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Clausal nominalization and embedded questions in Japanese

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Investigating the structure of nominalized embedded questions (EQs) in Japanese, this paper proposes that they contain nP and DP on top of CP. Previous studies on clausal nominalization argue that CPs are nominalized by directly merging D. However, the availability of prenominal modification indicates that Japanese nominal EQs involve nP and, in some cases, DP. The functional head n nominalizing an interrogative CP is divided into semantically vacuous and semantically active classes. The semantically vacuous n lacks its own denotation but simply converts an interrogative CP into a nominal category. EQs nominalized by the semantically active n do not denote pure questions. Some have a structure similar to the noun complement clause that involves a silent noun semantically equivalent to 'question' or 'issue'. Others express possible answers to questions. EQs nominalized by the semantically active n project up to DP. The blocking effect on extraction and the co-occurrence with a pronoun support the presence of the DP layer. The presence of the DP in Japanese EQs suggests that the NP/DP-dichotomy advocated by Bošković (2005; 2008; 2009) can be relaxed. Japanese is a hybrid language. While it is similar to NP-languages in that it does not have overt articles, its noun phrase still involves the DP layer.

1 Introduction

Clauses and noun phrases exhibit nearly complementary distribution. According to Stowell's (1981) Case Resistance Principle, clauses cannot occur in Case positions, unlike noun phrases, the typical Case-assigned category. Nevertheless, some clauses take on nominal properties. As illustrated in the Japanese example (1a) below, an interrogative clause, as well as a noun phrase, can occur as the complement to a postposition. In contrast, a declarative clause does not show such a distribution. It must be added, however, that not all embedded questions (EQs) pattern with noun phrases. (1b) exemplifies a non-nominal environment, which precludes a noun phrase.

(1) a. Kekka-wa {doredake benkyoosuru ka / kimino doryoku / *kimi-ga
result-TOP {how.much study Q / your effort / you-NOM
issyokenmei benkyoosuru to}-ni kakatteiru.
hard study COMP}-on depend
'The result depends on {how much you study / your effort}.'

b. John-wa {doo hentoo-o su-beki ka(*-ni) / *hentoo-ni} tohoonikureta.
John-TOP {how reply-ACC do-should Q-DAT / reply-DAT} was.at.a.loss
'John was at a loss {how he should reply/*reply}.'

It is generalized and stated as a first approximation that interrogative clauses are divided into nominal and non-nominal groups.

Focusing on the nominal type of EQ, this paper examines its internal structure. In particular, it discusses how their nominal properties are structurally reflected. There is fairly general agreement among scholars that a nominalized clause has a nominal layer on top of a clausal one. However, opinions vary as to exactly what it looks like. To name just a few, one approach is to postulate a structure where the determiner head D is directly merged with CP (see Roussou 1991; Davies & Dubinsky 1998; Borsley & Kornfilt 2000; Caponigro 2002; Takahashi 2010; Miyagawa 2011; Pietraszko 2019; Alexiadou 2020; Iordăchioaia 2020; Hankamer & Mikkelsen 2021 among others). Arguments against this approach are also put forward. Grimshaw (2000), for example, considers the D-CP structure to be impossible, arguing that D should be merged with a nominal constituent to form a nominal extended projection (for similar views, see Aygen 2002; Maki & Uchibori 2008; Hartman 2012 among others). This paper argues that although the first option (2a) is available for clausal nominalization in some languages, the nominalization of EQs in Japanese involves n. It is also shown that there are at least two major types of n: semantically vacuous and semantically active. When the former occurs, the EQ lacks the DP layer as in (2b). By contrast, when the latter occurs, the whole EQ projects up to DP as in (2c).

(2) a. $[_{DP}$ D CP]
b. $[_{nP}$ n CP]
c. $[_{DP}$ D $[_{nP}$ n CP]]

Another highlight of this paper is that the NP/DP-language dichotomy advocated by Bošković (2005; 2008; 2009) can be relaxed. While Japanese is similar to NP-languages in that it does not have overt articles, its noun phrases still involve the DP layer. One characteristic of NP-languages is that demonstratives are grouped with adjectives. Japanese has demonstratives that behave like adjectives. However, it also has demonstratives that display purely deictic/anaphoric behavior. When this type of demonstrative precedes other nominal modifiers, it appears outside the NP layer and induces specificity effects on the extraction from a noun phrase. On the assumption that constituents extracted from noun phrases use the Spec-DP as an escape hatch (Stowell 1989; Giorgi & Longobardi 1991; Szabolcsi 1994; Campbell 1996; Gavruseva 2000 among others), we argue that the anaphoric demonstrative occupies Spec-DP. The EQ involving an anaphoric demonstrative also exhibits a specificity effect, indicating the presence of the DP layer.

This paper is organized as follows. Section 2 sketches out the nominal aspects of EQs. It demonstrates that a subset of Japanese EQs behaves as a nominal category. Sections 3 and 4 develop arguments in support of the structure in (2b, c). Since Japanese EQs do not have overt morphemes on the right periphery (apart from Case marking) that distinguish verbal/clausal and nominal types, syntactic phenomena associated with the left periphery are used as diagnostics. Section 3 focuses on nP, and Section 4 on DP. Section 5 turns to the consequences of the proposed analysis. It discusses why Japanese nominal EQs do not exhibit nominative-genitive conversion, a phenomenon commonly found in nominal constructions. Section 6 is the conclusion.

2 Nominal aspects of EQs

2.1 Case marking

There is fairly general agreement that noun phrases and clauses are distinguished in terms of their Case properties. While the former appears in Case positions, the latter is excluded from those positions. Stowell's (1981) Case Resistance Principle states that clauses are not assigned Case because they are Case-assigning categories. However, unlike embedded declarative clauses, embedded interrogative clauses (called EQs in this paper) are not necessarily subject to this principle and can occur in Case positions.

(3) a. *[Although [(that) you abandoned her] shocked me], …
b. *We were talking [about [(that) we should help them]].
c. *I consider [[that you work with Roger] to be unimportant].
d. *John explained [that the sky is blue] to his children. (Stowell 1981: 393)

(4) a. [Although [what you did to her] shocked me], …
b. We were talking [about [who we should help]].
c. I consider [[who you decide to work with] to be unimportant].
d. John explained [why the sky is blue] to his children. (Stowell 1981: 392)

The EQ occurs in the embedded subject position in (4a), after the preposition in (4b), in the ECM subject position in (4c), and in the object position of the dative construction in (4d). These are all Case positions from which a canonical clausal category is excluded, as in (3a–d).

It has been noted in the literature that Japanese EQs also have nominal aspects (Fukui 1986; Tomioka 2020 among others). They display distributional patterns parallel with those of their English counterparts.

(5) a. [[Dare-ga sono mondai-o kaiketusuru ka] *(-ga) motiron
who-NOM that problem-ACC solve Q -NOM of.course
zyuuyoo-da-ga], doo kaiketusuru ka-mo zyuuyoo da.
important-COP-although how solve Q-also important COP
'Although who will solve the problem is of course important, how they will solve it is also important.'

b. Kekka-wa [doredake benkyoosuru ka] *(-ni) kakatteiru.
result-TOP how.much study Q -on depend
'The result depends on how much you study.'

c. John-wa [[Bill-ga dare-to hataraku ka] *(-ga/-o) mottomo zyuuyoo-da
John-TOP Bill-NOM who-with work Q -NOM/ACC most important-COP
to] omotta.
COMP considered
'John considered who Bill would work with to be the most important.'

d. John-wa kodomo-ni [sora-ga naze aoi ka](-ga/-o) setumee deki-naka-tta.
John-TOP child-DAT sky-NOM why blue Q -NOM/-ACC explain can-NEG-PST
'John couldn't explain why the sky is blue to his children.'

As illustrated by (5a, c), the EQ in Japanese must carry a case particle when it appears as the subject of a finite clause and an ECM clause. The particle *-ni* in (5b) is a postposition. Its obligatory occurrence also indicates that the EQ that carries it is nominal and must receive a structural Case.

Unlike the other examples in (5), the particle is optional in (5d). There are two possible analyses. One is that the EQ is consistently nominal regardless of the presence or absence of the particle. In this analysis, the EQ without the particle is considered to result from the optional dropping of the particle (see Kuno 1973; Saito 1985; Masunaga 1988; Hoshi 1993 for case particle dropping in the nominal context in general). The other is that while the EQ with a case particle is nominal, the EQ without it is clausal. This paper adopts the latter.

As noted by Fukuda (1993) and Kageyama (1993), unlike the accusative particle, the nominative particle is hard to drop (see (6a, b)). Likewise, the nominative particle on the subject EQ in (7a, b) cannot be dropped.

(6) a. kono hito ***(-ga)** yonda hon
this man -NOM read book
'the book which this man read'

b. sono hon **(-o)** yonda hito
that book -ACC read man
'the man who read that book' (adapted from Fukuda 1993: 169)

(7) a. [Dare-ga kuru ka] ***(-ga)** zyuuyoo da.
who-NOM come Q -NOM important COP
'Who will come is important.'

b. [Dotirano tiimu-ga sensyuten-o toru ka] ***(-ga)** siai-no kagi-o
which team-NOM first.point-ACC score Q -NOM match-GEN key-ACC
nigitteiru.
hold
'The key to the match will be which team scores first.'

It follows that the case particle in (5d) is not optional, though it looks so. Case-marked and Caseless EQs in (5d) are not in free variation, but there are two versions of EQ, either nominal or clausal, in this pattern.

This conclusion is further supported by the test using coordination. To begin with, consider the following example.

(8) John-wa [nani-o kau ka](-ni) mayotta.
John-TOP what-ACC buy Q-in wavered
'John wavered in what he would buy.' (lit.)

The EQ selected by *mayotta* 'wavered' occurs with or without the postposition *-ni*. Despite the appearance, (8) does not involve the optional dropping of the postposition. The postposition is obligatory when the verb *mayotta* 'waved' selects a nominal complement.

(9) John-wa handan*(-ni) mayotta.
John-TOP judgment-in wavered
'John wavered in his judgment.'

