Connecting English and Japanese nominalizations: Covert movement, reconstruction and Edge phenomena*

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1. Introduction

Scientific progress is characterized by greater abstraction as well as greater empirical depth. One signal feature of greater depth is that the empirical reach of the theory extends both to unusual domains—unusual constructions in linguistics—and surprising new empirical predictions. Linguistic theory has moved toward abstractions that supersede specific lexical categories when functional categories were proposed. Recent concepts of Edge features and Phase boundaries suggest that the configurations for functional categories themselves should be subsumed under deeper principles. The question then arises here, as it does in physics, of where one should look for relevant evidence.

We will argue that concepts of category label, Edge features, movement chains, and scope phenomena, usually discussed in sentential syntax, become sharper and deeper when one examines how nominalizations are formed. Derivational processes in partly lexical phenomena can elicit sharp constraints on syntactic principles.

Hiraiwa (2005) argues that an abstract geometry characterizes both an elaborated CP structure and an elaborated DP structure, where each, for instance, allows focus projections, and links to specificity or propositionality. Our arguments, developed independently, move in the same direction as we will show how the LF properties of DPs provide sharp images of movement chains in nominalizations. The concept of category label is no longer a set of fixed projections from lexical items, nor a small set of universal functional categories. Instead the exact nature and content of each category is linked to a feature bundle on the category label, which is in turn linked to how and where constituents can move. In addition languages appear to promote a variety of additional projections within the inflectional node and the CP node, and, we now argue, also in the DP node, exhibiting higher structure that reveals movement chains that were previously unseen.

Our analysis links scope-freezing facts in nominalizations to independent arguments that there are two specifier positions in nominalizations, Spec-NP and Spec-DP, which are part of movement chains in nominalizations. In particular, we will explore how wide scope readings get frozen in nominalizations (see Roeper 1993; Roeper and van Hout in press; references therein). Compare (1a) and (1b).

(1) a. The election of nobody was a surprise.
b. Nobody's election was a surprise (Kayne 1981)

(1a) is ambiguous between a reading on which no one was selected and a reading that refers to the members of the elected set. In (1b) on the other hand there is scope-freezing; we only find the latter reading. Importantly, there is no potential for reconstruction that would achieve the other reading, although it has been traditionally argued that there is movement from the object position to the prenominal position in passive nominalizations (Chomsky 1970) and our evidence below adds to the argument.

In addition we will argue that there is a variety of facts about English and Japanese which reveal why scope-freezing occurs in nominalizations where it does not occur in sentential syntax. In English sentences like (2a) are ambiguous between a wide scope reading of *all* (all>not) and an in-situ reading (not>all), whereas nominalizations like (2b) are not ambiguous; scope is frozen and there is only the wide-scope reading (all>not).[1]

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[1] There may be a marginal narrow scope reading in (2b) which requires an effort that feels like forcing a subjacency violation which is widely discussed in the psycholinguistics and theoretical literature under the concept of "weak islands".

(2) a. All doors do not open. all>not, not>all
b. All doors' not opening was surprising. all>not

A similar asymmetry is found in Japanese *–sa* 'extent' nominalizations. As a counterpart to English (1a) the Japanese nominalization in (3a) is ambiguous between a wide-scope reading and an in-situ reading. (3b) on the other hand is not ambiguous and only has the wide-scope reading.

(3) a. [$_{NP}$ Watasi-no zen-gaku-no tukai-ta-ku-na-sa]-wa minnan-ni
I-GEN all-sum-GEN spend-want-KU-NEG-NML-TOP every one-DAT
wakatta.
understood
'Everyone knew the extent to which I do not want to spend any of my money.'
all>not
'Everyone knew the extent to which I do not want to spend some of my money.'
not>all

b. [$_{NP}$ Zen-gakusee-no tesuto-no uke-tagar-na-sa]-wa sensee-ni wakatta.
all-student-GEN test-GEN take-want-NEG-NML-TOP teacher-DAT understood
'The teacher understood the extent to which all of the students do not want to take the test.'
all>not
'The teacher understood the extent to which not all of the students want to take the test.'
not>all

Scope freezing in these Japanese facts exhibits a further subject/object asymmetry—in (3a) the quantifier phrase is an object and there is ambiguity, while in (3b) it is a subject and there is only one reading. Assuming an elaborated DP structure Kamiya (2007) posits two specifier positions in *sa*-nominalizations—one an A position, the other an A'-position—and links the asymmetry in (3) to a distinction between A-movement and A'-movement (see section 3).[2]

The English and Japanese facts will be accommodated within a theory that pivots around three claims that incorporate the literature on DP and NP. i) There are two functional projections in the nominalization, both of which have a specifier position which hosts movement. One consequence is that multiple possessives which are not self-embedded are possible (e.g., *Bloomingdale's men's clothing*, see section 4). ii) Movement in nominalizations is movement to an Edge position. Passive and *–ability* nominalizations in English make this movement obligatory (Roeper and van Hout 1999, in press). iii) Movement from one specifier position to another creates a new A-position and a three-part chain A'—A—A where reconstruction is blocked by Lasnik's (1999, 2003) constraint against reconstruction in A-chains.

In sum, derivative constructions like nominalizations, by blocking reconstruction, provide sharper evidence for configurational correspondences at the level of functional categories, constraints on reconstruction from movement from A to A'-positions, as well as LF effects below the sentence level.

This paper is organized as follow. In section 2, we review previous analyses of different types of nominalizations and movements, especially passive nominalizations in English. In section 3, we discuss the subject/object asymmetry in Japanese nominalizations with respect to obligatory movement and scope freezing. In section 4, we analyze scope freezing in English nominalizations. We will propose that based on Japanese nominalizations there are two specifier positions above the nominalization (i.e., Spec-NP and Spec-DP) and when the relevant argument undergoes movement, it creates an A-A' chain, which causes scope freezing. In section 5, we introduce relevant evidence of two specifier positions and movement in English nominalizations. In section 6, we conclude this paper.

