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An Alternative Approach to Nonfinite Clauses in English*

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0. Introduction

Under the feature checking theory proposed by Chomsky (1993) and Chomsky and Lasnik (1993), Case theory has undergone a great shift. In particular, structural Case is licensed under the Spec-Head agreement, rather than under government, and concerning the ECM construction as in (1a), Postal's (1974) arguments for the "raising to object" analysis have come back into the limelight. However, there are some cases like (1b,c) which seem to have not attracted much attention under the checking theory, though the embedded subject shows up in accusative form, just as is the case in (1a):

(1) a. John believes them to be honest.
    b. John wants very much for them to be fired.
    c. John remembered them reading the book.

In this paper, I will consider how the embedded subjects of these cases satisfy the Case requirement, proposing a novel analysis of the structure of nonfinite clauses.[1]

This paper is organized as follows. In the next section, I point out some issues concerning the examples in (1). In section 2, extending Watanabe's (1993) analysis of PP, I propose an alternative account of some nonfinite clauses in English. Finally, in section 3, I show that our proposal has empirical consequenses for extraction across nonfinite clauses.

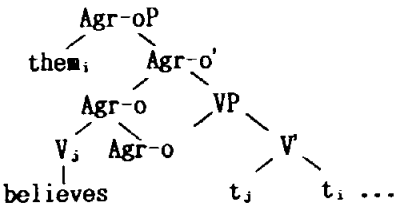
1. Subjects of Nonfinite Clauses under the Agr-based Case Theory

1.1 Raising vs. No Raising

According to the feature checking theory proposed by Chomsky (1993) and Chomsky and Lasnik (1993), categories lexically specified for certain morphological features must move to a position where these features can be checked off. Structural Case theory is also subsumed under this proposal.

In particular, structural Case is a manifestation of a Spec-head relation. The embedded subject of the so-called Exceptional Case Marking (ECM) construction in (1a) (i.e., them), has its accusative Case checked in a configuration like (2) at LF:

(2)



It is assumed that Case checking must be accompanied by ϕ-feature checking between Agr and a DP in the Spec of AgrP. In (2), the embedded subject DP them is in the Spec of Agr-oP of the matrix clause and its accusative Case feature is matched with that of the V_j believe, which is adjoined to Agr-o, in the Spec-Head configuration.

Lasnik and Saito (1991) provide some pieces of evidence which support the analysis exemplified in (2). They show that embedded subjects of ECM constructions (hencefoth the ECM subject) can "command" the material in the matrix clause. We review two of their arguments. The first is concerned with Binding Condition C. Consider the examples in (3):

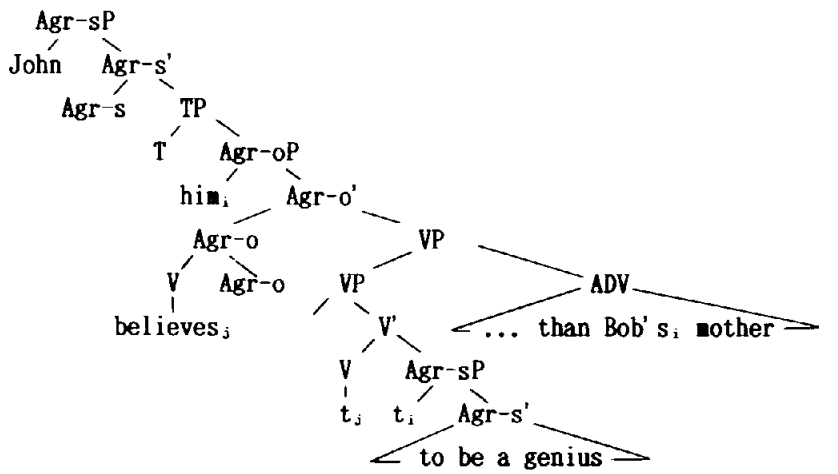
(3) a. Joan believes he$_i$ is a genius even more fervently than Bob's$_i$ mother does.

b. ?*Joan believes him$_i$ to be a genius even more fervently than Bob's$_i$ mother does.

(Lasnik and Saito 1991: 327)

They point out that there is a contrast in acceptability between (3a) and (3b). and suggest that in (3b), the ECM subject him is raised to a position from which it c-commands Bob. Under the checking theory, an LF structure associated with (3b) is given as follows:

(4)



In (4), him c-commands Bob, which is in the adverbial of the matrix clause. On the other hand, in (3a), the embedded subject he is assumed to have its nominative Case checked within the complement clause, and hence it does not c-command Bob.

The second piece of evidence presented by Lasnik and Saito comes from the distribution of reciprocal expressions. It is generally assumed that the antecedent of a reciprocal must bear a command relation (e.g., c-command) to the reciprocal. With this in mind, consider the examples in (5):

(5) a. ?*The DA proved [that the defendants$_i$ were guilty] during each other's$_i$ trials.

b. ?The DA proved [the defendants$_i$ to be guilty] during each other's$_i$ trials.

(Lasnik and Saito 1991: 328)

If we assume that the ECM subject is raised to Spec of the matrix Agr-oP, as shown in (2) and (4), the contrast in acceptability between (5a) and (5b) is explained. In (5a), the defendants has its nominative Case checked within the complement clause, and it does not c-command the reciprocal each other. On the other hand, in (5b), the ECM subject the defendants c-commands each other from Spec of Agr-oP at LF.[2]

Now consider the example (1b), repeated here as (6), where an infinitival clause is introduced by for:

(6) I wanted very much [for them to be fired].

Lasnik and Saito (1991) suggest that the verb want in (6) is not involved in the Case checking of the embedded subject them, providing the following example:

(7)?*I wanted very much [for those men to be fired] because of each other's statements.

(Lasnik and Saito 1991: 337)

Given the contrast between (7) and (5b), the embedded subject them in (6) does not seem to be raised to the Spec of the matrix Agr-oP. It must have its accusative Case checked within the lower clause.

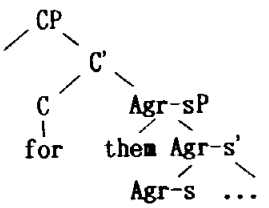
Furthermore, infinitival clauses introduced by for can occur as subjects of clauses as follows:

(8) [For him to win] would be amazing.

It would be difficult to claim that him in (8) has its Case feature checked in Spec of the matrix Agr-oP.

In the LGB-type Case theory, it is assumed that the subject of the infinitive in (6) and (8) is assigned Case by the complementizer for (cf. Chomsky 1981). Under the feature checking theory, one might assign the following phrase structure to the relevant part of the infinitive in (6) and (8):

(9)



In (9), however, no Spec-Head relation holds between the complementizer for and them. Then the above assumption that for assigns Case to the embedded subject cannot be maintained straightforwardly. We need an account of how

the accusative Case of the embedded subject is checked in (6) and (8).