If the postposition were truly optional, (9) would be grammatical without it. It follows that the optionality of the postposition in (8) is only apparent. The EQ displays categorial ambiguity: while it is nominal with the postposition, it is clausal without it.

Notice that the postposition becomes obligatory when the verb *mayotta* 'wavered' takes coordinated EQs.

(10) John-wa [nani-o kau ka] to [nani-o uru ka]*(-ni) mayotta.
John-TOP what-ACC buy Q and what-ACC sell Q-in wavered
'John wavered in what he would buy and what he would sell.'

Given the discussion about (8) and (9), the coordinated EQs are nominal. This conclusion is consistent with the fact that the coordination by means of the conjunction *to* 'and' is possible only with nominal categories. Consider the following examples.

(11) a. Dare-ga [$_{NP}$ pan] to [$_{NP}$ tiizu]-o tabeta no?
who-NOM bread and cheese-ACC ate Q
'Who ate bread and cheese?'

b. *John-wa [$_{CP}$ Bill-ga gakusee da to] to [$_{CP}$ Mary-ga sensee da to] sinziteiru.
John-TOP Bill-NOM student COP COMP and Mary-NOM teacher COP COMP believe
'John believes that Bill is a student and that Mary is a teacher.'

The contrast between (11a) and (11b) reinforces the conclusion that the coordinated EQs in (10) are nominal, whereas embedded declaratives can never be.

2.2 Modification patterns

Another major criterion for distinguishing nominal categories from others is modification. EQs in English and those in Japanese behave differently in this respect. English resists the modification patterns typically observed in noun phrases even when they occur in a Case position. Consider the following examples.

(12) a. We were talking about {the/that/this} difficult question that was on the agenda.

b. We were talking about (*the/*that/*this) (*difficult) who we should help (*that was on the agenda).

Unlike the noun *question* in (12a), the EQ in (12b) is incompatible with a determiner, an adjective, and a relative clause. By contrast, Japanese nominal EQs are compatible with those elements.

(13) Kyoo-no kaigi-de **ano** {yayakosi-**i** / zyuuyoo-**na** / onazimi-**no**}
today-GEN meeting-in that {difficult-ADJ/important-ADJ/ familiar-GEN}
[dooyatte kakaku-o osaeru ka]-ga hanasiaw-are-ta.
how price-ACC control Q-NOM discuss-PASS-PST
'That {difficult/important/familiar} how we control the price was discussed in today's meeting.' (lit.)

(14) Kyoo-no kaigi-de ano **[maeni hanasiatta]**
today-GEN meeting-in that before discussed
[dooyatte kakaku-o osaeru ka]-ga hanasiaw-are-ta.
how price-ACC control Q-NOM discuss-PASS-PST
'That [how we control the price] [that we had discussed before] was discussed in today's meeting.' (lit.)

(13) illustrates that the EQ co-occurs with a demonstrative and allows adjectival modification. Japanese has two classes of adjectives. One is an adjective like *yayakosi-i* 'difficult-ADJ' and the other is like *zyuuyoo-na* 'important-ADJ'. They carry adjectival affixes *-i* and *-na*, respectively (see Kageyama 1982; 1993; Miyagawa 1987; Urushibara 1993; Nishiyama 1999 for this distinction from theoretical perspectives). Both can modify the EQ. The EQ is also compatible with the genitive-marked modifier *onazimi-no* 'familiar-GEN'. In (14), the EQ is modified by a relative clause.[1] These are all characteristics of nominal categories and are not observed with declarative clauses, as in (15a, b).

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[1] Modification by the relative clause in (i) may sound less well-formed to some speakers, compared with the version in (ii), where the EQ is accompanied by an overt substantive noun such as *(toyuu) mondai* 'matter such that'.

(i) Kaisya-no syoorai-wa reino [izen Bill-ga itteita]
company-GEN future-TOP aforementioned before Bill-NOM mentioned
[dooyatte zinkenhi-o osaeru ka]-ni kakatteiru.
how labor.cost-ACC control Q-on depend
'The future of the company depends on aforementioned [how it controls the labor cost] [that Bill mentioned before].' (lit.)

(ii) Kaisya-no syoorai-wa reino [izen Bill-ga itteita]
company-GEN future-TOP aforementioned before Bill-NOM mentioned
[dooyatte zinkenhi-o osaeru ka] toyuu mondai-ni kakatteiru.
how labor.cost-ACC control Q COMP matter-on depend
'The future of the company depends on the matter that aforementioned [how it controls the labor cost] [that Bill mentioned before].' (lit.)

Although (i) admittedly does not sound perfect, it is not as degraded as being ungrammatical, and it sounds much better than (iii) below, which lacks the postposition *-ni*.

(15) a. John-wa (*__ano__) (*hutasika-__na__) [Bill-ga okane-o nusunda to] itta.
John-TOP that uncertain-ADJ Bill-NOM money-ACC stole COMP said
'John said that uncertain that Bill had stolen the money.' (lit.)

b. John-wa (*__Mary-mo itteita__) [Bill-ga okane-o nusunda to] itta.
John-TOP Mary-also said Bill-NOM money-ACC stole COMP said
'John said that Bill had stolen the money that Mary also said.' (lit.)

The contrast between Japanese and English in the compatibility with modification indicates that nominalization in English takes place more restrictedly than in Japanese.

A caveat may be in order regarding the modification by relative clauses. As illustrated below, although English EQs are incompatible with a restrictive relative clause, they can be followed by a non-restrictive relative clause.

(16) a. We were talking about who we should help (*that was on the agenda).

b. We were talking about who we should help, which was not an easy question to answer.

It may be argued that the relative clause in (14) is also a non-restrictive clause. If that is the case, Japanese and English EQs will be no different in this respect; they are compatible with a non-restrictive relative clause.

(iii) *Kaisya-no syoorai-wa reino [izen Bill-ga itteita]
company-GEN future-TOP aforementioned before Bill-NOM mentioned
[dooyatte zinkenhi-o osaeru ka] kakatteiru.
how labor.cost-ACC control Q depend
'The future of the company depends aforementioned [how it controls the labor cost] [that Bill mentioned before].' (lit.)

To measure the extent to which our intuition is shared among native Japanese speakers, we conducted a grammaticality judgment experiment on 73 Japanese-speaking university students using (i)–(iii) as sample sentences. We asked the subjects to score each sentence using the scale given in (iv).

(iv) 5: perfectly grammatical
4: less grammatical but acceptable
3: marginally acceptable
2: degraded but not totally ungrammatical
1: totally ungrammatical

The results of the grammaticality judgment experiment were analyzed using a one-way repeated measures ANOVA, which revealed a significant main effect of sentence type ($F(2, 144) = 71.11, p < .01, f = 0.99$). Post hoc comparisons using the Holm method showed that scores for sentence type (iii) ($M = 2.56$, SD = 1.13) were significantly lower than those for both sentence type (i) ($M = 3.92$, SD = 0.96) and sentence type (ii) ($M = 4.18$, SD = 1.00). No significant difference was found between sentence types (i) and (ii). The mean scores indicate that sentence types (i) and (ii) were judged as more acceptable than sentence type (iii). The large effect size ($f = 0.99$) suggests substantial practical significance in these differences. These findings support our initial intuition that there are considerable differences in the acceptability of the three sentence types, with type (iii) being notably less acceptable to native Japanese speakers compared to types (i) and (ii).

However, Japanese non-restrictive relative clauses behave differently from their English counterparts in one crucial respect. Those in English can be associated not only with nominal but with clausal categories.

(17) John said that Bill had stolen the money, which, to be honest, I find hard to believe.

By contrast, as discussed above, Japanese relative clauses cannot modify clausal categories (see (15b)). The Japanese equivalent of (17) becomes ungrammatical with the relative clause.

(18) John-wa (*watasi-ni-wa syoozikinatokoro sinzi-gatai) [Bill-ga
John-TOP I-DAT-TOP to.be.honest to.believe-hard Bill-NOM
sono okane-o nusunda to] itta.
the money-ACC stole COMP said
'John said that Bill had stolen the money, which, to be honest, I find hard to believe.'

The contrast indicates that Japanese relative clauses are limited to nominal modification, whether they are used restrictively or non-restrictively. It follows then that (14) is still valid as evidence for the nominal nature of Japanese EQs.

3 Nominalization of EQs

This section discusses the internal structure of nominal EQs, focusing on how a clausal EQ turns into a nominal category. A typical analysis is that a nominalized clause contains a nominal layer above the clausal part. Still, the exact structure of the noun clause is a matter of debate. Some may argue that clausal nominalization is attained by directly merging the nominal head D with CP (Roussou 1991; Davies & Dubinsky 1998; Borsley & Kornfilt 2000; Caponigro 2002; Takahashi 2010; Miyagawa 2011; Pietraszko 2019; Alexiadou 2020; Iordăchioaia 2020; Hankamer & Mikkelsen 2021 among others). Others argue against it (Grimshaw 2000; Aygen 2002; Maki & Uchibori 2008; Hartman 2012 among others). This paper demonstrates that n rather than D converts an interrogative CP into a nominal category in Japanese. It will also be shown that there are two major types of n. One has its own semantic content. The other is a semantically vacuous type. When the former occurs, the resulting nP is further merged with D. By contrast, the EQ involving the latter lacks the DP layer.

3.1 The n as a nominalizer

Which head nominalizes a clause is a matter of controversy. Analyzing clausal nominalization in Ndebele, Pietraszko (2019) observes that a clause in that language is nominalized by directly merging D with CP. A similar D-CP structure is proposed for nominalized clauses in languages like Spanish (Plann 1981), Greek (Roussou 1991), Polish, and Georgian (Borsley & Kornfilt 2000). Consider the following examples.