2. Passive Nominalizations

Chomsky's (1970) classical observation about *the enemy's destruction* suggests that there is movement in nominalizations, drawing a parallel between passives and nominalizations. *The enemy* can only be construed as the Theme, not as the Agent under an event reading of the nominal. If the prenominal position were base-generated and licensed a free reading, there is no explanation why *the enemy* cannot obtain an Agent reading.[3]

[2] We employ the distinction between A and A'-positions in a pre-theoretic fashion, following Boeckx (2001).
[3] In section 5, we will show an interesting paradigm regarding the passive reading in *–tion* nominalizations. More precisely, the optional passive reading seems to be triggered by the presence of *the*.

There are persistent claims in the literature that one can do without movement and that the prenominal argument is a modifier and gets a free interpretation. There are indeed a few lexicalized cases like *the nurse's attention*. Grimshaw (1990) and Williams (1994) point out that some cases of result nominalizations indeed allow a free reading of the prenominal argument; in (4a) *the monster* can be the Agent or the Theme. Result nominals, however, contrast with the event nominals in (4b, c) (note how eventivity is forced by the temporal adverbial), as the prenominal argument cannot be an Agent, and must be a Theme. [4]

(4) a. the monster's creation
b. the monster's creation in 5 hours
c. * the sculptor's creation in 5 hours

These facts show that the claim that the prenominal position is a modifier with a free reading cannot be correct, since it would allow the ungrammatical Agent reading for (4c), and in the *'s* position of *-ability* nominalizations below, contra various claims in the literature. Our account will provide a formal explanation for why movement is presupposed in capturing the correct generalization. In addition, there remains the fundamental notion of simplicity that justifies all transformations, deriving related structures from a common base (*the city's destruction* derived from *the destruction of the city*).

Adding to Chomsky's classical argument Roeper and Van Hout (1999, in press) present a further argument for movement inside nominalizations introducing nominalizations from passive adjectives (*–able+ity* and *–ed+ness*). The heart of their argument pivots upon the following contrast ((5) = (8) in Roeper and van Hout (1999) and (6) = (2) in Roeper and van Hout (in press)).

(5) a. the learnability of grammar by children
b. * children's learnability of grammar
c. grammar's learnability by children

(6) a. the heritability of IQ by children
b. * children's heritability of IQ
c. IQ's heritability by children.

Since (5a) and (6a) are possible, the nominalization clearly allows the Agent in a PP. So what blocks (5b) and (6b) with the Agent in the Specifier of the DP? Moreover, if something blocks (5b) and (5b), exactly why does the same constraint not block (5c) and (6c) with the Theme in the Specifier of the DP? The same restriction holds for *-edness* where the passive morpheme *-ed* is overt inside a nominalization in (7) (= (11) in Roeper and van Hout (1999)).

(7) a. The team excluded John.
b. John was excluded by the team.
c. John's excludedness (by the team)
d. * The team's excludedness of John
e. The excludednesss of John (?by the team)

While (7e) may verge on the infelicitous, (7d) is so ungrammatical that it verges on incomprehensibility. Why can we not reconstruct the notion of Agent in the possessive of an *–ed* nominalization to equal (7a)?

Classic arguments to the effect that possessives are base-generated and free in their interpretation would lead precisely to the prediction that they should allow an Agent there. Instead we find that a Theme can occur, but not an Agent. There is clearly a thematic restriction on the specifier of the DP of

[4] By contrast, nominalizations with affixes strictly associated with an active reading, for instance *-ing,* are not passive and prohibit a Theme from being preposed, (i), see Kayne (1981).

(i) *the city's destroying

For (i), a passive reading as in (4a) is not possible. Following Van Hout and Roeper (1998), all the affixes correspond to sentence types: *-ing* (active), *-th* (inchoative), *-ability* (passive), bare (no shift in argument structure, e.g. *help*). Thus we predict the ungrammaticality of (i), as well as the impossibility of a *by*-phrase in an inchoative nominal as in (ii), and the lack of ambiguity in bare nominals as in (iii) where *my* must be the Agent.

(ii) the growth of tomatoes *by Bill
(iii) my help, advice, love

So, depending on the affix with which a nominalization is formed, the relevant readings vary. In this paper, we will only be concerned with *–tion* and *-ability* morphemes, but the deep homology to voice variation within nominalizations should be a significant aspect of how we see derivational relationships.

–ability nominals. Roeper and Van Hout (1999) argue that this argument realization pattern is precisely the same as the restriction on the subject of a verbal passive. Since *-ability* nominalizations seem to coerce the same thematic restrictions on the DP specifier position as passive does on the TP subject position, Roeper and Van Hout claim that the specifier position is the long-distance subject of the underlying verb and covert object movement of the Theme fills that subject position in the nominalization, therefore blocking an Agent projection, just as it does in sentential passives, even though in nominalizations the object appears in base position. It is really what should be predicted.

Linking these observations to Edge theory Roeper and Van Hout (in press) argue that in instances of both overt and covert movement the object moves to an abstract notion of Edge to satisfy the projection of features. They point out the subtle contrast between (8b) and (8c), and argue that covert movement also blocks *there*-insertion in nominalizations like (8b), while *there*-raising from a lower clause can occur as in (8c) (= (29) in Roeper and van Hout).

(8) a. the appearing of a problem
b. * there's appearing of a problem
c. ? there's appearing to be a problem
d. the appearing of there to be a problem
e. Bill's appearing to be a problem

In (8c) *there* has already been inserted in the lower clause, as shown in (8d), and it raises like any other noun phrase, e.g., (8e). In (8b) on the other hand the hypothesis of covert movement of the object to the specifier correctly predicts *there* cannot be inserted because the specifier position is covertly filled by the object. Therefore while (8c) is marginal, (8b) is completely ungrammatical.