In this regard, let us consider another case in which the subject of a nonfinite clause bears accusative Case:[3]

(10) John remembered [them reading the book]. (=(1c))

It has often been claimed that the subject of the gerund in (10) is assigned accusative Case directly by the matrix verb, just as the ECM subject is (Suzuki 1988, Johnson 1988). If it were the case, we would predict that the subject of the gerund behaves like the ECM subject in (3b) and (5b) with respect to Binding Condition A and C. This prediction, however, is not borne out, as noted in Matsuoka (1994):

(11) a. Mary recalls (that) he_i was a genius even more fervently than $Bob's_i$ mother does.
b. Mary recalls him_i having been a genius even more fervently than $Bob's_i$ mother does.

(12) a.??The DA remembered [that the $defendants_i$ were guilty] during each $other's_i$ trials.
b.??The DA remembered [the $defendants_i$ being guilty] during each $other's_i$ trials.

(Matsuoka 1994: 129)

(11) and (12) suggest that the subjects of these gerunds do not c-command the material in the matrix clause and that they should be at most as high as the subjects of the embedded finite clauses at LF. This means that these subjects of gerunds should have their accusative Case checked within the complement clause, not in the matrix clause.

As is the case with infinitival clauses introduced by *for*, gerunds with an accusative subject can occur as subjects of clauses:

(13) [Them trying to sing a song] was just too horrible.

(Reuland 1993: 101)

Again, it would be difficult to claim that the matrix verb is involved in Case checking of them in (13). Thus, (10) and (13) call for explanation of how the subjects of these gerunds have their Case checked.

There are other examples which also suggest that the accusative subject of gerunds should not have their Case checked by the matrix verb:

(14) a. John is believed [t to be a genius].
b. *Betsy was remembered [t telling the story].
c. *The boys were hated [t eating the fish].

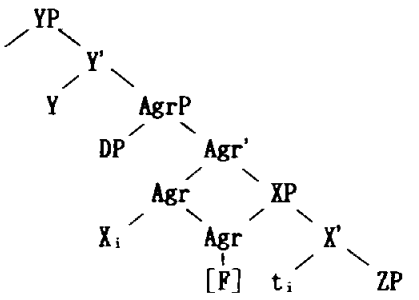
NP movement of the embedded subject is possible in (14a), but not in (14b,c). Given the basic assumption of Economy of Derivation, which states that operations are applied if they must be, not otherwise (Chomsky 1986a, 1991), we can attribute the contrast between (14a) and (14b,c) to a difference in the Case checking of the embedded subject. As discused above, the ECM subject depends on the matrix verb for Case checking. Given that participles used in passive constructions do not bear Case, the ECM subject in (14a) must move to the subject position of the matrix clause for Case checking. On the other hand, if the subjects of gerunds in (14b,c) have their Case checked in the complement clause, as noted above, they have no reason to move to the subject position of the matrix clause.

To summarize, we have pointed out that subjects of infinitives with for and those of gerunds should have their accusative Case checked within complement clauses. We need to explain the mechanism of Case checking in these cases.

1.2 Watanabe (1993)

Here let us review Watanabe's (1993) proposal. Watanabe proposes a modification of the Agr-based Case theory discussed above. He argues that in the process of Case-checking, a new feature [F] is created on Agr, and the Agr has to move further to an immediate higher functional head to check off the [F] feature. Consider the following configuration:

(15)



In (15), where X is a Case-bearing head, an immediate higher functional head Y must be an appropriate checker of an [F] feature. If it is not, the LF representation contains an Agr with an [F] feature, which is an illegitimate entity, and the derivation crashes. Watanabe refers to this modified version of Case theory as the Three-Layered Case Theory.

According to Watanabe's Three-Layered Case Theory, the contrast between (5a) and (5b), repeated here as (16a,b), is accounted for as follows:

(16) a.?*The DA proved [$_{CP}$that [$_{Agr\text{-}sP}$the defendants$_i$ were guilty]] during each other's$_i$ trials.

b. ?The DA proved [$_{Agr\text{-}sP}$the defendants$_i$ to be guilty] during each other's$_i$ trials.

In (16a), during the process of Case-checking of the embedded subject the defendants, the head of CP can check an [F] feature created on the Agr-s and the Case-checking is fulfilled in the complement clause. On the other hand, in (16b), there is no functional category above the Agr-sP in the complement clause, and an [F] feature created on the Agr-s cannot be discharged. Then, Case-checking of the ECM subject must take place in the matrix clause, with the subject in the Spec of the matrix Agr-oP.

Furthermore, the degraded status of (7), repeated here as (17), is also accounted for in Watanabe's Three-Layered Case Theory.

(17)?*I wanted very much [$_{CP}$for [$_{Agr\text{-}sP}$those men to be fired]] because of each other's statements.

Watanabe (1993: 91) suggests that the complementizer for can check off an [F]

feature created in accusative Case checking in the infinitival Agr-sP. Then the subject of the infinitival clause in (17) has its Case-feature checked within the clause. Thus it cannot move to a position which c-commands the reciprocal. Note here that Watanabe's proposal crucially assumes that infinitival tense has the ability to check accusative Case. Under this assumption, the subject of the infinitival clause in (17) can have the accusative Case checked by the infinitival tense within the Agr-sP.

However, infinitival tense cannot license accusative Case in (18), where the subject of the so-called inflected infinitive in European Portuguese shows up in nominative form, as discussed in Raposo (1987):

(18) a. Será difícil [eles aprovarem a proposta].
'It will be difficult they to-approve-Agr the proposal.'
('...for them to approve ...')

b. *Se-los_i-á difícil [e_i aprovarem a proposta].
'It will-clitic3pl-Future difficult to-approve-Agr(3pl) the proposal.'

c. *Será difícil [contigo aprovares a proposta].
'It will be difficult you(Obl) to-approve-Agr(2sg) the proposal.'
(Raposo 1987: 86f.)

The pronominal form found in the subject position of the infinitive is nominative, as in (18a). An objective clitic or an oblique pronoun does not appear in this position, as can be indicated by the ungrammaticality of (18b) and (18c).[4] Given that adjectives in Portuguese do not assign Case, Raposo argues that in (18a), the subject of the inflected infinitive is assigned nominative Case by the infinitive within the clause.

Taking this fact into account, we suspect that the embedded accusative subject like those men in (17) has its Case checked by some element other than the infinitival tense. We will suggest a possible candidate for the checker of accusative Case in the next section.[5]

2. An Alternative Approach to Nonfinite Clauses

2.1 The Infinitival To

Chomsky (1981) assumes that the infinitival to is a kind of inflection. In agreement with this claim, Abe (1986) argues that some to-infinitivals should be analyzed as a preposition with an inflectional feature [+INFL], providing some preposition-like properties of to-infinitives in distribution and meaning. For example, infinitival complements of try are assumed to be PPs which are headed by an inflectional preposition and have the following structure:

(19) I tried to do it.