(19) a. *Ndebele* (Pietraszko 2019: 68)
Ngicabanga [$_{DP}$ **u-** [$_{CP}$ kuthi usukile]].
1SG.thought AUG COMP 1.left
'I thought that (s)he left.'

b. *Spanish* (Borsley & Kornfilt 2000: 110)
No acepto [**el** susurrar palabras obscenas].
NEG accept.1SG the whisper words obscene
'I do not accept the whispering of obscene words.'

c. *Greek* (Roussou 1991: 78)
[**To** oti ehis filus] simeni pola.
the.NOM COMP have.2SG friends.ACC mean.3SG much
'That you have friends means a lot.'

d. *Polish* (Borsley & Kornfilt 2000: 113)
Jan oznajmił [**to**, że Maria zmienia pracę].
Jan announced that COMP Maria is.changing job
'Jan announced that Mary is changing her job.'

e. *Georgian* (Borsley & Kornfilt 2000: 115)
vanom gvian gaigo [**is**, rom ninom dac'era
Vano.ERG late 3.3.find.out.AOR it.NOM COMP Nino.ERG 3.3.write.AOR
c'erili].
letter.NOM
'Vano found out late that Nino had written the letter.'

Each sentence here contains a D-related morpheme, such as a determiner and a demonstrative merged with a clausal category.

In this connection, Alexiadou (2020) argues that higher parts of the clausal spine, such as TP and CP, are nominalized only by D. In contrast, lower parts like VoiceP and vP are nominalized by another nominal functional head n (see also Iordăchioaia 2020 for a similar view). Thus, there is a division of labor between D and n. Alexiadou discusses two types of nominalized infinitives in Spanish to support this distinction.

(20) *Spanish* (Alexiadou 2020: 95 with a slight modification)
a. El (*constante) escribir ella novelas (constantemente)
the constant write.INF she novels constantly

b. El (constante) temer (*constantemente) de Juan
the constant fear.INF constantly of Juan

(20a) is called the verbal infinitive, and (20b) is called the nominal infinitive. Although both involve nominalization of the infinitival construction, they differ in the manner of nominalization. The difference is reflected in modification patterns. (20a) allows adverbial, rather than adjectival, modification. (20b) exhibits the opposite pattern. The occurrence of *de* 'of' in (20b) indicates that the infinitive *temer* 'fear' is nominalized and that the adjective is merged with the already nominalized constituent. On the other hand, the impossibility of adjectival modification in (20a) indicates that the part *escribir ella novelas* is not a nominal but a clausal projection. It is directly merged with D, whereby it is converted into a nominal category.[2]

While the analysis based on the D-CP/TP structure seems viable for languages listed in (19), it does not apply to nominal EQs in Japanese. Instead, clausal nominalization is attained by another nominal functional head n, rather than the determiner type head D. Japanese nominal EQs behave differently from Spanish verbal infinitives in that they tolerate adjectival modification.

(21) Kyoo-no kaigi-de **ano** {yayakosi-**i**/zyuuyoo-**na**/onazimi-**no**}
today-GEN meeting-in that {difficult-ADJ/important-ADJ/ familiar-GEN}
[dooyatte kakaku-o osaeru ka]-ga hanasiaw-are-ta.
how price-ACC control Q-NOM discuss-PASS-PST
'That {difficult/important/familiar} how we control the price was discussed in today's meeting.' (lit.)

As discussed in section 2.2, Japanese EQs occur with demonstratives, adjectives, and genitive-marked constituents. These elements are used for modifying nominal categories, which means that they target a constituent that has already been nominalized, as stated in Kornfilt & Whitman's (2011) Functional Nominalization Thesis.

(22) The Functional Nominalization Thesis (Kornfilt & Whitman 2011: 1298)
Nominal properties of a nominalization are contributed by a nominal functional projection. The nominalization has verbal properties below the nominal functional projection, nominal properties above it.

The adjectival modification in (21) indicates that the EQ in these examples must have a nominal character before the adjective is introduced into the structure.

One may postulate a structure like (23) for (21) and argue that adjectival modification is still possible in this structure because the adjective targets a nominal projection D′.

(23) $[_{DP}$ 'that' $[_{D'}$ 'difficult'/'important'/'familiar' $[_{D'}$ EQ D]]][3]

[2] The relevant projection may be either CP or TP. Although we are agnostic about which category it is, it involves at least TP since it contains a nominative subject.

[3] Anticipating the discussion in section 4, we assume that the demonstrative is located in Spec-DP.

One problematic aspect of this analysis is that it fails to exclude adjectival modification in the so-called *poss-ing* gerunds in English.

(24) [John's {*careful / carefully} slicing the cheese] was impressive.

The *poss-ing* construction displays verbal internal structure except for the genitive marking on the subject. Its external distribution is the same as that of noun phrases. Since Abney (1987), these properties have been attributed to the structure in which D and VP are directly merged.

(25) [$_{DP}$ John's [$_{D'}$ D [$_{VP}$ carefully slicing the cheese]]]

The absence of adjectival modification in the *poss-ing* construction indicates that an adjective cannot be merged with D′.[4] It follows that (23) is not an appropriate structure of (21) and that a nominal category other than D must be merged with EQ so that the adjectival modification may be possible. Based on this consideration, we propose a structure where the interrogative CP (i.e., EQ) is nominalized by n rather than by D, as schematically illustrated below.

(26) [$_{DP}$ … [$_{D'}$ [$_{nP}$ Adjective EQ n] D]]

3.2 Subclasses of empty nominals

We assume that n is a nominal categorizer postulated in the framework of Distributed Morphology (Halle & Marantz 1993). In this framework, a lexical noun traditionally labeled N is not atomic but syntactically derived via the merger of an acategorial root and a nominal categorizer n. For example, a noun *dog* has a syntactically complex structure, where a root √DOG is merged with the categorizer n. In our analysis, nominal EQ gets its nominal status by merging CP with the phonologically empty nominal categorizer n.

A corollary of this analysis is that the n in question is semantically vacuous, lacking a semantic denotation of its own. It simply serves to convert a clause into a nominal category. An advantage of this analysis is that it can account for the limited distribution of EQs. As illustrated below, only *inquiry*-type predicates (Tomioka 2020), namely, question-embedding predicates meaning 'to ask/question' can select them.

(27) a. John-wa [Mary-ga nani-o katta ka]-o {tazuneta/touta/*semeta}.
John-TOP Mary-NOM what-ACC bought Q-ACC {asked/questioned/blamed}
'John {asked/questioned/blamed} what Mary had bought.'

b. John-wa [Mary-ga yubiwa-o katta koto]-o {*tazuneta/*touta/semeta}.
John-TOP Mary-NOM ring-ACC bought COMP-ACC {asked/questioned/blamed}
'John {asked/questioned/blamed} Mary's buying a ring.'

[4] The same observation holds for verbal infinitives in Spanish in (20a).

The verbs *tazuneta* 'asked' and *touta* 'questioned', question-embedding predicates (Uegaki 2019; Tomioka 2020; see also Uegaki & Sudo 2019), can select an interrogative clause but not a non-interrogative clause. Conversely, the non-question-embedding verb *semeta* 'blamed' is incompatible with an interrogative clause. This contrast is predictable if n is semantically vacuous. It selects a question denotation (for example, a set of propositions, following Hamblin 1973) and returns the same value. The resulting nominal phrase remains interrogative, allowing only a question-embedding predicate to select it. The nominal projection above the EQ must be, as it were, transparent for s-selection.

This restriction suggests that the nominalized EQ in (27a) lacks the DP layer. Its absence over the semantically vacuous nP is reflected in the unavailability of a demonstrative with the EQ selected by an *inquiry*-type predicate.

(28) John-wa (***ano**) [nani-o Mary-ga katta ka]-o {tazuneta/touta}.
John-TOP that what-ACC Mary-NOM bought Q-ACC {asked/questioned}
'John {asked/questioned} (that) what Mary had bought.' (lit.)

On the assumption that the demonstrative is located in DP, its exclusion from (28) indicates that the EQ here does not contain DP.[5] In this connection, it is worth recalling that we noted in section 2.2 that some EQs are compatible with demonstratives.

(29) Kyoo-no kaigi-de **ano** [dooyatte kakaku-o osaeru ka]-ga hanasiaw-are-ta.
today-GEN meeting-in that how price-ACC control Q-NOM discuss-PASS-PST
'That how we control the price was discussed in today's meeting.' (lit.)

The predicate *hanasiau* 'discuss' is not an *inquiry*-type, though it embeds a question. The grammaticality of the demonstrative in (29) suggests that the EQ here has been turned into a different semantic type via the merger of n, and hence, it is now compatible with D. It has referential content that tolerates the modification by the demonstrative. The contrast between (28) and (29), therefore, suggests that while the EQ in (28) is nominalized by the semantically vacuous n, the one in (29) utilizes a semantically active content noun (see e.g., Moulton 2015; 2020 on content nouns). Thus, there are at least two major classes of empty EQ-nominalizers.

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[5] The EQ nominalized by the semantically vacuous n denotes a set of propositions. From its incompatibility with the demonstrative, it is predicted that proposition-denoting categories are generally incompatible with the demonstrative. This prediction is bone out.

(i) (*Ano) [kinoo John-ga kita rasii koto]-ga sir-arete-iru.
that yesterday John-NOM came may fact-NOM know-PASS-is
'(The fact) that John may have come yesterday is known.'

The subject clause denotes a proposition. Since it is a nominal clause, as indicated by case-marking, the illegitimacy of the demonstrative should be ascribed to a semantic, rather than syntactic, factor; that is, it cannot be combined with a proposition.

The EQ involving the semantically active n does not denote a question *per se*, even though it is selected by a question-embedding predicate. There are several ramifications in this pattern. One is a case where the EQ can be analyzed as denoting something equivalent to 'question' or 'issue'. The EQ with this interpretation may have a structure akin to a noun complement clause.

(30) a. Mensetu-de John-wa [donna sigoto-o si-tai ka](toyuu situmon)-ni kotaeta.
interview-at John-TOP what job-ACC do-want Q COMP question-DAT answered
'At the interview, John answered the question of what job he wanted to do.' (lit.)

b. Kyoo-no kaigi-de [dooyatte kakaku-o osaeru ka](toyuu mondai)-ga
today-GEN meeting-in how price-ACC control Q COMP issue-NOM
hanasiaw-are-ta.
discuss-PASS-PST
'The issue of how we control the price was discussed in today's meeting.'