The proposal of covert movement in passive nominalizations makes predictions about quantifier interpretations in nominalizations: when there is no movement, a quantified phrase is interpreted in situ and gets a narrow reading, but when it moves (either overtly or covertly) it produces a wide scope reading (Roeper and van Hout, in press). Thus in (9a), repeated from (1a) above, we have an ambiguity of wide or narrow scope, while in (9b) (which is (1b)) it is unambiguously wide scope.

(9) a. The election of nobody surprised me
'Nobody was elected'. Narrow
'Of those elected nobody surprised me'. Wide
b. Nobody's election surprised me
'Nobody was elected'. Narrow
'Of those elected, nobody surprised me'. Wide

This corresponds to the traditional view that *–tion* is optionally active or passive. Whether or not the prenominal argument in nominalizations, such as *nobody* in (9b), moves from its base position as object of the underlying verb has been controversial, as we just discussed. We assume that the prenominal argument is indeed moved based on parity with our arguments on the *-ability* cases.

Roeper and Van Hout (in press) make a further prediction about *-ability* nominalizations. Having argued that *–ability* is obligatorily passive, the object therefore must move, either overtly or covertly, and this predicts correctly that only the wide-scope reading will be available in both cases in (10). Essentially, (10a) must turn into (10b) and therefore only the wide scope reading is possible.[5]

(10) a. The electability of nobody surprised me.
'Nobody was electable and that surprised me'. Narrow
'Of the electable people, none were surprising'. Wide
b. Nobody's electability surprised me.
'Nobody was electable and that surprised me'. Narrow
'Of the electable people, none were surprising'. Wide

We now add another prediction about the possible interpretation of *–able* nominalizations which shows how movement interacts with negative polarity contexts. Consider first the contrast in (11): (11a) is ambiguous between a collective and distributive reading, while (11b) with a preposed object is only distributive. This collective-distributive contrast is clarified by the negative quantifier *nobody* in (12).

[5] Occasionally a speaker says the ambiguity is present, but it is never as self-evident as in *the election of nobody*. The passive property of *-ability* is clearly promoting the wide-scope reading that is exactly what is achieved by movement.

(11) a. a picture of everyone
b. everyone's picture

(12) A picture of nobody was a surprise.
'An empty picture (with nobody on it) was a surprise'. Collective
'Each individual picture was not a surprise'. Distributive

It is further brought out in NPI constructions, where only the distributive meaning responds to the NPI, (13). Whereas (12) is ambiguous, (13b) under the scope of NPI only has a distributive reading, just like (13a) is only distributive.

(13) a. He wouldn't find the selection of anybody to be a surprise.
b. He wouldn't find the selection of nobody to be a surprise.

In (13b) it is exactly the collective reading which resists NPI, perhaps because it has the structure of a compound like *everyone*, and therefore the negation is buried inside a word and there may not be a grammatical negative feature that can respond to the NPI feature. Projecting this onto the *–ability* cases we correctly predict that because only the preposed distributed reading (after covert movement) is available, all forms with collective *nobody* are ruled out, (14).

(14) a. He didn't deny anybody's selectability.
b. He didn't deny the selectability of anybody.
c. * He didn't deny the selectability of nobody.
d. * He didn't deny nobody's selectability.

It is exactly the wide-scope distributed reading which appears identical in preposed and complement position.[6]

The incorporation of new facts from Japanese in the next section with these quantificational facts from English will lead us to propose a split DP structure and raise questions about how Edge features connect to split functional categories.

3. Scope freezing in Japanese nominalizations: Asymmetry between subjects and non-subjects

Kishimoto (2006) investigates the internal structures of *–kata* 'way' nominalizations and concludes that there is no A-movement motivated by an EPP feature; hence arguments in nominalizations stay at their merge positions. However, Kamiya (2007) further investigates movement in *–sa* 'extent' nominalizations, and finds an interesting paradigm which cannot be observed in *–kata* nominalizations: a subject/non-subject asymmetry in the interaction between negation and universal quantifiers. When the universal quantifier *zen* 'all' appears in the subject position in *–sa* nominalizations, only the all>not reading is available. This applies to nominalizations of transitive verbs as in (15a), unergative verbs, as in (15b), unaccusative verbs as in (15c), and passives as in (15d). On the other hand, when *zen* 'all' appears in a non-subject position, two readings are available (i.e., all>not and not>all). The following examples are cited from Kamiya (2007): (15) illustrates non-ambiguity when *zen* 'all' is in subject position and (16) illustrates ambiguity when *zen* 'all' is in a non-subject position (direct object in (16a-b), indirect object in (16c)).

(15) a. [$_{NP}$ Zen-gakusee-no tesuto-no uke-tagar-na-sa]-wa sensee-ni wakatta.
all-student-$_{GEN}$ test-$_{GEN}$ take-want-$_{NEG}$-$_{NML}$-$_{TOP}$ teacher-$_{DAT}$ understood
'The teacher understood the extent to which all of the students did not want to take the test'.
all>not

[6] We will not speculate about an explanation for the interaction of movement and NPI.

b. [NP Zen-gakusee-no soozi-no si-tagar-na-sa]-wa sensee-ni wakatta.
all-student-GEN cleaning-GEN do-want-NEG-NML-TOP teacher-DAT understood
'The teacher understood the extent to which all of the students did not want to clean'.
all>not

c. [NP Zen-gakusee-no nihon-e-no kaeri-tagar-na-sa]-wa sensee-ni wakatta.
all-student-GEN Japan-to-GEN return-want-NEG-NML-TOP teacher-DAT understood
'The teacher understood the extent to which all of the students did not want to return Japan'. all>not

d. [NP Zen-gakusee-no sigoto-no ataer-are-ta-gar-na-sa]-wa watasi-ni-wa wakatta.
all-student-GEN job-GEN give-PASS-want-3rd-NEG-NML-TOP I-DAT-TOP understood
'I knew the extent to which all of the students did not want to be given a job'.
all>not