$[_{VP}$ V $[_{PP}$ P VP]] (P → to)

[+INFL] [+INFL]

(Abe 1986: 83)

In (19), the inflectional preposition to functions as the head of PP and takes a VP as its complement. Abe further argues that other to-infinitives are much better analyzed as S', which are headed by an inflection with a prepositional feature [+P].

Although Abe suggests that there are two kinds of infinitival to: a preposition with an inflectional feature [+INFL] and an inflection with a prepositional feature [P], we assume that all to-infinitives in English are prepositions, leaving aside some differences among infinitival clauses discussed in Abe (1986). We suspect that to is concerned with accusative Case of embedded subjects as in (1b). Next we consider how the Case of prepositions is dealt with under the feature checking theory.

2.2 Case of P under the Feature Checking Theory

Watanabe (1993) provides some evidence which suggests that the Case of P falls under the domain of the theory of structural Case. Consider the following example:

(20) *John$_i$ seems $[_{AgrP}$ t_i is happy].

In (20), though the DP John has its Case-feature checked in the lower clause, A-movement moves the DP to another Case position. This movement is not allowed, given the basic economy-of-derivation assumption: operations are driven by necessity (Chomsky 1986a, 1991).[6] Watanabe argues that the same account applies to cases like (21), if it is assumed that the object of P bears structural Case:

(21) *He/Him seems to t that Mary is happy.

If there is an AgrP over PP and its Spec is a Case-checking position, the object of P must have its Case feature checked in that position. However, in (21), he/him passes through this position and moves further to the matrix subject position, which is another Case position.[7]

Watanabe also considers some cases in other languages, arguing that the Case of P falls under the domain of his Three-Layered Case Theory. Let us look at some examples in Navajo, which play a crucial role in the following discussion. There are two categories used to express locational relations in this language: enclitics and postpositions.

(22) a. hooghangóne' sidá
house-in 3-sit
'He is sitting in the house.'
b. hooghan yii' sidá
house 3-in 3-sit
'He is sitting in the house.'
(Kaufman 1975: 70)

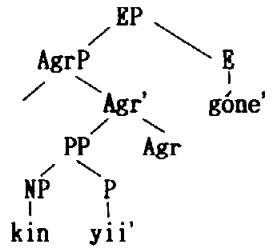
A spatial notion is expressed either by the enclitic -gónę' (as in (22a)) or the postpositin ii' (as in (22b)). Note here that the postposition displays object agreement, while the enclitic does not.

Let us consider another case in Navajo, which is an instance of head-internal relative:

(23) [kin yii'góne' sidáhígíí] shił yáát'ééh
house 3-in-into 3-sit-Comp 1-with 3-be-good
'I like the house he is sitting in.' (Kaufman 1975: 78)

In (23), an enclitic and a postposition appear together in the bracketed clause. Taking into account the head-final nature of Navajo, Watanabe suggests that an enclitic takes PP as its object in this language and assigns the following structure to the relevant part of (23):

(24)

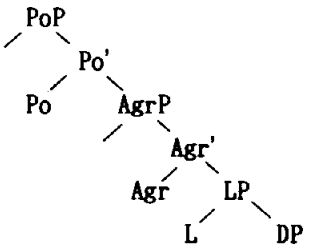


(Watanabe 1993: 432)

He takes (24) to be a general structure for spatial expressions in Navajo, and analyzes the cases in (22a,b), which seem to have either an enclitic or a postposition, as containing a null postposition and a null enclitic, respectively.[8]

In view of the fact that overt decomposition of P into three elements is found in some other languages, Watanabe proposes the following universal hierarchical structure for oblique expressions:

(25)



(Watanabe 1993: 433)

In (25), the direction of headedness is neutral and new category notations are invented. Agr intervenes between a head called L(ocation) and a head Po(sition). The postposition and the enclitic in Navajo correspond to L and Po in (25), respectively. As for English, Watanabe suggests that it has null

proclitics in Po and that prepositions locate in L or incorporate into proclitics.

Given this decomposition of P into three elements, the Case of prepositions (and postpositions) is accommodated in Watanabe's Three-Layered Case Theory. The head of LP has the relevant Case feature and moves to Agr, where the Case checking is performed with a prepositional object in Spec of AgrP. An [F] feature is created on the Agr, and the Agr moves to the higher funtional head Po in order to check off this [F] feature.

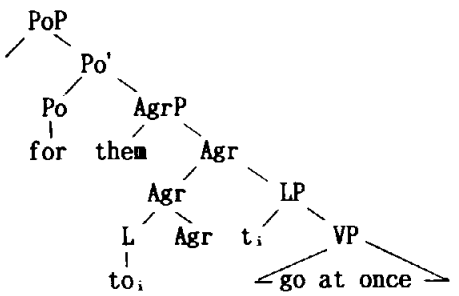
2.3. For-To-Infinitives

Now we return to the point at issue in section 1. We have suggested that subjects of to-infinitives introduced by for as in (26) should have the accusative Case checked within the clause:

(26) I wanted very much [for them to go at once].

And we assumed in 2.1 that the infinitival to is a preposition. Given Watanabe's (1993) articulated structure of prepositional phrases in (25), we propose that the infinitival clause in (26) has the following structure:[9, 10]

(27)



In (27), the subject them is in the Spec of AgrP and has its Case feature checked in a Spec-Head configuration by the head L to which is adjoined to Agr. Following Watanabe, we assume that Agr has to move further to the head Po to check off an [F] feature.

Although Watanabe suggests that English has null proclitics, our analysis implies that both Po and L are lexicalized independently in (27), as for and

to. There is an example which seems to support this analysis. According to Henry (1992), Belfast English allows for to appear directly before to in infinitival clauses, as shown in (28):

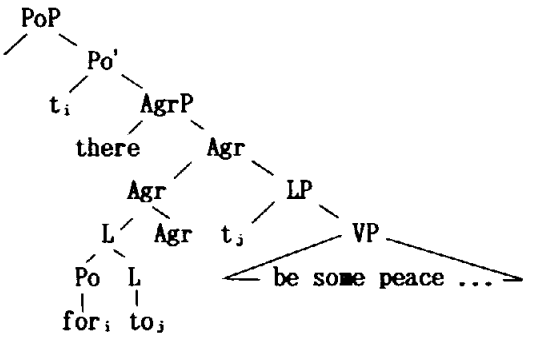
(28) a. I wanted Jimmy for to come with me.
b. I want there for to be some peace and quiet sometime.
c. I'd hate there for to be ill-feeling.

Henry (1992: 284f.)

Note here that in (28b,c), the expletive there must be the subject of the embbeded clause but not the object of the matrix verb, since it cannot receive any θ-role from the matrix verb. This implies that for occurs after the infinitival subject in these cases. Henry argues that for in (28) should be analyzed as a clitic which attaches to to.[11]

This clitic status of for is reminiscent of Navajo enclitics, which we have seen in section 2.2 (i.e., -gónę' in (24)). As Navajo enclitics are supposed to occur originally as the head of PoP (i.e., EP in (24)), we assume that for in (28) moves from Po to cliticize to L, as shown in (29):[12]

(29)



2.4 Gerunds

Next we turn our attention to clausal gerunds. As suggested in section 1, subjects of gerunds as in (30) should have their Case feature checked within the clause:

(30) John remembered [them reading the book].