(30a) means that John answered a particular question. It can be paraphrased into the noun complement construction by adding the parenthesized elements *toyuu situmon* 'COMP question' without significant change in meaning. Likewise, (30b) can be optionally accompanied by the element *toyuu mondai* 'COMP issue'. The EQs describe the specifics of the head nouns *situmon* 'question' and *mondai* 'issue'. They play the same role in the version without the overt head noun. Based on this parallelism, we propose that the EQs here involve a semantically active empty noun whose meaning is something like 'question' or 'issue'. It is merged with the interrogative CP, as illustrated below.

(31) a. … [[donna sigoto-o si-tai ka]$_{CP}$ n(= 'question')]$_{nP}$ …
what job-ACC do-want Q

b. … [[dooyatte kakaku-o osaeru ka]$_{CP}$ n(= 'issue')]$_{nP}$ …
how price-ACC control Q

The silent content noun converts a set of propositions denoted by the interrogative CP into a contentful individual (Moulton 2020). Consequently, the EQ is compatible with the demonstrative *ano* 'that' (see (29)).

It is worth noting that an EQ nominalized by the semantically vacuous n (i.e., an EQ selected by an *inquiry*-type predicate) cannot be converted into the noun complement construction. For instance, the EQ in (32), which is selected by an *inquiry*-type predicate like *tazuneta* 'asked' and *touta* 'questioned', cannot be followed by the phrase *toyuu situmon* 'COMP question'.

(32) John-wa [Mary-ga nani-o katta ka](***toyuu situmon**)-o {tazuneta/touta}.
John-TOP Mary-NOM what-ACC bought Q (COMP question)-ACC {asked/questioned}
'John {asked/questioned} (the question of) what Mary had bought.' (lit.)

The denotation of the EQ nominalized by the semantically vacuous n remains unchanged. It denotes a question, namely, a set of propositions.

The hidden noun complement structure with a silent content noun is observed cross-linguistically. Spanish has a nominalized clause that involves the determiner *lo* followed by the preposition *de* and the declarative clause headed by the complementizer *que* (Picallo 2002; Moulton 2020 among others).

(33) *Spanish* (Moulton 2020: 261)
Lo de que se tenga que pagar un impuesto adicional provocará un unánime rechazo.
the of that people have that to.pay a tax additional will.cause a unanimous revolt
'The (idea/proposal) that people have to pay an additional tax will cause a unanimous revolt.'

(33) is analyzed as involving the noun complement structure with a null noun equivalent to overt nouns like 'idea' or 'proposal', as indicated by the translation. The presence of such a noun is verified by the preposition *de*, which is obligatory when the CP occurs as the complement of a noun.

(34) *Spanish* (Moulton 2020: 262)
Lamento el hecho *(de) que no me aludara.
regret.1SG the fact of that not me greet.3SG
'I regret the fact that he did not greet me.'

Moulton (2020) observes that the relevant empty noun is equivalent to all-purpose content nouns such as *kes* in Korean. Japanese also has such an item, namely, *koto*. As illustrated below, *koto* is replaceable with a more concrete expression *toyuu kangae* 'COMP idea'.

(35) John-wa kaimono-ni iku {**koto**/**toyuu kangae**}-ni sanseesita.
John-top shopping-to go {NMLZ/COMP idea}-with agreed
'John agreed with (the idea of) going shopping.'

The same mechanism is available in EQs. Each sentence in (30a, b) involves a semantically active all-purpose nominalizer, as schematically illustrated in (31). The only difference is that the relevant nominalizer, the counterpart of *koto* in the declarative clause, is phonologically empty in the EQ.

Another instance of EQ involving a silent content noun expresses a possible answer to the question. Consider the following example.

(36) John-wa [dare-ga okane-o nusunda ka]-o tukitometa.
John-TOP who-NOM money-ACC stole Q-ACC tracked.down
'John tracked down who had stolen the money.'

This sentence does not mean that John tracked down the question itself. It means that he found the answer to the question; that is, he identified the person who had stolen the money. Let us call this type the answer-denoting EQ. Although the EQ shows up in the shape of an interrogative clause, it virtually refers to (an) individual(s) that serve(s) as the answer to the *wh*-phrase. In this sense, (36) is in parallel with a relative clause.

(37) John-wa [e_i okane-o nusunda Op_i] $hito_i$-o tukitometa.
John-TOP money-ACC stole person-ACC tracked.down
'John tracked down the person who had stolen the money.'

The resemblance between the answer-denoting EQ and the relative clause construction has been noted in the literature. One notable characteristic of the answer-denoting EQ is that it can co-occur with a constituent that refers to the individual(s) that serve(s) as the answer to the *wh*-phrase. Tomioka (2020) notes that an internally-headed relative clause displays the same behavior. Compare the following pair.

(38) a. [Mary-ga okane-o aru-kaikeesi-ni azukete-oi-ta] {**no** / **sono**
Mari-NOM money-ACC certain-accountant-DAT entrust-put-PST {NMLZ/the
okane}-**o** moti-nige-sarete-simat-ta.
money}-ACC have-escape-PASS-result-PST
'Mari got stolen the money that she entrusted to a certain accountant.'
(Tomioka 2020: 135)

b. Keesatu-wa [dare-ga hooseki-o ubat-ta ka] **sono hannin-o** sitteiru.
police-TOP who-NOM jewel-ACC steal-PST Q the culprit-ACC know
'The police know who stole the jewels, that culprit.' (Tomioka 2020: 133)

The bracketed part of (38a) is an internally-headed relative clause. The nominalizer *no* refers to the noun *okane* 'money' inside the relative clause. It can be replaced with the DP *sono okane* 'the money'. The DP *sono hannin* 'the culprit' in (38b) plays a similar role. It corresponds to the individual that serves as the answer to the *wh*-phrase inside the EQ. Based on this similarity, Tomioka postulates a covert nominalizer in the answer-denoting EQ that plays a similar, though not identical, role to the nominalizer *no* in the internally-headed relative clause.

While the exact semantic nature of the covert nominalizer has yet to be figured out, it is worth noting that it behaves differently from the semantically vacuous nominal head. The EQ involving the semantically vacuous nominal head cannot be followed by the DP denoting the answer.

(39) John-wa [Mary-ga dare-ni atta ka] (***sono zinbutu-o**) situmonsita.
John-TOP Mary-NOM who-ACC met Q the person-ACC questioned
'John questioned who Mary had met, the person.' (lit.)

The EQ selected by an *inquiry*-type predicate like *situmonsita* 'questioned' involves a semantically vacuous nominalizer. The sentence becomes unacceptable with the DP referring to the individual that constitutes the answer to the *wh*-phrase.

To sum up, there are at least two types of empty EQ-nominalizers: the semantically vacuous and the semantically active types.[6] The former simply creates a nominal projection over an interrogative CP. Since the nominal projection inherits the interrogative nature of the EQ, it can be selected only by *inquiry*-type predicates like *tazuneru* 'ask', *tou* 'question', and *situmonsuru* 'question'. On the other hand, the nominal heads of the latter type have meanings of their own such as 'question' or 'issue', and an EQ they nominalize has a hidden noun complement structure. Another instance of EQ nominalized by a silent content noun refers to a possible answer.

In the proposed analysis, the choice of n for nominalizing an EQ depends on the semantic selectional property of the matrix predicate. Consider the following example.

(40) Karera-wa [dare-o suisensu-beki ka]-o {situmonsita/hanasiatta/sitteiru}.
they-TOP who-ACC recommend-should Q-ACC {questioned/discussed/know}
'They {questioned/discussed/know} who they should recommend.'

The apparently identical EQs here are nominalized by different n's. The EQ occurring with the predicate *situmonsita* 'questioned' is nominalized by the semantically vacuous n. The one selected by *hanasiatta* 'discussed' involves the silent noun whose meaning is akin to 'issue'. The one selected by *sitteiru* 'know' denotes the complete answer to the question.

4 D(P)

This section discusses whether a nominal EQ contains the DP layer on top of nP. As discussed in section 2.2, a nominal EQ may co-occur with a demonstrative.

(41) Kyoo-no kaigi-de **ano** zyuuyoona dooyatte kakaku-o osaeru ka-ga
today-GEN meeting-in that important how price-ACC control Q-NOM
hanasiaw-are-ta.
discuss-PASS-PST
'That important how we control the price was discussed in today's meeting.' (lit.)

Demonstratives are commonly analyzed as members of determiners and as occurring either in the D head position or in Spec-DP. Furuya (2008) observes that demonstratives in Japanese occupy Spec-DP. Since Japanese is a head-final language, the prenominal demonstrative is located in the specifier rather than the head position. In this view, the occurrence of the determiner

[6] Whether empty nominalizers are n's or N's may be controversial. We remain neutral on this issue. Wood (2023) proposes that the n heads may have either contentful or zero interpretations, subject to contextual allosemy. If one adopts this approach, the nominalizers do not have to be lexical heads. We leave this issue open for future discussion.

may lead one to consider that the EQ involves DP. However, the availability of demonstratives does not immediately guarantee the presence of DP in noun phrases and the linking between demonstratives and DP have been the subject of debate. To see if the DP layer exists in Japanese EQs, it is necessary to examine whether demonstratives in Japanese are structurally affiliated with DP.

4.1 NP- and DP-languages

Bošković (2005; 2008; 2009) proposes categorizing languages on the basis of the presence or absence of DP inside noun phrases. According to him, noun phrases in languages with overt articles like English have a DP layer above AP, which in turn dominates NP as in (42a).[7] On the other hand, those in article-less languages like Serbo-Croatian take a different shape, as in (42b). They lack the DP layer, and AP is contained in NP instead of forming an independent projection in the nominal spine.

(42) a. $[_{DP}$ D $[_{AP}$ Adj $[_{NP}$ N]]]

b. $[_{NP}$ AP N]

While retaining Bošković's insights, we argue that although Japanese is an article-less language, noun phrases still involve DP. We further show that it is not totally assimilated with languages with articles but partially exhibits characteristics of article-less languages.