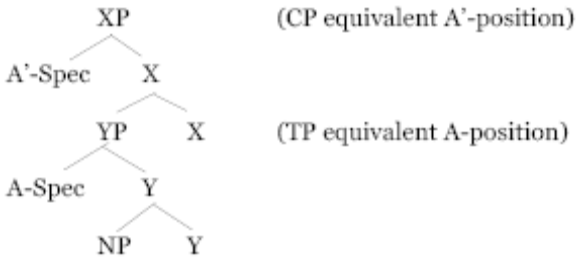
(16) a. [NP Watasi-no zen-gaku-no tukai-ta-ku-na-sa]-wa minnan-ni wakatta.
I-GEN all-sum-GEN spend-want-KU-NEG-NML-TOP every one-DAT understood
'Every one knew the extent to which I do not want to spend any of my money'.
all>not
'Everyone knew the extent to which I do not want to spend some of my money'.
not>all

b. [NP Taroo-no zen-syoo-no yomi-tagar-ana-sa]-wa sensee-ni wakatta.
Taroo-GEN all-chapter-GEN read-want-NEG-NML-TOP teacher-DAT understood
'The teacher understood the extent to which Taroo does not want to read any chapter.'
all>not
'The teacher understood the extent to which Taroo does not want to read some chapters'.
not> all

c. [NP Suzuki-sensee-no zen-gakusee-e-no A-no age-tagar-ana-sa]-
Suzuki-teacher-GEN all-student-to-GEN A-GEN give-want-NEG-NML-
wa dooryoo-no sensee-ni mo wakatta.
TOP colleague-GEN teacher-DAT also understood
'The colleagues also understood the extent to which Prof. Suzuki does not want to give an 'A' to any of the students'. all>not
'The colleagues also understood the extent to which Prof. Suzuki does not want to give an 'A' to some of the students'. not>all

This asymmetry leads Kamiya (2007) to posit movement in Japanese *–sa* nominalizations. He argues that there is both A and A'-movement which explains the asymmetry between subject versus non-subject quantified phrases.[7] Employing Lasnik's (1999, 2003) theory that there is reconstruction from an A'-position, but not from an A-position, Kamiya argues that when the quantified noun phrase is a subject, it undergoes movement to an A-position, from which there is no reconstruction, hence only one reading is possible. On the other hand when the quantified noun phrase is not a subject, it may remain in situ or move, hence two readings result. Kamiya proposes the following structure.

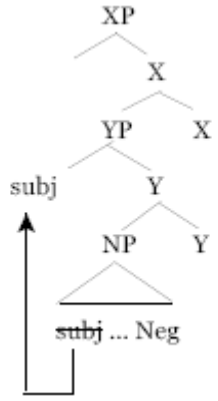
(17)



[7] Kamiya (2007) checked the above readings with 10 native speakers of Japanese (6 linguists and 4 non-linguists).

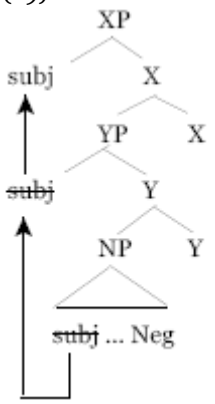
The EPP triggers obligatory A-movement, and therefore, without reconstruction, subjects allow only one movement. Since the arguments in Japanese nominalizations stay at their merge positions (Kishimoto, 2006), the subject in a nominalization is the closest one to fill the lower specifier projection to fulfill the EPP as in (18).

(18)



Subsequently, *zen* 'all' moves to the higher specifier position to take scope, see (19); this is triggered by QR.[8] Since it moved through an A-position, *zen* 'all' cannot reconstruct, hence only one reading obtains: all>not.

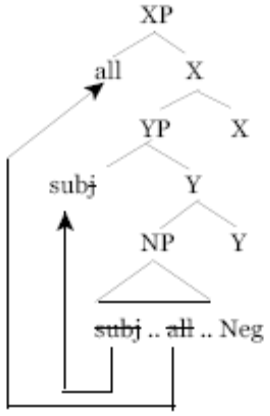
(19)



When *zen* 'all' merges in a non-subject position, it must similarly move to the specifier of the higher projection to satisfy QR. Note that this is covert movement since the word order in Japanese nominalizations is rigid. In contrast to *zen* 'all' subjects, *zen* 'all' from a non-subject position moves directly to the specifier position of the higher projection, as illustrated in (20); it does not stop at the specifier position of the lower projection, because the subject occupies that position (for EPP reasons).

[8] Diesing (1992) and Kawashima (1998) independently argue that a quantifier like *all* must move out of VP to take scope (see the Mapping hypothesis in Diesing 1992).

(20)



Assuming that reconstruction is possible for A'-movement, Kamiya thus provides an explanation for the fact that *zen* 'all' in non-subject positions has two readings: all>not and not>all.

Taking up Kamiya's assumption that there are two higher specifier positions in nominalizations, let us now explain the English counterparts.

4. Scope freezing in English nominalizations: Asymmetry between overt versus covert movement

We now explain scope freezing in English nominalizations and propose an analysis that covers both English and Japanese. The core of our analysis is to posit two specifier positions above the nominalization, following Kamiya (2007), rather than just one (as we assumed in Roeper and van Hout, 1999, in press). While in Japanese one cannot tell what the categories of the two positions are, we will present some evidence that in English they involve a DP over an NP above the nominalization. Consider again the English examples in (9), repeated here for convenience. In (9a) *nobody* can have narrow or wide scope, while (9b) only has the wide scope reading, which we will call the scope-freezing reading from now on.

(9) a. The election of nobody surprised me
'Nobody was elected'. Narrow
'Of those elected nobody surprised me'. Wide
b. Nobody's election surprised me
'Nobody was elected'. Narrow
'Of those elected, nobody surprised me'. Wide

The same effects of scope freezing occur with unergative nominalizations in which the subject preposes, as in (21), and unaccusative nominalizations in which the underlying object preposes, as in (22) (compare these to their Japanese counterparts in (15)).