This case also calls for an explanation of how the Case feature of them is checked off.

Consider first the following examples in Postal (1974: 159):

(31) a. I prevented there from being a riot.
b. I prevented tabs from being kept on Lucy.

In (31), since the expletive there and the idiom chunk tabs do not receive any θ-role from the matrix verb prevent, they must not be the objects of the verb. They are instead the subjects of the embedded predicates. Note here that the matrix verb seems to be not involved in Case-checking of there and tabs, as discussed in Watanabe (1993: 428 fn.1), since passivization of these elements is impossible:[13]

(32) a. *There was prevented from being a riot.
b. *Tabs were prevented from being kept on Lucy.
(Postal 1974: 159)

Taking these facts into account, Watanabe suggests that there and tabs in (31) move to the front of from to have their Case features checked by from in a configuration like (33):

(33) I prevented [$_{\Phi P}$ [$_{AgrP}$ tabs$_i$ [$_{PP}$ from [being kept t_i on Lucy]]]].
(Watanabe 1993: 428)

In this case, tabs has its Case checked in Spec of AgrP.

Given the configuration in (25), ΦP and PP in (33) correspond to PoP and LP, respectively, and the head of LP (i.e., from) should be adjoined to Agr, as follows:

(34) I prevented [$_{PoP}$[$_{AgrP}$tabs$_i$ from$_j$+Agr[$_{LP}$t$_j$[being kept t_i on Lucy]]]].

Note here that the gerund in (34) has a structure parallel to that of the infinitival clause in (26), which is repeated here with category notations as follows:

(35) I wanted very much [$_{PoP}$for[$_{AgrP}$them$_i$ to$_j$+Agr[$_{LP}$t$_j$[$_{VP}$ t$_i$ go at once]]]].

In (34) and (35), the subject of the lower clause has its Case feature checked by the prepositional head of LP, from and to, respectively. Although there is no overt Po in (34), we assume that a null Po occupies that position.

We can find some examples which seem to suggest a structural parallelism between infinitival clauses and clausal gerunds with prepositions. Abe (1986) points out that there are not a few verbs whose to-infinitive complements can be paraphrased in the form of preposition + gerund:

(36) a. They forced him to go = They forced him into going.
b. I coaxed him to talk = I coaxed him into talking.
c. He drove her to admit it = He drove her to admitting it.
d. I enticed a girl to leave home = I enticed a girl into leaving home. (Abe 1986: 94)

In (36), the matrix verbs seem to be involved in Case checking of their following DPs, since passivization is possible, as in (37):

(37) a. He was forced to go.
b. He was forced into going.

Furthermore, consider the following examples:

(38) a. They forced a specialist to examine John.
b. They forced John to be examined by a specialist.

(39) a. They forced a specialist into examining John.
b. They forced John into being examined by a specialist.

In (38) and (39), active and passive complements of force are not cognitively synonymous, which suggest that the postverbal DPs are objects of the matrix verb force but not subjects of the embedded clause and that these objects control the subject of the embedded clause.[14]

Taking these facts into account, we give the following structures to the to-infinitive and the gerund in (36a):

(40) a. They forced him $[_{PoP}\ [_{AgrP}$ PRO to_i+Agr $[_{LP}\ t_i\ [_{VP}$ go]]]].
b. They forced him $[_{PoP}\ [_{AgrP}$ PRO $into_i$+Agr $[_{LP}\ t_i\ [_{VP}$ going]]]].

Suppose that PRO requires structural Case, Null Case, as proposed by Martin (1992) and Chomsky and Lasnik (1993). Watanabe (1993) suggests that checking of Null Case should be also accomodated into his Three-Layered Case theory, which means that an [F] feature is created through Null Case checking in AgrP and the [F] feature must be checked off by an appropriate functional category above AgrP. Although he argues that an infinitival Tense bears Null Case and the [F] feature created on Agr is checkced by the head of CP, we assume that the entire process of Null Case checking involves LP, AgrP and PoP. Then, in (40a), the head L to bearing Null Case feature adjoins to Agr and check Null Case of PRO in the Spec of AgrP. An [F] feature is created on the Agr, and the Agr moves to the head of PoP in order to to check off the [F]. Note that there must be PoP above AgrP in (40), though it lacks phonetic content, since Null Case checking cannot be performed in the matrix clause.[15]

Now let us consider the structure of the gerund without a preposition in (30), repeated as (41):

(41) John remembered [them reading the book].

The subject of the gerund in (41) can alternate with PRO, as shown in (42):

(42) John remembered [PRO reading the book].

Extending our analysis of gerunds with prepostions in (34) and (40), we give the following structure to (42):

(43) John remembered $[_{PoP}[_{AgrP}$ PRO L_i+Agr $[_{LP}\ t_i$[reading the book]]]].

In (43), both Po and L are null in the gerund.[16] Since Null Case of PRO must be checked in the embedded clause, as discussed above, PoP is required above

AgrP in order to check off an [F] feature created on Agr. We assume a structure paralel to this for the gerund in (41), as follows:

(44) John remembered [$_{PoP}$ [$_{AgrP}$ them L_i+Agr [$_{LP}$ t_i [reading the book]]]].

In (44), the accusative Case feature of them is checked by the head L adjoined to Agr and an [F] feature is created. Then Agr moves to the head of PoP to check off the [F] feature and the entire process of Case checking of them is carried out in the embedded clause.

To summarize, we have suggested that Watanabe's three-layered decomposition of PP can be extended to some nonfinite clauses in English. Subjects of infinitival clauses with for and those of clausal gerunds have their accusative or Null Case checked within the clause by a covert or overt preposition such as to.

2.5 ECM

We have not yet provided the structure for ECM construction such as (45) under our analysis:

(45) John believed [Mary to have won the race].

Unlike the subject of gerunds we saw above, the ECM subject cannot alternate with PRO, as shown in (46):

(46) *John believed [PRO to have won the race].

Watanabe (1993) attributes this fact to the structure of ECM constructions, claiming that (46) has the following structure:

(47) *John believed [$_{Agr-sP}$ PRO to have won the race]

In (47), the embedded clause lacks CP. He argues that Case checking of PRO cannot take place in the embedded clause, because of the lack of an appropriate functional category to check off an [F] feature above Agr-sP. Since Null Case

cannot be checked in the matrix clause (e.g., in Agr-oP), PRO in (47) cannot have its Case checked at all.

Following Watanabe, we also assume that ECM construction is defective in the sense that it lacks a functional category to check off an [F] feature which is created in Case checking of the subject. Under our analysis, (45) is given the following structure:

(48) John believed [$_{AgrP}$ Mary [$_{LP}$ to have won the race]].