Bošković (2005) observes that demonstratives and possessives in article-less languages are not determiners but adjectives. Being adjectives, they are not located either in D or in Spec-DP but adjoined to NP. He further notes that demonstratives as adjectives display the following characteristics. First, they exhibit adjectival morphology. Second, the order between demonstratives and adjectives is relatively free. Third, a possessive cannot be modified by another possessive.

Demonstratives and possessives in Serbo-Croatian exhibit all of these characteristics, as illustrated below.

(43) *Serbo-Croatian* (Bošković 2005: 6–7)

a. nek**im** mlad**im** djevojkama
some.FEM.PL.INSTR young.FEM.PL.INSTR girls.FEM.PL.INSTR
'some young girls'

[7] In Bošković's notation, the nominal projection below DP is denoted as NP headed by a lexical noun N. As mentioned at the beginning of section 3.2, this paper assumes that the traditional NP is nP and that a lexical noun traditionally labeled N is not atomic but syntactically derived via the merger of an acategorial root and a nominal categorizer n. However, as far as the discussions in sections 4 are concerned, we use NP to refer to the projection below DP for notational convenience and terminological consistency with Bošković's analysis.

b. Jovanova skupa slika vs. skupa Jovanova slika
John's expensive picture expensive John's picture
'John's expensive picture' '*expensive John's picture'

c. *Moj bratov prijatelj spava.
my.NOM brother's.NOM friend.NOM sleeps
'My brother's friend sleeps.'

The demonstrative *nekim* 'some' in (43a) has the same inflectional ending *-im* that appears on the adjective *maladim* 'young'. The order between a possessive and an adjective can alternate freely (see (43b)). Since the possessive and the adjective are members of the same category (i.e., A(djective)), they occur in the AP layer in (42b), where they can be aligned in either order. (43c) shows that the modification of a possessive by another results in ungrammaticality. Notice that English does not exhibit any of these characteristics, as indicated by the translation given to each example.

Since Japanese is also an article-less language, it is predicted that the same pattern as in (43) is obtained. However, the prediction is borne out only partially. Consider the following examples.

(44) a. ano(*-i) osana-i syoozyo
that(-ADJ.PRS) young-ADJ.PRS girl
'that young girl'

b. {John-no/ano} kookana e vs. kookana {John-no/ano} e
{John-GEN/that} expensive picture expensive {John-GEN/that} picture
'John's/that expensive picture'

c. Watasi-no otooto-no tomodati-ga neteiru.
I-GEN brother-GEN friend-NOM sleep
'My brother's friend sleeps.'

(44a) indicates that the demonstrative is morphologically distinguished from the adjective. While the adjective has an adjectival present tense inflectional ending, the demonstrative cannot carry it.[8] As illustrated by (44c), modifying a possessive by another is possible. This is also

[8] One may argue that demonstratives can be grouped with adjectives as nominal modifiers in a broad sense because the *-no* in demonstratives like *ano* 'that' and *kono* 'this' can be analyzed as a genitive marker that commonly appears with garden-variety nominal modifiers. Still, it seems desirable to separate demonstratives from adjectives. Consider the following example.

(i) John-wa iziwaru da. Boku-wa anna hito-wa kiraida.
John-TOP nasty COP I-TOP such person-TOP hate
'John is nasty. I hate such a person.'

The prenominal modifier *anna* refers to an entity in the context, particularly focusing on its state or degree. It consists of the demonstrative part *an(o)* and the adjectival ending *-na*. In this respect, it is similar to Serbo-Croatian demonstratives. However, it does not display the deictic and anaphoric behavior characteristic of demonstratives.

a characteristic that is not found in Serbo-Croatian. The only property that Japanese shares with Serbo-Croatian is the alternation between the adjective and the demonstrative/possessive, as in (44b). Apart from this property, possessives and demonstratives in Japanese behave in parallel with those in English, a language with an overt article. In this sense, Japanese is a hybrid language with characteristics of both types of language (see e.g., Oda 2022; 2023 for recent arguments against the clear-cut distinction between DP- and NP-languages).

The morphological difference between demonstratives and adjectives (see (44a)) indicates that they belong to different grammatical categories in Japanese. (42b) is inappropriate for capturing their categorial difference since it presupposes that they belong to the same category (i.e., adjective). Alternatively, we propose the following structure for Japanese noun phrases.[9]

(45) $[_{DP}$ Dem $[_{NP}$ Adj Dem N] D]

This structure is similar to the Serbo-Croatian-type noun phrase in that the demonstrative in the adjective-demonstrative (Adj-Dem) order is located in the NP layer. Adopting the widely made assumption that prenominal modifiers occur in the projection below DP (Abney 1987; Cinque 1994; Bošković 2005 among many others), we propose that an adjective is contained in NP. The Adj-Dem order indicates that the demonstrative in this order belongs to the NP layer. (45) is similar to the English-type noun phrase as well in that it has the DP layer hosting the demonstrative that appears in the demonstrative-adjective (Dem-Adj) order.

4.2 Two types of demonstratives and their positions

In the proposed structure, the word order alternation between demonstratives and prenominal modifiers in Japanese arises from a different structural factor than in Serbo-Croatian. As mentioned above, demonstratives and adjectives in Serbo-Croatian belong to the same category, which allows for word order alternation. On the other hand, demonstratives in Japanese can occur in distinct projections, namely, in DP and NP. This suggests that the Dem-Adj and Adj-Dem orders are not necessarily equivalent, though they look so.

One of the significant features of demonstratives resides in their anaphoric function.

(ii) a. {Ano/*Anna}hito-wa dare desu ka?
{that/such} person-TOP who is Q
'Who is that person?'

b. Kinoo kokoni hon-ga atta kedo, {ano/*anna} hon-wa dokoni itta no?
yesterday here book-NOM was but {that/such} book-TOP where gone Q
'There was a book here, but where has that book gone?'

Given this restriction, demonstratives cannot be totally assimilated with adjectival modifiers.

[9] Not only adjectives but also genitive-marked phrases occur as prenominal modifiers in NP. The abbreviation Adj in (45) and in the text is used as a cover term that includes both.

(46) A: John-ga Kyoto-e tenkin-o meezir-are-ta rasii ne.
John-NOM Kyoto-to transfer-ACC order-PASS-PST I.heard PRT
'I heard that John was told to be transferred to Kyoto.'

B: Demo, aitu-wa kitto (ano) konkai-no (ano) tenkin-o kotowaru
but he-TOP certainly (that) this.time-GEN (that) transfer-ACC refuse
hazuda yo.
I.am.sure PRT
'But I'm sure he will refuse that transfer this time.'

The demonstrative refers back to the transfer to Kyoto, which was mentioned in the previous context. Under the proposed structure (45), the Dem-Adj order results from the placement of the demonstrative inside DP. In contrast, the Adj-Dem order is rooted in the placement of the demonstrative inside NP.

It is worth noting that the demonstrative does not always display free alternation with the adjective. In addition to the anaphoric use, the demonstrative may have the meaning equivalent to 'that kind of'. Consider the following example.

(47) A: John-wa donna tenkin-o nozondeiru no?
John-TOP what.kind.of transfer-ACC want Q
'What kind of transfer does John want?'

B: Syookaku-tuki-no tenkin da yo.
promotion-with-GEN transfer COP PRT
'The transfer with a promotion.'

A: Ano tenkin-nara yuukoto-nasi da ne.
that transfer-TOP to.say-nothing COP PRT
'With that (kind of) transfer, there's nothing to say.'

Speaker A's first utterance implies that there are several kinds of transfer: transfer with a promotion, demotion, pay raise, pay cut, and so on. Speaker B singles out one type, and the demonstrative in Speaker A's second utterance refers to this particular type. Let us call this use the kind-specifying use for the sake of expository convenience.

Although *ano* is ambiguous between anaphoric and kind-specifying types, the ambiguity can be removed by using the demonstrative *anna*. As mentioned in note 8, it cannot be used deictically and anaphorically but can only act as a kind-specifying modifier. Thus, it is incompatible with contexts that force deictic and anaphoric readings.

(48) a. Asokoni tatte-iru {ano/*anna} hito-wa dare desu ka?
over.there standing-is {that/that.kind.of} person-TOP who is Q
'Who is that person standing over there?'

b. Kinoo kokoni hon-ga atta kedo, {ano/*anna} hon-wa dokoni
yesterday here book-NOM was but {that/that.kind.of} book-TOP where
itta no?
gone Q
'There was a book here, but where has that book gone?'

It is worth noting that unlike the anaphoric demonstrative, *anna* is infelicitous in the position preceding a genitive-marked modifier, as indicated by (49B).

(49) A: John-ga Kyoto-e kookaku-tuki-no tenkin-o meezir-are-ta sooda.
John-NOM Kyoto-to demotion-with-GEN transfer-ACC order-PASS-PST hearsay
'I heard that John was ordered to transfer to Kyoto with a demotion.'

B: Aitu-wa kitto (*anna) konkai-no (anna) tenkin-o kotowaru
he-TOP certainly that.kind.of this.time-GEN that.kind.of transfer-ACC refuse
hazuda.
I.am.sure
'I'm sure that he will refuse that kind of transfer this time.'

Given the oddity of (49B) with *anna* preceding the genitive-marked modifier, it is more reasonable to assume that the kind-specifying demonstrative can only occur in the NP-internal position. Additionally, the asymmetry between *anna* and the genitive-marked modifier in their relative ordering indicates that the two orders are not entirely equivalent.[10] The discussion so far leads to modifying (45) to reflect the different distribution of anaphoric and kind-specifying demonstratives.[11]

[10] The same asymmetry emerges with the kind-specifying *ano*.

(i) A: John-wa donna tenkin-o nozondeiru no?
John-TOP what.kind.of transfer-ACC want Q
'What kind of transfer does John want?'

B: Syookaku-tuki-no tenkin da yo.
promotion-with-GEN transfer COP PRT
'The transfer with a promotion.'
Aitu-wa kitto (*ano) dekirudake haya-i (ano) tenkin-o nozondeiru hazuda.
he-TOP certainly that possible soon-ADJ that transfer-ACC want I.am.sure
'I'm sure he wants that (kind of) transfer as soon as possible.'