(21) a. The participation of nobody was a surprise
b. Nobody's participation was a surprise

(22) a. The explosion of no bombs was a surprise
b. No bombs' explosion was a surprise

Roeper and Van Hout (1999, in press) and Roeper (2005) say there is one prenominal specifier position and *–tion* nominals are construed as either active or passive. Under the active construal of (21a)- (22a) *nobody* does not move, which gives the narrow-scope reading, while under the passive construal, it moves covertly, yielding a wide-scope reading of *nobody,* hence the ambiguity. However, Roeper and Van Hout do not have an explanation for the lack of ambiguity of (9b) and (21b)-(22b). They assume that the prenominal noun is at Spec-DP where *'s* is marked. However, simply assuming that *nobody* in (9b) is in Spec-DP by movement from its original position (i.e., from behind the nominalization *election*) does not explain why reconstruction is not possible.

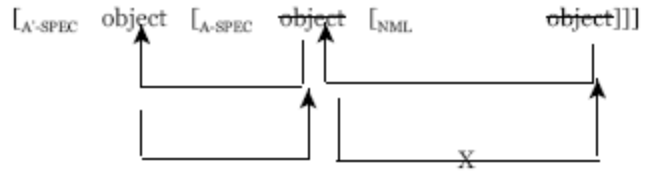
Kamiya's (2007) analysis of scope-freezing effects in Japanese nominalizations has led him to claim that there are two specifier positions in nominalizations, one A-position and one A'-position. We

now assume that there are two positions in English nominalizations too and see what consequences we obtain.

(23) [A'-Spec [A-Spec [NML]]]

We propose that English arguments in prenominal position move through a lower specifier position, which we assume is an A-position, and then on to a higher specifier position, which is an A'-position, creating a direct parallel with the Japanese nominalizations with a quantified subject as analyzed by Kamiya (2007) in (19). Seeing that there is scope-freezing, reconstruction is apparently impossible in this configuration, possibly because the argument first moves through an A-position and it is impossible to reconstruct from one A-position back to another A-position, following Lasnik (1999, 2003), as illustrated in (24).

(24)



The parallels between the Japanese and English scope-freezing data thus come out as follows. English overt movement in (9b) and (21b)-(22b) is like the Japanese *all*-subject cases in (15): in both languages there is first movement to the lower, A-position, which disallows reconstruction, hence there is scope-freezing. On the other hand, in the Japanese *all*-object cases in (16) covert movement is motivated by QR, see (20). In English, when the quantified object appears postnominally QR similarly motivates covert movement. What they have in common is that such examples in English and Japanese are ambiguous, compare Japanese (16) and English (9a) and (21a)-(22a). The ambiguity in these cases has slightly different origins in the two languages however. In Japanese it is the result of reconstruction after covert movement—one reading obtains with the *all*-object in moved position and the other with *all*-object in the in-situ position. In English *-tion* nominalizations are optionally passive, as argued originally by Chomsky (1970).[9] On the active version the object stays in situ, yielding a narrow scope reading, while on the passive version the object moves covertly (via the lower specifier position, possibly satisfying a passive EPP feature), which results in a wide-scope reading.[10] So, in Japanese the crucial difference for scope-freezing comes out as a subject-object asymmetry, and in English the crucial difference is overt versus covert movement.

Crucial evidence that a passive is present in *–tion* nominalizations comes from the comparison with nominalizations that do not allow the passive, namely *-ing* nominals (see Van Hout and Roeper (1998) for an argument that each affix mirrors different voice options: bare N, *-th, -ing, -ment*, and see footnote 4). As Kayne (1981) reveals, there is no passive with the active nominalizer *–ing*, (25).

(25) a. the destroying of the city
b. * the city's destroying

Therefore we predict that there is no covert passive option for *–ing* nominals either, and hence that quantifiers like *nobody* in *–ing* nominals as in (26a) can only have an in-situ interpretation, in

[9] Chomsky argued that (i) is active and (ii) is passive. We are now arguing that the same passive reading can occur for (i) when there is covert movement.
(i) our destruction of the enemy
(ii) the enemy's destruction by us

[10] An alternative analysis for the ambiguity of *the election of nobody* in English follows the Japanese analysis more closely. If we posit a PRO subject in the lower specifier position, the quantified object *nobody* can QR directly to the higher A'-specifier position, (i), just like the *all*-object does in Japanese, (20). Since it does not go via the lower A-position, it can reconstruct, hence the ambiguity.
(i) [A'-Spec nobody [A-Spec PRO [NML election ~~nobody~~]]]
On this analysis, however, we make the following, incorrect prediction: if NP is a Phase, then the existence of PRO in the lower specifier position Spec-NP would block movement of the object to the higher specifier Spec-DP altogether, which is apparently not the case. Given that Edge theory has not been completely worked out yet, we don't know if the speficier of NP is an Edge. Our crucial claim relates to the overt movement case of *nobody's election* and the fact that it is not ambiguous, which means under our analysis, that there is no reconstruction which is due to the phase-to-phase movement via the lower specifier.

contrast to the ambiguity of *-tion* nominals, repeated from above in (26b). And indeed (26a) means exactly that nobody was elected and does not have the wide scope reading.

(26) a. The electing of nobody came as a surprise.
'Nobody was elected'. Narrow
'Of those elected, nobody surprised me'. Wide
b. The election of nobody came as a surprise.
'Nobody was elected'. Narrow
'Of those elected, nobody surprised me'. Wide

Scope freezing in *–ability* nominalizations can also be explained under our theory. To repeat, in (10) the passive property of *–ability* makes QR of the object obligatory in order to satisfy the passive feature that is now in the Edge position of the DP. In both overt and covert syntax, *nobody* moves to an A-position first and then an A'-position and this disallows reconstruction (from an A-position back to an A-position, as in (24)). This is exactly what our theory predicts.