As (48) shows, we suppose that the infinitival clause lacks PoP entirely. Then, the embedded subject Mary cannot have its accusative Case checked within the clause and must move to Spec of the matrix Agr-oP instead.

With the above discussion in mind, let us return to the examples in (5b), (7) and (12b), repeated here as (49a,b,c) with category notations, respectively:

(49) a. ?*I wanted very much [$_{PoP}$for [$_{AgrP}$those men to$_i$+Agr[$_{LP}$t$_i$ be fired]] because of each other's statements.

b. ??The DA remembered [$_{PoP}$[$_{AgrP}$ the defendants L$_i$+Agr[$_{LP}$t$_i$ being guilty]]] during each other's trials.

c. ?The DA proved [$_{AgrP}$ the defendants$_i$ [$_{LP}$to be guilty]] during each other's$_i$ trials.

In (49a,b), the embedded subjects those men and the defendants have their accusative Case checked in Spec of AgrP, and Agr moves to the head of PoP to check off an [F] feature. Thus, they cannot c-command the reciprocal in the adverbial of the matrix clause. On the other hand, in (49c), Case checking of the embedded subject the defendants cannot take place within the clause, since there is no functional category to check off an [F] feature. The ECM subject then moves to the Spec of the matrix Agr-oP to check its accusative Case and c-commands the reciprocal, as desired. Thus, the acceptability of (49c), compared to that of (49a,b), is attributed to the defective structure of ECM construction.

3. Extraction across Nonfinite Clauses

In this section, we suggest that our analysis proposed in the preceding section has empirical consequences for extraction of operators from a finite clause to the front of a nonfinite clause. In 3.1, we see an asymmetry found between infinitival and finite clauses with respect to movement of wh-phrases. In 3.2, it is pointed out that a similar asymmetry is also found between clausal gerunds and finite clauses. Finally, in 3.3, we will account for the asymmetry, making crucial use of the structure of nonfinite clauses presented above.

3.1 Extraction across Infinitival Clauses

Extraction from a finite clause is known to give rise to a stronger bounding violation than the corresponding extraction from an infinitival clause. For example, consider the following cases of extraction from a wh-island:

(50) a. *What did you wonder [whether [he fixed t]]?
b. ?What did you wonder [whether [to fix t]]?
(Coopmans and Stevenson 1991:359)

For many speakers, (50a) is less acceptable than (50b). Chomsky (1986b) accounts for this asymmetry by stipulating that the lowest finite IP is an inherent barrier to wh-movement.

The finite/nonfinite distinction is obscured in the case of adjunct extraction as follows:

(51) a. *How did you wonder [whether [John fixed the car t]]?
b. *How did you wonder [whether [to fix the car t]]?

It has been suggested that in (51), the Subjacency effect is overruled by the Empty Category Principle (ECP), which requires that every trace be properly governed. Traces of adjuncts can only be properly governed by antecedent government, but not in (51) (see Huang (1982), Lasnik and Saito (1984)). The

difference between (50b) and (51b) is that the trace in (50b) (but not in (51b)) can be lexically governed by its head, satisfying the ECP.

Note here that a finite/nonfinite distinction appears also in some cases of adjunct extraction. However, an effect of tense seems to be contrary to that in (50) in the following case:[17]

(52) a. I wonder [when Mary claimed [John fixed the car t]].
b.*I wonder [when to claim [John fixed the car t]].
c. I wonder [where Mary claimed [John fixed the car t]].
d.*I wonder [where to claim [John fixed the car t]].

(52) shows that extraction of adjuncts across an infinitival is worse than extraction across a finite clause, even though no island seems to intervene here.[18] This asymmetry does not arise in the case of object extraction, as shown in (53):

(53) a. They wondered what to believe [John had fixed t].
b. They wondered what Mary believed [(that) John had fixed t].
(Coopmans and Stevenson 1991: 363)

In the next subsection, we will see another asymmetry between finite and nonfinite clauses concerning extraction of an operator. Then, we will try to account for the finite/nonfinite distinction in (52) and the one discussed in 3.2 under our analysis of to-infinitives proposed in the preceding section.

3.2 Extraction across Clausal Gerunds

3.2.1 Larson (1990)

Geis (1970) observes that sentences like (54) are two-way ambiguous with respect to the interpretation of the temporal clauses:

(54) a. I saw Mary in New York [before she claimed that she would arrive].
b. I encountered Alice [after she swore that she had left].

c. I haven't been there [since I told you I was there].
(Larson 1990: 170)

(54a) can mean that I saw Mary in NY before the time of her claiming that she would arrive (sometime). It can also mean that I saw Mary in NY before the time which she claimed that she would arrive at.

Larson (1990) attributes this ambiguity to movement of temporal operators. For example, he argues that either (55a) or (55b) can be assigned as a representation of the temporal clause in (54a):

(55) a. $[_{PP}$ before $[_{CP}$ Op_i she claimed $[_{CP}$ that she would arrive] $t_i]]$.
b. $[_{PP}$ before $[_{CP}$ Op_i she claimed $[_{CP}$ that she would arrive $t_i]]]$.

Op stands for a phonologically null when. In (55a), Op binds a variable in the claimed-clause, which corresponds to the first reading discussed above. The second reading is shown in (55b), where Op binds a variable in the embedded clause.

Larson's analysis correctly predicts that the interpretations of these sentences are sensitive to island effects. Consider the following cases:

(56) a. Gary left before you asked whether he did.
b. Mikey left before you heard the rumor that he had.
(Johnson 1988: 587)

As noted by Geis and Larson, in (56), before cannot be construed with the lowest clause. That is, the interpretations represented in (57) are not obtained:

(57) a. Gary left before $[_{CP}$ Op_i you asked [whether he did $t_i]]$.
b. Mikey left before $[_{CP}$ Op_i you heard [the rumor that he had $t_i]]$.
(Johnson 1988: 587)

(57a) and (57b) violate the wh-island constraint and the complex NP constraint, respectively. These examples support Larson's analysis: operator movement is involved in the temporal clauses.

3.2.2 Clausal Gerunds in Temporal Clauses

Some temporal prepositions may take clausal gerunds as complements, as shown in (58):

(58) a. Liz left before telling a story.
b. Gary fell after telling a story.
c. Sam has left since telling the story.

Given Larson's analysis of temporal clauses, one would expect the following sentence to be ambiguous as well:

(59) Liz left after saying she wouldn't.

As noted by Johnson (1988), however, (59) has only one reading. It means that Liz left after the time of her saying that she wouldn't leave (sometime), but it does not mean that Liz left after the time which she said she wouldn't leave at. That is, (59) can be given a representation as in (60a), but not in (60b):

(60) a. Liz left [after [$_{CP}$ Op$_i$ PRO saying [she wouldn't] t_i]].
b.*Liz left [after [$_{CP}$ Op$_i$ PRO saying [she wouldn't t_i]]].
(Johnson 1988: 590f.)