Ano in the speaker B's utterance acts as a kind-specifying modifier, referring to a particular type of transfer, namely, the transfer with a promotion. It must appear in the Adj-Dem order.

[11] Notice that *anna* can occur before an adjective.

(i) John-wa anna muzukasii mondai-o toita.
John-TOP that.kind.of difficult problem-ACC solved
'John solved that kind of difficult problem.'

At first sight, its precedence over the adjective may suggest that *anna* appears outside NP. However, the relative ordering between *anna* and the anaphoric demonstrative *ano* shows that it does not appear in the DP layer but stays inside the NP layer.

(50) [$_{DP}$ Dem (anaphoric/*kind-specifying) [$_{NP}$ Adj Dem (anaphoric/kind-specifying) N] D]

4.3 The extraction from nominal constituents

This subsection provides arguments to support the idea that the demonstrative in the Dem-Adj order is placed inside DP. Campbell (1996) argues that the demonstrative occupying Spec-DP is an overt manifestation of a specificity operator that induces specificity effects.[12] Noun phrases exhibit variations in the extraction of constituents. While a non-specific noun phrase allows extraction, a specific noun phrase does not.

(51) a. Who$_i$ did Fred read [(*the) stories about t_i]?

b. Who$_i$ did John read [{a/*every} story about t_i]?

c. Who$_i$ did Mary steal [{a/*that} picture of t_i]?

d. Who$_i$ did Mary make [{many/*most} movies about t_i]? (Campbell 1996: 164)

Along the line of the oft-made observation that extraction out of DP proceeds through Spec-DP (Stowell 1989; Giorgi & Longobardi 1991; Szabolcsi 1994; Gavruseva 2000 among others), Campbell argues that the specificity operator in Spec-DP prevents the *wh*-phrase from using that position as an escape hatch. We also show in what follows that the demonstrative in Spec-DP functions as an operator that blocks extraction.

Akuzawa (2017) notes that an argument of an event nominal (*aka* a verbal noun) can occur either inside or outside the phrase headed by the event nominal.[13]

(ii) John-wa {ano anna / *anna ano} muzukasii mondai-o toita.
John-TOP {that that.kind.of /that.kind.of that} difficult problem-ACC solved
'John solved that that kind of difficult problem.' (lit.)

While the *ano-anna* order is possible, the opposite order becomes ungrammatical.

[12] According to Campbell (1996), Spec-DP is occupied by a null specificity operator in English when the definite article *the* occurs in the D head position. As evidence for a demonstrative in Spec-DP, he refers to the data from Modern Greek, where a demonstrative co-occurs with an overt definite determiner.

(i) ekinis o kirios
that the gentleman
'that gentleman' (Campbell 1996: 168)

On the assumption that the determiner occupies D, the precedence of the demonstrative suggests that it occupies the specifier position.

[13] Verbal nouns appear in what is called the light verb construction (Grimshaw & Mester 1988; Dubinsky 1989; 1997; Miyagawa 1989; Kageyama 1993; Miyamoto 1999; Saito & Hoshi 2000 among others), where they are combined with the light verb *suru* 'do', as in (i). They also occur with control verbs, as discussed in the text.

(i) John-wa Kyoto-e tenkin-o sita.
John-NOM Kyoto-to transfer-ACC did
'John was transferred to Kyoto.'

(52) a. John-wa [Sapporo-kara Tokyo-e-no tenkin]-o nozondeiru.
John-TOP Sapporo-from Tokyo-to-GEN transfer-ACC want
'John wants transfer from Sapporo to Tokyo.'

b. John-wa Sapporo-kara Tokyo-e tenkin]-o nozondeiru.
John-TOP Sapporo-from Tokyo-to transfer-ACC want
'John wants to transfer from Sapporo to Tokyo.' (Akuzawa 2017: 112)

The PP *Sapporo-kara Tokyo-e(-no)* 'from Sapporo to Tokyo' is an argument of the event nominal *tenkin* 'transfer'. The genitive marking on the PP in (52a) indicates that the PP is located inside the noun phrase (i.e., the bracketed part), whereas the lack of genitive marking in (52b) indicates that the PP is outside the noun phrase. According to Akuzawa, (52b) results from the syntactic movement of the argument. The Proper Binding Condition effect in (53a) and the ban on the resumptive pronoun in (53b) suggest the involvement of movement.

(53) a. *[t_i tenkin]-o Ken-wa Kyoto-e_i nozondeiru yooda.
transfer-ACC Ken-TOP Kyoto-to want it.seems
'It seems that transfer, Ken wants to Kyoto.' (lit.)

b. *Ken-wa Kyoto-e_i [soko-e_i-no tenkin]-o nozondeiru yooda.
Ken-TOP Kyoto-to there-to-GEN transfer-ACC want it.seems
'It seems that to Kyoto, Ken wants transfer there.' (lit.)

In the movement analysis, the ungrammaticality of (53a) is attributable to the unbound trace left inside the fronted noun phrase. (53b) is also accounted for naturally since a resumptive pronoun cannot replace a trace.

Akuzawa (2017) points out that when the event nominal co-occurs with a demonstrative, its argument cannot be placed outside the noun phrase.

(54) a. Ken-wa [ano Kyoto-e-no tenkin]-o nozondeiru yooda.
Ken-TOP that Kyoto-to-GEN transfer-ACC want it.seems
'It seems that Ken wants transfer to Kyoto.'

Although verbal nouns are equipped with argument structure, their arguments are realized outside the nominal projection, as indicated by the absence of genitive marking. Various analyses have been proposed concerning the manner of θ-marking. Grimshaw & Mester (1988) postulate the mechanism known as Argument Transfer, whereby the light verb inheriting the argument structure of the verbal noun executes θ-marking. Kageyama (1993) argues that the verbal noun and the light verb are assigned the same index and form a complex predicate. The θ-marking domain of the verbal noun is extended to the projection of the light verb so that its argument outside NP can be θ-marked. Saito & Hoshi (2000) propose that the verbal noun undergoes LF-incorporation into the light verb and discharges its θ-roles to arguments outside NP. As discussed in the text, we consider that arguments are base-generated inside NP and are overtly moved out.

b. *Ken-wa Kyoto-e [ano tenkin]-o nozondeiru yooda.
Ken-TOP Kyoto-to that transfer-ACC want it.seems
'It seems that to Kyoto, Ken wants that transfer.' (lit.)
(Akuzawa 2017: 115; slightly modified)

The crucial difference between (52b) and (54b) lies in the presence or absence of the demonstrative. If one assumes, as we do in this paper, that the demonstrative occupies Spec-DP and prevents extraction out of a noun phrase, one may be inclined to ascribe the ungrammaticality of (54b) to the unavailability of this position as an escape hatch for the PP.

Notice, however, that the noun phrase *ano tenkin* 'that transfer' in (54b) only consists of the demonstrative and the noun. It is not immediately clear whether the demonstrative occupies Spec-DP or NP-internal position. Therefore, it is desirable to use a noun phrase containing a prenominal modifier to test the validity of the assumption that the demonstrative in Spec-DP blocks extraction. Bearing this in mind, consider the following dialogues.

(55) A: John-ga Kyoto-e-no tenkin-o ryookaisita rasii yo.
John-NOM Kyoto-to-GEN transfer-ACC accepted I.heard PRT
'I heard that John accepted the transfer to Kyoto.'

B: ??Kyoto-e aitu-wa [ano {konkai-no /dekirudake hayai} tenkin]-o
Kyoto-to he-TOP that {this.time-GEN /possible soon} transfer-ACC
nozondeita kara ne.
wanted because PRT
'That's because to Kyoto, he wanted the aforementioned transfer {this time/as soon as possible}.' (lit.)

(56) A: John-wa donna tenkin-o nozondeiru no?
John-TOP what.kind.of transfer-ACC want Q
'What kind of transfer does John want?'

B: Syookaku-tuki-no tenkin da yo.
promotion-with-GEN transfer COP PRT
'The transfer with a promotion.'

Kyoto-e aitu-wa [{rainen-no /dekirudake hayai} ano tenkin]-o
Kyoto-to he-NOM {next.year-GEN /possible soon} that transfer-ACC
nozondeiru nda.
want PRT
'To Kyoto, he wants that (kind of) transfer {next year/as soon as possible}.' (lit.)

The demonstrative in (55B) is used anaphorically, referring back to the transfer to Kyoto that is at issue. Its occurrence before the prenominal modifier suggests that it occupies Spec-DP. In this case, the PP-extraction degrades the sentence. By contrast, the demonstrative in the second sentence of (56B) is kind-specifying. It occurs in the post-adjectival position, as discussed earlier. The PP-extraction is legitimate in this case. The contrast between (55B) and (56B) confirms the view that the demonstrative in Spec-DP blocks the extraction.[14,15]

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[14] An anaphoric demonstrative can also occur in the Adj-Dem order (see (46B)), which suggests that it does not occupy Spec-DP. Still, (55B) remains degraded even in this order.

(i) [After the utterance: "I heard that John accepted the transfer to Kyoto."]
??Kyoto-e aitu-wa [{konkai-no / dekirudake hayai} ano tenkin]-o nozondeita kara ne.
Kyoto-to he-TOP {this.time-GEN / possible soon} that transfer-ACC wanted because PRT
'That's because to Kyoto, he wanted the aforementioned transfer {this time/as soon as possible}.' (lit.)

Although speculative at this stage, we assume that the NP-internal anaphoric demonstrative must undergo LF-movement to Spec-DP to be licensed. Since this position has already been occupied by the trace of the overtly extracted PP in (i), the NP-internal demonstrative cannot move to it at LF and fails to be licensed.

[15] The exact nature of the ban on extraction may be controversial. Consider the following pair.

(i) a. ano kyuuna Kyoto-e-no tenkin
that sudden Kyoto-to-GEN transfer
b. Kyoto-e-no ano kyuuna tenkin
Kyoto-to-GEN that sudden transfer

Both examples involve the demonstrative in anaphoric use, as it precedes the adjective. Thus, it occupies Spec-DP. In (ib), the PP is fronted inside the noun phrase across the demonstrative. This movement should be blocked if the demonstrative in Spec-DP serves as an intervener.