(10) a. The electability of nobody surprised me.
'Nobody was electable and that surprised me'. Narrow
'Of the electable people, none were surprising'. Wide
b. Nobody's electability surprised me.
'Nobody was electable and that surprised me'. Narrow
'Of the electable people, none were surprising'. Wide

Note that the motivation of obligatory movement in both languages is different. According to Kamiya (2007), the obligatory movement of the subject is to check an EPP feature. In contrast, the motivation of the obligatory movement in English (both in *–tion* and *–ability* nominalizations) is passivization, which presumably maintains an EPP feature as well. What they have in common is that the obligatorily moved argument cannot reconstruct, because it moves via a lower specifier position which is an A-position.

There are two questions about our analysis with two Specifier positions, at least. i) Is there independent evidence that there are two prenominal positions, independent of the facts about scope-freezing in Japanese and English? ii) Why must the object move through the lower specifier position, rather than go straight to the higher specifier position in English? The answer to the latter question comes from Edge theory, namely, one has to move cyclically through phases and the landing site must be the outermost Edge, here the object moves to the first Edge, Spec-NP, and then on to the next Edge, Spec-DP. In section 5 we present two kinds of independent evidence for this cyclic movement in English, one from control facts and the other from the interaction of quantifiers with negation in nominalizations.

As for the first question, this structure captures English facts with two overt possessive *'s* phrases, such as (27). In addition to a reading of (27a) on which *Bloomingdale's* modifies *men*, and this complex DP modifies the noun *clothing* ("the clothing of the Bloomingdale men"), there is another reading on which both possessive phrases modify the noun *clothing* ("clothing for men which is sold at Bloomingdale's"). However, data from Munn (1995) show that it is possible to have two full DPs in front of a nominal, (27b). Moreover, data with an adjective between the second possessive phrase and the head noun show that it is not a compound, (27c-d).

(27) a. Bloomingdale's men's clothing
b. Bloomingdale's men on the moon's clothing
c. Bloomingdale's men's spring clothing
d. Bloomingdale's men's casual clothing

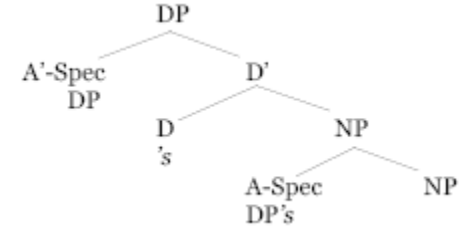
So, two possessive positions are available in non-derived nominals. We now establish that they are equally available in nominalizations, (28)-(29), thus showing that there is a need for two specifier positions in nominalizations. The second possessive phrase can be captured as the lower specifier projection in the nominalization.

(28) Bloomingdale's customer's spring promotions
'Bloomingdale's spring promotions for customers'

(29) This country's children's forced evacuations are worse than anything.
'The forced evacuations for children by this country'

The second possessive phrase is reserved for generic readings only, *men* in (27), and so we believe this lower projection involves an NP projection (and not a DP projection), because NP projections are non-specific (Chomsky 2003). The first possessive phrase is in the higher specifier position, which allows specific interpretations; hence we posit that it is a DP projection. Our proposal for English nominalizations is given in (30).

(30)



Kamiya (2007) argued for the need for two maximal projections on top of the nominalization, but he did not commit to labeling these (and used XP and YP, see (17)-(20) above). For English nominalizations we now suggest that the uppermost XP is DP and the innermost one is NP; however, nothing in our argumentation is dependent on this choice of labels. The crosslinguistic core part of our analysis is our proposal that there are two projections on top of the NP in nominalizations. Henceforth we will refer to these multiple projections above the NP as the split DP structure, drawing a parallel to the split IP and split CP structures.

5. Independent evidence for movement via a lower position in English

We now introduce two pieces of independent evidence for our claim that movement to the prenominal specifier position goes through a lower specifier position first. One comes from control facts and the other from the interaction of quantifiers and negation in nominalizations.

5.1 Reconstruction and control

Roeper and Perez-Leroux (1999) show that a bare NP typically shows control. In (31) every boy went to his own home, John lives close to his own school and Bill sings songs on his own vacation. Roeper and Perez-Leroux analyze this obligatory co-reference as control between the subject and a PRO in the specifier of the bare NP, (32).

(31) a. Every boy went home.
b. John lives close to school.
c. Bill sings songs on vacation.

(32)

Roeper and Perez-Leroux claim that there is control in bare NPs, but in DPs with a filled D-position, there is no control. Thus it must be Bill's vacation in (33a), and can be either Bill's or John's vacation in (33b). Roeper and Perez-Leroux argue there is no PRO in (33b), because the pronominal binding allows a link to either preceding NP.

(33) a. John told Bill to work on vacation.
b. John told Bill to work on his vacation.

Using Roeper and Perez-Leroux's argumentation, our analysis of a split DP with two Specifier positions accounts for the surprising effect that there is obligatory control with bare nominalizations without determiner, whereas control is impossible when the prenominal position is filled. The bare NP *preparation* in (34a) shows the same control effect we saw in (31); John prepared his own lunch. When the prenominal position is filled with an article, i.e., when the nominal is a DP, there is no longer obligatory control; either John or somebody else prepared the lunch in (34b). The crucial point for our split DP explanation is that no control is possible when the object is in prenominal position; in (34c) somebody else, but not John, prepared the lunch.[11]

(34) a. John avoided preparation of his lunch.[12]
b. John avoided the preparation of his lunch.
c. John avoided his lunch's preparation.

The same effects are illustrated in (35). With a bare NP in (35a) there is obligatory control; "nobody was examined by John and that's what John anticipated". But when the object moves to the prenominal position in (35c), the interpretation switches; "for all candidates who were examined, John did not anticipate their examination." With an article the DP in (35b) allows both readings: "either nobody was examined" or "for those who were examined, John didn't anticipate it."

(35) a. John anticipated examination of nobody this semester.
b. John anticipated the examination of nobody this semester.
c. John anticipated nobody's examination this semester.