(60) suggests that temporal operators may not be extracted out of the complements of gerunds. Johnson leaves this case unexplained.

In sum, temporal prepositions can be construed with the embedded clause only when these prepositions are followed by finite clauses as in (61a), but not when they are followed by clausal gerunds as in (61b):

(61) a. [$_{PP}$ before [$_{CP}$ Op$_i$ she claimed [that she would arrive t_i]]]
b.*[$_{PP}$ after [$_{CP}$ Op$_i$ PRO saying [she wouldn't t_i]]]

Note here that this is reminiscent of the finite/nonfinite distinction we have seen in (52), repeated here:

(52) a. I wonder [when Mary claimed [John fixed the car t]].
b.*I wonder [when to claim [John fixed the car t]].
c. I wonder [where Mary claimed [John fixed the car t]].
d.*I wonder [where to claim [John fixed the car t]].

In both (61) and (52), operators having adjunct status can be extracted across finite clauses, but not across nonfinite ones. It seems natural to give a uniform account of these cases.

3.3 Our Analysis

3.3.1 Extraction across To-Infinitives

Consider again the examples in (52b), (52d) and (53a), repeated as (62a,b,c), respectively:

(62) a.*I wonder [when to claim [John fixed the car t]]
b.*I wonder [where to claim [John fixed the car t]]
c. They wondered [what to believe [John had fixed t]]

One might regard the contrast in grammaticality between (62a,b) and (62c) as a complement-adjunct asymmetry. However, the following examples suggest that it does not seem to be the case:[19]

(63)a. I wonder [whom to claim [John spoke of t]].
b.* I wonder [of whom to claim [John spoke t]].
c. I wonder [whom to claim [John gave the book to t]].
d.* I wonder [to whom to claim [John gave the book t]].

In (63), what is crucial is the categorial distinction between DPs and PPs rather than the distinction between complements and adjuncts. We suspect here that the categorial status of the interogatives when and where in (62) is also PP.

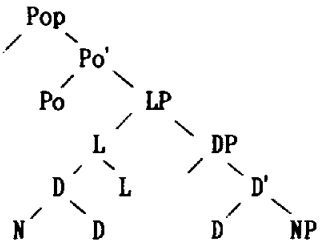
Larson (1985) suggests that interrogative when and where can be regarded as the so-called bare-NP adverbs, though they show a much more limited

distribution than others. As discussed in Larson (1985), bare-NP adverbs can function as adverbial modifiers, though they are not accompanied by a preposition or any other indicator of adjunct status. In modern English, they have a variety of semantic functions, including temporal modifier, locative modifier, and adverbial of manner, as shown by the following examples from Larson (1985):

(64) a. I saw John [that day].
b. You have lived [every place that Max has lived].
c. You pronounced my name [that way].
(Larson 1985: 595ff.)

Watanabe (1993) provides an account of why no overt preposition appears in bare-NP adverbs. As we have seen in section 2, he suggests that PP is decomposed into three layers: PoP-AgrP-LP. He argues that bare NP-adverbs are PoPs in which the head noun of bare-NP adverbs is incorporated into L(ocation), as shown in (65):[20]

(65)



(Watanabe 1993: 438)

Since when and where are bare-NP adverbs, as discussed in Larson, we can assume that they have the structure in (65) as well as other bare-NP adverbs.

Let us return to the examples in (62) and (63), repeated here, respectively:

(62) a.*I wonder [when to claim [John fixed the car t]].
b.*I wonder [where to claim [John fixed the car t]].
c. They wondered [what to believe [John had fixed t]].

(63) a. I wonder [whom to claim [John spoke of t]].
b. *I wonder [of whom to claim [John spoke t]].
c. I wonder [whom to claim [John gave the book to t]].
d. *I wonder [to whom to claim [John gave the book t]].

In (63b,d), the categorial status of the wh-phrases is PoP, according to the three-layered decomposition of PP. And in (62a,b), when and where are also PoPs, given the structure in (65). Now, what we have to explain is why wh-movement is impossible in these examples if the wh-phrase is PoP instead of DP. PoP cannot be extracted across infinitival clauses.

In the deviant examples in (62) and (63), wh-PoPs are extracted from an embedded finite clause to the front of an infinitival clause. However, wh-PoPs are allowed to move within an infinitival clause as shown in (66):

(66) a. I wonder [[$_{PoP}$when] to fix the car t].
b. I wonder [[$_{PoP}$where] to fix the car t].
c. ??I wonder [[$_{PoP}$to whom] to speak t].
d. ? I wonder [[$_{PoP}$on what shelf] to put the book t].

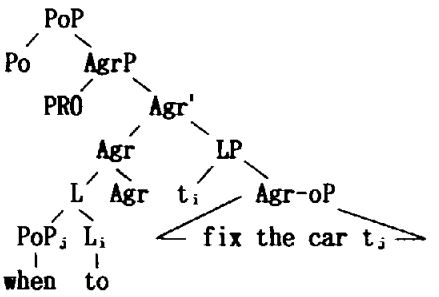
According to our analysis of infinitival clauses in section 2, the embedded clauses in (66) are assumed to be PoPs and given the following structure:

(67) [$_{PoP}$ Po [$_{AgrP}$ PRO to$_i$+Agr [$_{LP}$ t$_i$ ...]]]

In (67), the PRO subject is in Spec of AgrP and the infinitival to is adjoined to Agr. What position do the wh-PoPs in (66) occupy in this structure?

Recall that Po can have a clitic nature and attach to the head L, as illustrated by the examples in Navajo and Belfast English (see (23) and (28)). We assume that the wh-PoPs in (66) also have a clitic nature and are cliticized to the head L, as in (68):

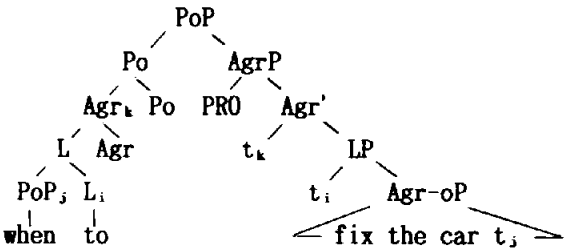
(68)



One might wonder whether cliticization of PoP to L does not violate Emonds's (1976) Structure-Preserving Hypothesis: Only X^0 can move to the head position. We assume that clitics share XP and X^0 properties, as suggested in Chomsky (1994: 16). Thus, in (68), when is regarded as an X^0 when it attaches to the head L.[21]

Since wh-PoP is an operator, its operator feature must be checked by some element which has the same feature. Suppose that the head of PoP may have an operator feature, as the head of CP. The wh-PoP contained in Agr moves further to the head of PoP and has its operator feature checked off in overt syntax, as in (69):[22]

(69)



We assume that cliticization is obligatory if there are a clitic (i.e., wh-PoP) and an appropriate place for cliticization (i.e., L). Then, in (69), when cannot move directly to Spec of PoP_1 without cliticizing to L.[23]

Now, the question to be asked is why wh-PoPs cannot undergo the same opeation as in (69) if they are extracted from embedded finite clauses. The relevant example is (62a) (and (62b), (63b,d)), which is repeated here with category notations:

(70) *I wonder [$_{PoP}$ when$_j$+to$_i$+Agr$_k$+Po [$_{AgrP}$ t$_k$ [$_{LP}$ t$_i$ claim [John fixed the car t$_j$]]]].