One possibility is to ascribe the illegitimacy of extraction to factors other than the demonstrative itself. We suggest an analysis proposed by Bošković (2005) that combines the Phase Impenetrability Condition (PIC) (Chomsky 2000) and the Anti-Locality Condition (Abels 2003; Grohmann 2003). Let us assume that when a demonstrative occupies Spec-DP, the PP is adjoined to the DP, which brings about (ib). Further movement from this position is impossible, as indicated by the ill-formedness of (54b). Suppose that in addition to the DP being a phase (Gutiérrez-Rexach & Mallén 2001; Reintges & Lipták 2006; Citko 2014; Aravind 2021 among others), the projection hosting the case particle (often dubbed KP) is also a phase (see Takahashi & Funakoshi 2013 for the phasehood of KP). Thus, (ib) has the following structure.

(ii) $[_{KP}\ [_{DP}$ 'to Kyoto'$_i$ $[_{DP}$ 'that' $[_{NP}$ 'sudden' t_i 'transfer'] D]] K]

For the adjoined PP to undergo further movement in compliance with the PIC, it must stop at the edge of KP. However, this movement is too local. Bošković (2005) observes that the head and the foot of each chain link must be separated by at least one complete phrase. The movement from the DP-adjoined position to Spec-KP does not satisfy this condition. The PP crosses only a segment of DP rather than a full phrasal boundary. By contrast, when the demonstrative does not occupy the Spec-DP, it is available for the moving category. In this case, the movement to Spec-KP obeys the Anti-Locality Condition since the chain link crosses a full DP boundary. Although this is only a possibility and a fuller account is awaited, suffice it to say, for the present discussion, that the occurrence of the demonstrative in Spec-DP plays a crucial role in one way or another to rule out the extraction out of DP.

4.4 Back to EQs

The discussion so far has revealed that the demonstrative in Spec-DP gives rise to the blocking effect, whereas elements inside NP do not. In other words, the demonstrative inducing the blocking effect endorses the involvement of DP in a noun phrase. Bearing this in mind, let us consider whether the same blocking effect arises in the nominalized EQ with a demonstrative. Consider the following example.

(57) Sono seezika-ni$_i$ John-wa (*ano) [maeni boku-mo sirabeta]
the politician-DAT John-TOP that before I-also investigated
[dare-ga t_i wairo-o watasita ka]-o sirabete-iru.
who -NOM bribe-ACC gave Q-ACC investigating-is
'To the politician$_i$, John is investigating (that) [[who gave bribe t_i][which I also investigated before]].' (lit.)

This sentence involves scrambling out of the EQ. Although it is admittedly awkward, presumably because the prenominal modification of an EQ causes certain awkwardness, it remains within the realm of grammatical sentences when the demonstrative is absent (see note 1 for discussion). Recall that a prenominal modifier such as a relative clause is contained in the NP layer (or the nP layer in the terminology of the present paper) rather than in the DP layer. The well-formedness of (57) in the absence of the demonstrative indicates that a constituent inside NP does not interfere with extraction. The extracted phrase makes use of Spec-DP as an escape hatch. The blocking effect induced by the demonstrative is attributable to the unavailability of Spec-DP for the scrambled phrase.[16]

The involvement of DP in the nominalization of EQ receives support from a different angle. As shown below, the nominal EQ can be referred back to by the pronoun *sore* 'it'. Consider the following dialogue.

(58) A: Kimi-wa Mary-ga dare-to tukiatte-iru ka-o siri-tagatteiru kedo,
you-TOP Mary-NOM who-with going.out-is Q-ACC know-want but
kanozyo-ga John-to tukiatte-iru no-wa yuumee da yo.
she-NOM John-with going.out-is COMP-TOP well-known COP PRT
'You want to know who Mary is going out with, but it is well-known that she is going out with John.'

[16] Note in passing that (57) remains ungrammatical when the demonstrative occurs after the relative clause.

(i) Sono seezika-ni$_i$ John-wa [maeni boku-mo sirabeta] (*ano) [dare-ga t_i wairo-o watasita
the politician-DAT John-TOP before I-also investigated that who-NOM bribe-ACC gave
ka]-o sirabete-iru.
Q-ACC investigating-is
'To the politician$_i$, John is investigating (that) [[who gave bribe t_i][which I also investigated before]].' (lit.)

The ungrammaticality is attributable to the failure of LF-licensing of the NP-internal anaphoric demonstrative, as mentioned in note 14. Since Spec-DP is occupied by the trace of the scrambled phrase, the demonstrative cannot move to this position at LF. Consequently, it fails to be licensed.

B: Iya, boku-wa [kanozyo-ga koremade dare-to tukiatte-kita ka]-o (?sore-o)
no I-TOP she-NOM so.far who-with gone.out-has Q-ACC it-ACC
siri-tai nda.
know-want PRT
'No, I want to know who she has gone out with so far.'

In (58B), the pronoun *sore* is juxtaposed with the EQ. The mild deviancy is due to the Double Accusative Constraint, but it does not go so far as to be ungrammatical (cf. Hiraiwa 2010). In particular, the sentence improves with a pause after the EQ.

Although *sore* can refer to a referential nominal, it cannot refer to a predicative nominal.

(59) a. Sono kinzoku-wa totemo kooka na node, daremo-ga sore-o hosigatteiru.
the metal-TOP very expensive COP since everyone-NOM it-ACC want
'Since the metal is very expensive, everyone wants it.'

b. Tetu-wa (*sono) kinzoku da ga, isi-wa {soo/*sore} de-wa nai.
iron-TOP the metal COP but stone-TOP {so/it} COP-TOP NEG
'Iron is a metal, but stone is not.'

The noun *kinzoku* 'metal' in (59a) is an argument. Combined with the demonstrative *sono* 'that', it functions as a referential DP. Being referential, it can be referred to by *sore* (Noguchi 1995). The same noun in (59b) is a predicative nominal, which is a non-referential NP rather than a referential DP. It resists modification by the demonstrative and cannot be referred to by *sore*. It follows from the contrast in (59) that *sore* can only refer to a referential element. The presence of D plays a crucial role in inducing referentiality. Viewed in this light, the possibility of referring to the EQ with *sore* in (58B) suggests the presence of D in the EQ.

By contrast, the embedded clause introduced by *to* 'that', a canonical clausal category, does not exhibit nominal behavior. It resists demonstratives, adjectives, relative clauses, and case-marking.

(60) Mary-wa (*ano) (*zutto syutyoosite-kita/ *utagawasi-i /*onazimi-no)
Mary-TOP that all.this.while insisted-has / questionable- ADJ / familiar-GEN
[zibun-ga zettaini tadasii to](*-o) itta.
self-NOM absolutely right COMP-ACC said
'Mary said that {questionable/familiar} [that she was absolutely right] which she has insisted].' (lit.)

It does not allow the apposition of *sore*, either, which indicates that clauses lack the D component.

(61) Mary-wa [zibun-ga zettaini tadasii to] (*sore-o/soo) itta.
Mary-TOP self-NOM absolutely right COMP it-ACC/so said
'Mary said that she was absolutely right.'

5 Some consequences of the proposed analysis

This section discusses the extension of the proposed analysis of clausal nominalization. Specifically, it pays attention to nominative-genitive conversion commonly observed among nominal constructions. What is puzzling is that Japanese nominal EQs do not display the relevant case alternation. This section demonstrates how this puzzle is solved in our approach.

Hiraiwa (2005) puts forward an analysis of clausal nominalization without recourse to a nominal functional head. Postulating a layered CP structure, he argues that a clause is nominalized by a nominal feature [+N] assigned to C immediately selecting TP. In this analysis, a nominal EQ would have the following structure.

(62) … $]_{TP}$ $C_{[+N]}$ $]_{CP}$ *ka* $]_{CP}$

This section demonstrates that (62) is not an appropriate analysis and that a nominal functional head is necessary independently of a nominalized C.

One of the salient features of nominal constructions is a case alternation phenomenon known as nominative-genitive conversion (NGC). In Japanese, subjects may be marked either nominative or genitive in noun-modifying and nominalized complement clauses.

(63) a. John-wa [hi-{**ga**/**no**} atara-nai] heya-ni sundeita.
John-TOP sunlight-{NOM/GEN} shine-NEG room-in lived
'John lived in a room that didn't get sunlight.'

b. John-wa [Mary-{**ga**/**no**} kita {koto/no}]-o oboeteiru.
John-TOP Mary-{NOM/GEN} came NMLZ-ACC remember
'John remembers that Mary came.'

By contrast, NGC does not take place in a declarative clause and a nominal EQ.

(64) a. John-wa [sono heya-wa hi-{**ga**/*__no__} atara-nai to] itta.
John-TOP the room-TOP sunlight-{NOM/GEN} shine-NEG COMP said
'John said that the room didn't get sunlight.'

b. John-wa [Mary-{**ga**/*__no__} kuru ka]-ga kininatta.
John-TOP Mary-{NOM/GEN} come Q-NOM was.curious
'John was curious whether Mary would come.'

A question that may be raised is why the nominal EQ behaves in parallel with a non-nominal clause rather than with a nominalized clause with respect to NGC.

The absence of NGC is attributable to the Complementizer Blocking Effect discussed in Hiraiwa (2005). As illustrated below, genitive marking is impossible when an overt complementizer occurs.

(65) a. [[syoorai daijisin-{**ga**/**no**} okir-u] kanousei]
future great.earthquake-{NOM/GEN} occur-PRS possibility
'the possibility that a great earthquake will occur in the future'

b. [[syoorai daijisin-{**ga**/*__no__} okir-u **toiu**] kanousei]
future great.earthquake-{NOM/GEN} occur-PRS COMP possibility
'the possibility that a great earthquake will occur in the future'
(Hiraiwa 2005: 129)

The absence of genitive marking in (64a, b) is also attributable to the presence of complementizers *to* and *ka*. Thus, a generalization is that an overt complementizer blocks NGC.

