eds. Roger Billerey and Brook Danielle Lillehaugen, 281–301. Somerville: Cascadilla Press.
Matushansky, Ora. 2005. Going through a phase. In *MIT working papers in linguistics 49: perspectives on phases*, eds. Martha McGinnis and Norvin Richards, 157–181. Cambridge: MITWPL.
McGinnis, Martha. 2001. Phases and the syntax of applicatives. In *Proceedings of NELS 31*, eds. Min-Joo Kim and Uri Strauss, 333–349. Amherst: GLSA.
Miyagawa, Shigeru. 1989. *Structure and case marking in Japanese*. San Diego: Academic Press.
Miyagawa, Shigeru, and Koji Arikawa. 2007. Locality in syntax and floated numeral quantifiers. *Linguistic Inquiry* 38: 645–670.
Nakanishi, Kimiko. 2003. The semantics of measure phrases. In *Proceedings of NELS 33*, eds. Makoto Kadowaki and Shigeto Kawahara, 225–244. Amherst: GLSA.
Nam, Seungho. 2005. Directional locatives in event structure: Asymmetry between goal and source. *Journal of the Linguistic Society of Korea* 43: 85–117.
Nissenbaum, Jon. 2000. Investigations of covert phrase movement. PhD dissertation, MIT, Cambridge, MA.
Otani, Kazuyo, and John Whitman. 1991. V-raising and VP-ellipsis. *Linguistic Inquiry* 22: 345–358.
Park, Myung-Kwan, and Keun-Won Sohn. 1993. Floating quantifiers, scrambling, and the ECP. In *Japanese/Korean Linguistics 3*, ed. Soonja Choi, 187–203. Stanford: CSLI.
Pesetsky, David. 2007. Property delay (Remarks on "Phase extension" by Marcel den Dikken). *Theoretical Linguistics* 33: 105–120.
Pesetsky, David, and Esther Torrego. 2004. Tense, case, and the nature of syntactic categories. In *The syntax of time*, eds. Jacqueline Guéron and Jacqueline Lecarme, 495–538. Cambridge: MIT Press.
Pesetsky, David, and Esther Torrego. 2007. The syntax of valuation and the interpretability of features. In *Phrasal and clausal architecture: Syntactic derivation and interpretation*, eds. Simin Karimi, Vida Samiian, and Wendy K. Wilkins, 262–294. Amsterdam: John Benjamins.
Pylkkänen, Liina. 2008. *Introducing arguments*. Cambridge: MIT Press.
Rackowski, Andrea, and Norvin Richards. 2005. Phase edge and extraction: A Tagalog case study. *Linguistic Inquiry* 36: 565–599.
Rappaport Hovav, Malka, and Beth Levin. 2001. An event structure account of English resultatives. *Language* 77: 766–797.
Rezac, Milan. 2003. The fine structure of cyclic agree. *Syntax* 6: 156–182.
Richards, Norvin. 2004. Against bans on lowering. *Linguistic Inquiry* 35: 453–463.
Rothstein, Susan. 1983. The syntactic forms for predication. PhD dissertation, MIT, Cambridge, MA.
Sabbagh, Joseph. 2007. Ordering and linearizing rightward movement. *Natural Language & Linguistic Theory* 25: 349–401.
Saito, Mamoru. 1985. Some asymmetries in Japanese and their theoretical implications. PhD dissertation, MIT, Cambridge, MA.
Saito, Mamoru, and Keiko Murasugi. 1999. Subject predication within IP and DP. In *Beyond principles and parameters: essays in memory of Osvaldo Jaeggli*, eds. Uli Kyle Johnson and Uli Ian Roberts, 167–188. Dordrecht: Kluwer.

Shim, Ji Young, and Marcel den Dikken. 2007. The tense of resultative—The case of Korean. Manuscript, CUNY Graduate Center.

Simpson, Andrew, Heeju Hwang, and Canan Ipek. 2009. The comparative syntax of distransitive constructions in Japanese, Korean, and Turkish. In *Proceedings of the 5th workshop on Alatic formal linguistics (WAFL 5)*, eds. Ryosuke Shibagaki and Reiko Vermeulen, 41–62. Cambridge: MITWPL.

Simpson, Jane. 1983. Resultatives. In *Papers in lexical-functional grammar*, eds. Lori Levin, Malka Rappaport, and Anne Zaenen, 143–157. Bloomtington: Indiana University Linguistics Club.

Son, Minjeong. 2008. Resultatives in Korean revisited: Complementation versus adjunction. In *Tromsø Working Papers on Language and Linguistics: Nordlyd 35*, eds. Peter Svenonius and Inna Tolskaya, 89–113. Tromsø: CASTL.

Son, Minjeong, and Peter Svenonius. 2008. Microparameters of cross-linguistic variation: Directed motion and resultatives. In *Proceedings of WCCFL 27*, eds. Natasha Abner and Jason Bishop, 388–396. Somerville: Cascadilla Press.

Song, Hongkyu. 2005. Causatives and resultatives in Korean. PhD dissertation, University of Wisconsin, Madison, WI.

Sportiche, Dominique. 1988. A theory of floating quantifiers and its corollaries for constituent structure. *Linguistic Inquiry* 19: 425–450.

Stowell, Tim. 1981. Origins of phrase structure. PhD dissertation, MIT, Cambridge, MA.

Takezawa, Koichi. 1993. Secondary predication and locative/goal phrases. In *Japanese syntax in comparative grammar*, ed. Nobuko Hasegawa, 45–87. Tokyo: Kurosio.

Takezawa, Koichi. 2000. kuukan hyoogen-no toogoron: Koo-to jutubu-no tairitu-nimotozuku apurooti [Syntax of spatial expressions: an approach based on the argument/predicate distinction]. In *kuukanhyougen-no gengogaku* [linguistics of spatial expressions], eds. Saburo Aoki and Koichi Takezawa, 163–214. Tokyo: Kurosio.

Ueda, Masanobu. 1990. Japanese phrase structure and parameter setting. PhD dissertation, University of Massachusetts, Amherst.

Ura, Hiroyuki. 1996. Multiple feature-checking: A theory of grammatical function splitting. PhD dissertation, MIT, Cambridge, MA.

Uriagereka, Juan. 1999. Multiple spell-out. In *Working minimalism*, eds. Samuel D. Epstein and Norbert Hornstein, 251–282. Cambridge: MIT Press.

von Stechow, Arnim. 1996. The different readings of *wieder* "again": A structural account. *Journal of Semantics* 13: 87–138.

Wechsler, Stephen and Bokyung Noh. 2001. On resultative predicates and clauses: Parallels between Korean and English. *Language Sciences* 23: 391–423.

Williams, Edwin. 1980. Predication. *Linguistic Inquiry* 11: 203–238.

Williams, Edwin. 1994. *Thematic structure in syntax*. Cambridge: MIT Press.

Yeo, Seungju. 2006. Some notes on resultatives in Korean. *Studies in Generative Grammar* 16: 687–706.

Yoon, Jae-Hak. 2007. 'Tasi'wa tto. *Language and Information* 11: 1–22.

Yoon, James Hye-Suk. 1994. Korean verbal inflection and checking theory. In *MIT working papers in linguistics 22: The morphology-syntax connection*, eds. Heidi Harley and Colin Phillips, 251–270. Cambridge: MITWPL.