As discussed above, wh-PoPs must cliticize first to the head L. In (70), when is cliticized to L, crossing the embedded finite clause, and then adjoined to Po. This is similar to the environment of clitic movement in Italian. Consider the following examples discussed in Rizzi (1982: 3):

(71) a. Credo che Gianni la presentera a Francesco.
I-believe that G. her will-introduce to F.
'I believe that Gianni will introduce her to Francesco.'
b. *La credo che Gianni presentera a Francesco.

An unstressed pronoun originating in the embedded finite clause can be cliticized to the embedded verb as in (71a), but it cannot cross the clause to cliticize to the main verb as in (71b). Given this nature of clitic movement, we suppose that (70) is ruled out for the same reason as (71b). The interrogative PoP when cannot undergo cliticizition, because it is moved across the finite clause.[24]

Now let us consider the examples in (52a,c), repeated here:

(52) a. I wonder [when Mary claimed [John fixed the car t]].
c. I wonder [where Mary claimed [John fixed the car t]].

In these cases, the wh-PoPs move to the finite clause, which is given a structure as follows:

(72) [$_{CP}$[$_{PoP}$when] C [$_{AgrsP}$ Mary [$_{TP}$ claimed [John fixed the car t]]]]

As discussed above, we assume that cliticization is obligatory if there is an appropriate place for cliticization (i.e., L). Since there is no LP in (72), the wh-PoP does not undergo cliticization. Then, it can move out of the embedded finite clause and reaches Spec of CP, where its wh-feature is checked by the head C.

Finally, consider the examples in (53), where the wh-phrases are what:

(53) a. They wondered what to believe [John had fixed t].
b. They wondered what Mary believed [(that) John had fixed t].
(Coopmans and Stevenson 1991: 363)

Note that we attributed a clitic nature of the wh-PoP to its categorial status. In (53), what is DP, not PoP, and it does not undergo cliticization. We give the following structures to these sentences:

(73) a. They wondered [$_{PoP}$[$_{DP}$what] Po [$_{AgrP}$ PRO [$_{LP}$ to believe John had fixed t]]]
b. They wondered [$_{CP}$[$_{DP}$what] C [$_{Agr-sP}$ Mary [$_{TP}$ believed that John had fixed t]]]

What moves from the embedded clause to Spec of PoP in (73a) and to Spec of CP in (73b), respectively. In each case, what is free to cross the finite clause, since it is not a clitic.[25]

In sum, we have suggested that wh-phrases whose categorial status is PoP have a clitic nature and that they undergo cliticization if they move to the front of infinitival clauses. We have attributed to the clitic nature of the wh-phrase the inability of wh-PoPs to move from embedded finite clauses to the front of infinitival clauses. In the next subsection, we will show that a similar account can be given to extraction across clausal gerunds.

3.3.2 Extraction across Clausal Gerunds

Consider the examples in (54a) and (59), repeated here as (74a,b), respectively:

(74) a. I saw Mary in New York before she claimed that she would arrive.
b. Liz left after saying she wouldn't.

As discussed above, (74a) is ambiguous, but (74b) is not, with respect to the interpretation of the temporal preposition.

Before giving an analysis of these examples, we consider more closely the structure of clauses headed by temporal prepositions. Let us take the

following example in Ross (1986):

(75) *Bob left before you woke up at three and she fell asleep.

Johnson (1988) presents (75) as a case sensitive to island effects. He gives this sentence the following representation, assuming that the temporal preposition takes CP as its complement:

(76) Bob left before [$_{CP}$ Op$_i$ [[you woke up at three] and [she fell asleep t_i]]]. (Johnson 1988: 587)

Johnson argues that in (76), the Coordinate Structure Constraint is violated. However, if (75) were assigned a structure like (77), no violation of the Constraint would result:

(77) Bob left before [[$_{CP}$ you woke up at three] and [$_{CP}$ Op$_i$ she fell asleep t_i]].

In (77), Op is not moved out of the coordinated clauses.

Taking this into account, we assume that in (75) before has an operator feature and a temporal operator moves to Spec of the projection headed by before in order to check off the operator feature. Under this analysis, we give the following representation to (75):

(78) Bob left [Op$_i$ before [you woke up at three] and [she fell asleep t_i]].

In (78), movement occurs from one of the coordinated clauses, violationg the Coordinate Structure Constraint, and we can correctly predict the ungrammaticality of (75).[26]

Now let us return to (74b), repeated here:

(74b) Liz left after saying she wouldn't.

We argued in section 2 that the categorial status of clausal gerunds is PoP.

Given that after has an operator feature, as mentioned above, it seems natural to assume that after in (74b) is the head of PoP, as shown in (79):

(79) Liz left [$_{PoP}$ after [$_{AgrP}$ PRO saying [she wouldn't]]].

Since temporal operators are phonologically null counterparts of when, which is a bare-NP adverb, their categorial status is also supposed to be PoP.[27]

With this assumption, consider the following representation of the gerund in (79), where the temporal operator moves from the lowest clause:

(80) *[$_{PoP}$ [$_{PoP}$Op]$_i$+L_j+Agr_k+after [$_{AgrP}$ PRO t_k [$_{LP}$ t_j saying [she wouldn't t_i]]]].

In (80), Op is cliticized to the head L and then adjoined to after. This movement is ruled out, since clitic climbing cannot cross finite clauses, as we have seen in (71). Note here that cliticization is obligatory in this case, since Op is a PoP having a clitic nature and L is the position for clitization. Then, Op cannot move further to adjoin to after and its operator feature is left to be checked in (80). Consider another representation given to (79):

(81) [$_{PoP}$ [$_{PoP}$Op]$_i$+L_j+Agr_k+after [$_{AgrP}$ PRO t_k [$_{LP}$ t_j saying [she wouldn't] t_i]]].

In (81), Op binds a variable in the saying-clause. In this case, Op can be cliticized to L without crossing the finite clause and adjoin to after to check off its operator feature. Thus, we can account for why only this interpretation represented in (81) is possible in (74b):

Finally, let us consider (74a), repeated here:

(74a) I saw Mary in New York [before she claimed that she would arrive].

In this case, before is followed by a finite clause, and occupies the head of CP. (74a) can be given the following two representations:

(82) a. $[_{CP}\ [_{P\circ P}\ Op_i]$ before [she claimed [that she would arrive] t_i]].
b. $[_{CP}\ [_{P\circ P}\ Op_i]$ before [she claimed [that she would arrive t_i]]].