The essential fact is observed when the object is in prenominal position. We argue that PRO is obligatorily bound by the subject in (34a)-(35a), and that it may but does not need to be bound in (34b)- (35b). However, given that control is impossible in (34c)-(35c), we conclude that there is no room for PRO, and so *John* cannot be a binder. The reason why there is no PRO in these latter constructions is that the object moves through the lower specifier and blocks the presence of PRO there. This effect is illustrated in (36).

(36) a. John avoided [$_{NP}$ [$_{A\text{-}Spec}$ PRO] [$_{NP}$ preparation of his lunch]]
b. John avoided [$_{DP}$ [$_{D}$ the] [$_{NP}$ [$_{A\text{-}Spec}$ PRO] [$_{NP}$ preparation of his lunch]]]
c. John avoided [$_{DP}$ [$_{A'\text{-}Spec}$ his lunch] [$_{D}$'s] [$_{NP}$ [$_{A\text{-}Spec}$ ~~his lunch~~] [$_{NP}$ preparation ~~of his lunch~~]]]

Therefore only when *the* is present, allowing covert object movement, effectively passive movement, the subject PRO is deleted and a reading of arbitrary agent is possible in both (36b, c).[13]

Having established that there is a complimentary distribution of PRO and prenominal phrases in nominalizations, the question is, why does the object need to move through the lower specifier position on its way to the upper specifier position? The answer comes from Edge theory which forces this cyclic movement, first to Edge of NP, then to Edge of DP. These control facts thus present independent evidence for movement via a lower position to a higher position. Moreover, they add independent evidence for the nature of the lower of the two positions: it is a control position.[14]

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[11] There is also an interesting fact in example (34). Unlike (34b), an optional passive reading is not allowed in (34a) unless in marginal cases, a *by*-phrase is present (?*John enjoyed preparation of his lobster by the waiter*). The difference between (34b) and (34b) boils down to the presence or absence of the overt *the*, which is considered to be D. Chomsky (2005) claims that only a phase head triggers an optional operation. Miyagawa (2006), following Chomsky (2005), argues that QR is an optional operation which is triggered by C. If CP and DP are parallel, our example indicates that an optional operation such as passive reading is not triggered without phase head D.

[12] While occasionally informants object to (34a), we find that Google returns 625 examples like the following:
(i) to avoid preparation of infusions on the patient care unit
avoid preparation of duplicate environmental assessment documents
replace or avoid preparation of conventional drawings
(ii) If you really enjoy preparation of litigious matters
I enjoy preparation of dishes
you could need to enjoy preparation of a family meal

[13] It should be noted that if the subject is arbitrary, then it is possible again that John becomes subject. This connection is like the famous difference between binding and coreference for pronouns (coreference: *he saw the murderer in the mirror*) (see Roeper, 1995, and binding literature references therein).

[14] We observe a very subtle control contrast between (ib) and (ic).
(i) a. John enjoyed preparation of his lunch

The control facts that we have presented in this section show that there is a PRO in bare nominalizations and that one of the two positions in our split DP structure involves this PRO position (the lower one, an A-position).

5.2 Reconstruction across negation

Another kind of evidence for our claim that there is movement via a lower position comes from the interaction of quantifiers and negation in nominalizations. In English and Japanese declaratives there is typically ambiguity. In (37a), the quantifier is either interpreted in situ, yielding an all>neg-reading; "for all doors, none of them will open", or there is a neg-raising neg>all interpretation; "not all doors will open; only a few will". This fact holds whether or not the quantifier *all* in English is stressed. The same fact is observed in Japanese as in (37b).

(37) a. All/ALL doors will not open. not>all, all>not
b. Zenin-ga ki-tagar-ana-i.[15]
all-NOM come-want-NEG-PRES
'All do not want to come.' not>all
'Not all want to come.' all>not

Focus stress in English sentences, (38a), and a non-stressed reading on the predicate in Japanese, (38b), force a single, all>neg-interpretation; "for all doors, none of them will open" in English or "for all members, none of them want to come" in Japanese. However, adding the topic marker *–wa* in Japanese in (38b) allows one to have the not>all-reading easily.

(38) a. All DOORS will not open
b. Zenin-wa ki-tagar-ana-i.
all-TOP come-want-NEG-PRES
'All do not want to come.' not>all

In nominalizations there is no similar interaction between negation and quantification. This was observed for English by Portner (1992), (36), and for Japanese by Kamiya (2007), as summarized in section 3.

(39) Everyone's not smiling bothered her. (Portner 1992:94)

Transforming our examples in (37)-(38) into nominalizations, we also find there is no way to construe similarly ambiguous examples. (40) only has the in-situ reading: "for all doors, none of them will open" in English and "for all members, none of them wants to go" in Japanese. Stress in English (41a) does not affect interpretation, i.e., it does not force the neg-raising reading, as it does in (41a). Topic marker *–wa* is impossible in Japanese nominalizations (41b).

(40) a. All doors' not opening was a surprise. all>neg
b. [Zenin-no ki-tagar-ana-sa]-wa yoku wakatta. all>neg[16]
all-GEN come-want-NEG-NML-TOP well understood
'(I) understood the extent to which all did not want to come.'

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b. What did John enjoy [~~what~~ preparation of ~~what~~]
c. What did John enjoy preparing

For (ib) we predict that movement of the wh-word through the specifier position blocks the control reading. However, in (ic) control continues which reveals again that (ib) must be different. Why would the wh-word block in (ib) and not in (ic)? One approach to this question is to follow recent work by Landau (2007) who shows that implicit arguments must be divided into two kinds: weak and strong. The weak ones disallow binding and various other possibilities. Interestingly Landau argues that the weak implicit arguments have a set of features, but lack a D feature. This is exactly what is to be expected of the Spec-NP position which houses generics but not non-specific elements. We can now argue that where a real PRO is present, it is a subject just like in Japanese, which must be moved over and not through. But if there is only a weak implicit argument, it can be displaced or covered by the movement through phases. Thus the more refined theory of implicit arguments can be linked to a refined theory of phasal movement.