Hiraiwa (2005) analyzes the Complementizer Blocking Effect as follows. C directly selecting TP collaborates with T and enters into Agree with the subject DP, valuing its uninterpretable Case feature. Later at Transfer, C is assigned a nominal feature [+N], which makes the embedded clause nominal. It also enables the Case feature of the subject to be realized as genitive. In Hiraiwa's model, the C-T collaboration is limited to cases where C has affixal properties. When it is occupied by an overt complementizer, it ceases to be affixal and fails to act as a probe. Consequently, the subject cannot be marked in the genitive case.

Although the C-licensing analysis successfully captures the correlation between the overtness of a complementizer and the absence of NGC, some aspects need modification. Hiraiwa (2005) postulates a CP structure like (66a) that consists of more than one C-related layer, which is reminiscent of Rizzi's (1997) split CP structure (66b).

(66) a. $C_3P > (FocP) > C_2P > TP$

b. ForceP > (FocP) > FinP > TP

Hiraiwa considers that an overt complementizer occurs in the C_2 that directly selects TP. However, a complementizer denoting an illocutionary force should be located in the higher C_3 (Force in the split CP model), given the precedence of the complementizer over the focused constituent, *only the promises that I make*, in the following English example.

(67) Terry mentioned [$_{CP}$ that on Sundays, only the promises that I make will [$_{TP}$ you have to keep]]. (Culicover 1996: 456)

If an overt complementizer occupies the higher C_3, the lower C_2 directly selecting TP can remain empty and affixal. This leads to a wrong prediction that NGC is possible in EQs despite the presence of an overt complementizer.

The analysis proposed in this paper avoids this problem while retaining Hiraiwa's (2005) idea that NGC is triggered by a nominal C that immediately selects TP. Recall that an EQ is nominalized due to the merger with n. Thus, the EQ in (64b) has the following structure.

(68) … [$_{nP}$ [$_{ForceP}$ [$_{FinP}$ [$_{TP}$ Mary would come] Fin] *ka*-Force] n] …

In this structure, ForceP rather than FinP is the target of nominalization. Notice that Fin in the EQ, though it immediately selects TP, is not a nominal complementizer because it does not carry a nominal [+N] feature. Due to its non-nominal nature, Fin cannot trigger NGC.

The proposed analysis can capture another aspect of NGC. Clauses allowing NGC and those which do not are also distinguished in the predicate form.

(69) a. [seiseki-{**ga**/**no**} yuusyuu-{**na**/*__da__}] gakusee
grade-{NOM/GEN} excellent-{is.P.-A./is.CONCL} student
'students with excellent grades'

b. John-wa [Mary-{**ga**/**no**} yuusyuu-{**na**/*__da__} {no/koto}]-o sitteiru.
John-TOP Mary-{NOM/GEN} excellent-{is.P.-A./is.CONCL} NMLZ-ACC know
'John knows that Mary is excellent.'

c. John-wa [Mary-{**ga**/*__no__} yuusyuu-{*__na__/**da**} to] itta.
John-TOP Mary-{NOM/GEN} excellent-{is.P.-A./is.CONCL} COMP said
'John said that Mary was excellent.'

d. John-wa [dare-{**ga**/*__no__} yuusyuu-{*__na__/**da**} ka]-o sitteiru.
John-TOP who-{NOM/GEN} excellent-{is.P.-A./is.CONCL} Q-ACC know
'John knows who is excellent.'

In the present tense, the copula is realized either in the so-called conclusive form *da* or in the predicate-adnominal (P.-A.) form *na*. While clauses that allow NGC have the predicate realized in the P.-A. form as in (69a, b), those which resist it have the conclusive predicate as in (69c, d). Hiraiwa (2005) observes that the correlation between NGC and the predicate form is reduced to the nominal feature carried by the TP-selecting complementizer. Then, the impossibility of the P.-A. form in the EQ in (69d) is also attributable to the absence of the nominal feature in Fin, given that the EQ is nominalized by the nominal functional head n instead of the nominal feature assignment.

Another influential approach to NGC is the D-licensing analysis, advanced by Miyagawa (1993; 2011) and Ochi (2001) among others. It is worth discussing whether our analysis of clausal nominalization is compatible with this approach as well. According to Miyagawa (2011), NGC is not a mere case alternation phenomenon. He argues that different structural conditions license nominative and genitive subjects. The nominative licensing takes place under Agree between the subject and T, which inherits φ-features from C, as in (70a). The genitive subject is also licensed via Agree. However, it takes place in a structure lacking CP, as in (70b), where D rather than T functions as the probe.[17]

[17] The representations in (70a, b) reflect structural relations, not liner relations.

(70) a. [$_{CP}$ C [$_{TP}$ T [$_{vP}$ Nominative Subject [$_{v'}$ …]]]]

b. [$_{DP}$ D [$_{TP}$ T [$_{vP}$ Genitive Subject [$_{v'}$ …]]]]

Our analysis can account for the absence of NGC in a nominal EQ by employing the D-licensing approach as well. The EQ in (69d) has the following structure.

(71) [$_{DP}$ [$_{D'}$ [$_{nP}$ [$_{n'}$ [$_{CP}$ [$_{TP}$ 'who-{NOM/*GEN} is excellent'] C-Q] n]] D]]

While the nominative subject is licensed by C via T in this structure, the genitive subject cannot be licensed by D. The failure in the genitive-case licensing by D is attributable to the Phase Impenetrability Condition (Chomsky 2000). On the assumption that DP and CP are phases (Bošković 2005; 2014; Citko 2014; Simpson & Syed 2016), TP as the domain of CP is spelled out on the merger of D with nP, which makes the subject inaccessible from D, preventing the licensing of the genitive subject in an EQ. To sum up, although we are neutral to the two approaches to NGC, our analysis of a nominalized EQ can successfully deal with the absence of NGC.

6 Concluding remarks

This paper dealt with the external distribution and the internal structure of nominal EQs in Japanese. They are nominalized by the nominal functional head n. This category is divided into two major classes. One is a semantically vacuous n. Since it does not have its own denotation, it simply converts an interrogative clause into a nominal category, retaining the interrogative nature of the CP it nominalizes. The EQ involving the semantically inactive n lacks the DP layer. The other group includes semantically active content nouns and the DP layer. EQs nominalized by content nouns do not denote questions *per se*. Some have a structure akin to the noun complement clause, with the phonologically empty nominalizer denoting something equivalent to the word 'question' or 'issue'. Others denote possible answers to the questions. Although they appear as interrogative clauses, they virtually refer to the individuals that serve as answers to the *wh*-phrases.

Previous studies on clausal nominalization have debated whether a clause is nominalized by D or by n (for the former view, see Davies & Dubinsky 1998; Roussou 1991; Borsley & Kornfilt 2000; Caponigro 2002; Takahashi 2010; Miyagawa 2011; Pietraszko 2019; Alexiadou 2020; Iordăchioaia 2020; Hankamer & Mikkelsen 2021; for the latter view, see Grimshaw 2000; Aygen 2002; Maki & Uchibori 2008; Hartman 2012). It has been argued that there is a correlation between clause size and the functional heads involved in nominalization. Alexiadou (2020) and Iordăchioaia (2020) argue that while higher projections such as CP and TP are nominalized by D, lower projections such as VP are nominalized by n.

However, it has turned out that the picture is not so simple. We have seen that Japanese interrogative CPs are nominalized by n rather than D. The interrogative CP tolerates adjectival modification, suggesting that it is nominalized.

(72) Kyoo-no kaigi-de ano yayakosi-i [dooyatte kakaku-o osaeru ka]-ga
today-GEN meeting-in that difficult-ADJ how price-ACC control Q-NOM
hanasiaw-are-ta.
discuss-PASS-PST
'That difficult how we control the price was discussed in today's meeting.' (lit.)

Though adjectives modify a nominal projection, the relevant target is not a DP but a projection below it since an adjective generally does not occur above DP, as indicated by the contrast between *the black car* and **black the car*.

An EQ nominalized by a semantically active n contains the DP layer. The presence of DP in nominal categories is a controversial matter. We showed that the NP/DP-language dichotomy advocated by Bošković (2005; 2008; 2009) can be relaxed and that Japanese is a DP-language, though it exhibits partial similarities to NP-languages. Demonstratives in NP-languages are grouped with adjectives. In Japanese, the demonstrative *anna* behaves like an adjective. However, the demonstrative *ano* displays purely deictic/anaphoric behavior in addition to adjectival behavior. It induces specificity effects when it acts as an anaphoric demonstrative and precedes other nominal modifiers. Assuming that constituents extracted from noun phrases use the Spec-DP as an escape hatch (Stowell 1989; Giorgi & Longobardi 1991; Szabolcsi 1994; Campbell 1996; Gavruseva 2000 among others), we argued that the anaphoric demonstrative occurring outside NP/nP occupies Spec-DP. The EQ involving an anaphoric demonstrative also exhibits a specificity effect, indicating the presence of the DP layer.

We also noted cross-linguistic variations in clausal nominalization. Some languages, like Spanish, follow the dichotomy that D nominalizes the upper part of the clause while n nominalizes the lower part. However, Japanese utilizes n to nominalize the upper domain, namely, CP. One remaining issue is what is responsible for this cross-linguistic difference. A related issue is why n is unavailable for nominalizing English EQs. English EQs exhibit the same distribution pattern as their Japanese counterparts in that they occur in Case positions (Stowell 1981). However, they differ from Japanese EQs in that they resist adjectival modification. Though these are admittedly important issues, their full investigation is beyond the scope of this paper. They will be left for future investigation.

Abbreviations

ACC = accusative, ADJ = adjective, ADV = adverb(ial), AOR = aorist, AUG = augment, COMP = complementizer, CONCL = conclusive, COP = copula, DAT = dative, ERG = ergative, FEM = feminine, FOC = focus, GEN = genitive, INF = infinitive, NEG = negation, NMLZ = nominalizer, NOM = nominative, P.-A. = predicate-adnominal, PASS = passive, PRS = present, PRT = particle, PST = past, Q = question, REFL = reflexive, SG = singular, TOP = topic

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