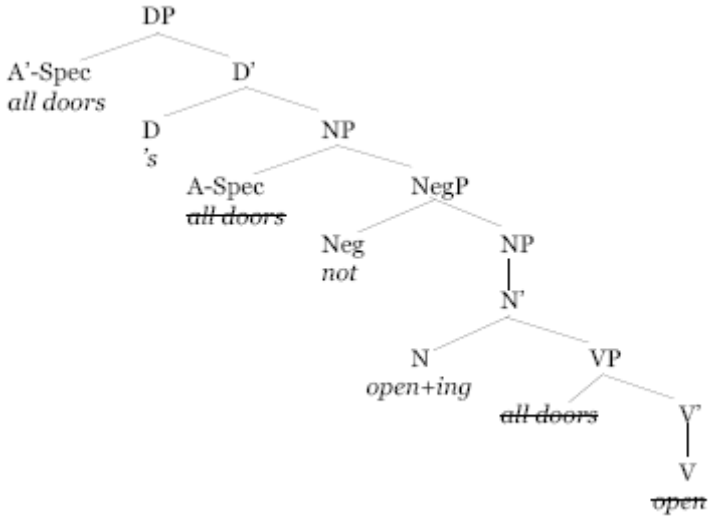
[15] Furthermore, Miyagawa and Arikawa (to appear) show that a neg>all-reading is possible in (37b) when the predicate part is stressed.

[16] Kamiya (2007) also reports that unlike (37b) stress on the predicate in nominalizations does not affect interpretation.

(41) a. All DOORS' not opening was a surprise. all>neg
b. * [Zenin-wa-no ki-tagar-ana-sa]-wa yoku wakatta.
all-TOP-GEN come-want-NEG-NML-TOP well understood

The fact that there is only one interpretation in nominalizations which follows the linear order, all>neg, in contrast to the ambiguity in declaratives, suggests there is no reconstruction in nominalizations. Why not? On our analysis lack of ambiguity is expected because the argument moves through the lower specifier position to the higher one, so reconstruction would involve an A-position. This is illustrated for (42). The single reading for the Japanese nominalizations was analyzed by Kamiya (2007) and summarized in section 3.

(42)



In conclusion, the lack of interaction of negation and quantification in nominalizations illustrated in this section presents independent support for our claim that there is movement via a lower position.

6. Conclusions

Our argument has been that nominalizations and sentential passive are parallel and both respond to a projection linked to the morphology which forces the object to move to a "subject" position. This gives additional substance to the abstract notions of Edge and to the abstract correspondence between CP and DP. If NP and DP are phases, then it is natural to say that in both nominalizations and passives, the object moves to an Edge position. Our generalizations require a technical solution that we have not provided so far. Ultimately such a technical solution should have deeper explanatory links that a full theory of interfaces will explain.

Under a theory of Transfer, semantic interpretation will also occur at the phase boundary. The distinction between DP and NP is really a distinction between points where external contextual interpretation can occur and where sentence-internal or lexical information (as with generics) is involved. It is crucially PRO in NP which can have no fixed reference (Pro-arb). It is DP which is a position of focus and a point where discourse connections are made. Therefore we expect that the technical proposals will eventually be buttressed by a richer theory of the interface.

Let us review the conceptual progress we claim here. We have connected subtle data from Japanese and English and contributed various arguments for a structure of nominalizations with two specifier positions—one A'-position and one A-position), with movement, either overt or covert, from the object position to the higher specifier position. If the system of movement, Edges, and abstract structure without category labels is correct, then it should be reflected in the kinds of subtle data that are the hallmarks of a successful theory and which have been the underpinning of work in generative grammar. The correspondence theory of Hirawa (2005) moves in the same direction. Our argument reflects a classic kind of development in linguistics. A seemingly marginal construction, like *Bloomingdale's men's clothing*, holds the key to a core feature of grammatical architecture, much like how seemingly substandard partial movement constructions developed into major sources of insight into wh-movement.

Many years of work on nominalizations have focused on *–tion* and nominalizations where no clear commitment to argument disposition was evident: active and passive are simply both possible. A more refined look at nominalizations that entail passives without ambiguity, with *-able+ity* and *-ed+ness*, show that precisely the properties of the abstract system work: movement and the Edge feature notion of "subject" interact. Consequences and predictions follow. If there is an abstract notion of Edge, then the motivation for movement is not simply to satisfy case-requirements as Burzio's theory of passive claimed, but it is more abstract. We argue, consistent with Feature-checking theory, that a feature at the Edge must be satisfied (linked to passive or an EPP feature) which provides the motivation for movement. In order to make this theory work, we found it necessary to utilize both the DP and the NP structure and proposed a split DP with two specifier positions. This in turn created a context where object movement is more complex potentially involving three positions (A'—A—A). If the first movement is to an A-position, then Lasnik's restriction on reconstruction should apply and we find that it does for both Japanese and English.[17] If movement is straight to the A'-position, reconstruction is possible, and we find ambiguity. Other issues about constraints on chain formation or possible kinds of improper movement are relevant but beyond the scope of this article (see work by Abels (2003), Bošković (2008) and Starke (2001)).

This theory is highly dependent upon and supportive of current Phase theory whose definition is still subject to debate. Our goal, therefore, is primarily to underscore i) the necessity of a common concept of object-movement for both sentential passives and passive nominalizations triggered by the shared *–ed* and *–able* morphology, ii) to claim that more abstract definitions of structure, like those linked to Edges, are naturally supported by this argument, and iii) to show that LF phenomena fall in line with our account. The fact that subtle variation in two quite different languages is predictable is just the kind of result we expect. The fact that these results appear in highly derived nominalization structures is just what we expect of a good theory.

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[17] If TP is not a phase, then it appears that the sentential passive, ironically, does not directly involve an Edge feature. We note however that it "inherits" an Edge feature from the higher CP in Chomsky's recent formulation (2005).

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