Op moves from the claimed clause in (82a), and from the lowest clause in (82b). Without the position to cliticize to (i.e., L), Op does not undergo cliticization and can cross the finite clause as in (82b). In both cases, Op reaches Spec of CP whose head is before and its operator feature is checked off. Thus, we can account for why (74a) is two-way ambiguous: (82a) or (82b).

4. Conclusion

In this paper, I have suggested that Watanabe's (1993) three-layered decomposition of PP can be extended to some nonfinite clauses in English. In so doing, I have argued that subjects of these nonfinite clauses have their Case checked by a preposition in a Spec-Head relation in AgrP, which falls under the domain of the feature checking theory. It has also been shown that this analysis has empirical consequences on an issue concerning extraction of operators. In particular, I have argued that an asymmetry between finite and nonfinite clauses follows from interactions between the categorial status of clauses and that of operators.

NOTES

* This is a modified version of the idea reported at a monthly meeting of the Tsukuba English Linguistics Colloquium held on January 22, 1995. I would like to thank the audience there for useful discussion. I am especially grateful to Minoru Nakau, Robyne Tiedeman, Yukio Hirose, Masaharu Shimada, Hidehito Hoshi, Ken'ichiro Nogawa, Hideki Tanaka and Katsuo Ichinohe for comments and suggestions on an earlier draft of this paper. Ronald Craig and Robyne Tiedeman are to be greately thanked for their discussions with me about the English data. All remaining inadequacies are my own.

[1] In this paper, we will deal with nonfinite clauses which appear in argument positions. The so-called absolute constructions as in (i) are beyond the scope of this paper.

(i) John tried to avoid Mary, he being a confirmed bachelor.

[2] In (3) and (5), the judgments are not as clear as expected. But there are some reasons for the fuzziness of them, as discussed in Branigan (1992).

[3] See Reuland (1983) for the clausal nature of gerunds as in (10).

[4] In (18b), the objective clitic is attached to the matrix verb, and e_i is the empty category associated with the clitic.

[5] We leave for future research the problem of how the embedded subject in (18a) has its nominative Case checked.

[6] Watanabe (1993) rules out (20) and (21) by proposing the Theorem of Economical A-movement as follows:

(i) A-movement cannot move through a Case position.

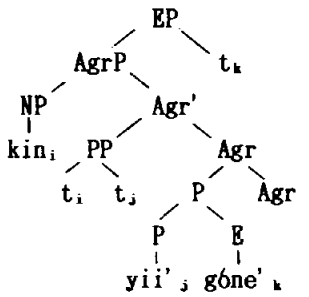
[7] Watanabe (1993) points out that in Icelandic, idiosyncratic Case assigned by certain verbs is preserved under passivization:

(i) a. Ég hjálpaði honum.
I helped him(DAT)
b. Honum var hjálpað.
him(DAT) was helped
(Zaenen, Maling, and Thráinsson 1985)

Taking this into account, he suggests that the Case of P in (21), unlike quirky Case in (i), should be treated within the Case system assumed here.

[8] Watanabe (1993: 431 fn.2) suggests that the form yii'góne' in (23) results from incorporation that applies to (24). We assume that (24) yields the following configuration:

(i)



Since the postposition yii' agrees with the object NP kin, yii' adjoins to Agr and holds a Spec-Head relation with kin which is moved to Spec of AgrP. Furthermore, the enclitic gone' cliticizes to yii'.

[9] We leave it for future research to determine whether there is an independent category which is responsible for tense interpretation of nonfinite clauses, as TP in finite clauses.

[10] Given the VP-Internal Subject Hypothesis (Kuroda 1988, Koopman and Sportiche 1991, and see the references cited therein), we assume that them in (27) is moved from a VP internal position to Spec of AgrP in order to check the NP feature of L adjoined to Agr. This corresponds to the case with the subjects of finie clauses in English, which are assumed to move to Spec of Agr-sP to check the NP feature of Tense.

We put aside the question of why overt movement does not occur in ordinary prepositional phrases, as in (i):

(i) a. $[_{PoP}[_{AgrP}[_{LP}$ in the park]]]
b. *$[_{PoP}[_{AgrP}$the park$_i$ $[_{LP}$ in t_i]]]

[11] Henry analyzes the infinitival clauses in (28) as CPs and suggests that for is a complementizer which moves to INFL and cliticizes to to.

[12] Contrary to the case in (29), for does not undergo cliticization in (26). We speculate that for in standard English does not have a clitic nature.

[13] The verb prevent permits its object NPs to passivize, as follows:

(i) a. I prevented Harry from escaping.
b. Harry was prevented from escaping.

(ia) is assumed to have the following structure:

(ii) I prevented Harry [PRO from escaping].

In (ii), the object NP Harry controls PRO which is the subject of the embedded clause.

[14] Active and passive complements of believe are cognitively synonymous, as follows:

(i) a. I believed a specialist to have examined John.
b. I believed John to have been examined by a specialist.

This implies that the post verbal NPs in (i) (i.e., a specialist in (ia) and John in (ib)) are the subjects of the embedded clauses.

[15] Tense of finite clauses and verbs cannot bear Null Case feature, as the following examples suggest:

(i) a. *John hits PRO
b. *PRO hits John

Thus, PRO cannot have Null Case feature checked in the matrix clause.

[16] The heads of PoP and LP can be both overt (as for and to in (27)) or both null (as in (43)). In (34), L (i.e., from) has phonetic content, but Po does not. On the ther hand, Po instead of L seems to be realized in the following examples:

(i) a. I'm counting on him marrying her.
b. We're in favor of him studying linguistics.

In (ia,b), the subjects of gerunds are preceded by the prepositions on and of, respectively. These subjects cannot undergo wh-movement:

(ii) a. *John is the one who I'm counting on marrying her.
b. *The only one who we're in favor of studying linguists is John.

(Kayne 1984: 28)

This is similar to the case with the subjects following for in infinitival clauses:

(iii) a. *Who would you be happy for to win?
b. *Who do you desire for to speak to her?
(Kayne 1984: 30)

We suppose that the prepositions on and of in (ia,b) occupy the same position as for in (iii), which is the head of PoP under our anaysis.

[17] Coopmans and Stevenson (1991: 360) points out the finite/nonfinite distinction concerning extraction of how.

(43) a.*I wonder how to believe [John fixed the car t].
b. I wonder how Mary believed [John fixed the car t].

We might account for this contrast under our analysis. However, in this paper, we do not discuss these examples.

[18] One might claim that the ungrammaticality of (52b,d) is due to the modal meaning of infinitival interrogatives. Note, however, that the following sentences are grammatical with a modal should in the clause to which when or where moves, even though their meanings seem to be close to those of (52b,d):

(i) a. I wonder when I should claim [John fixed the car t]
b. I wonder where I should claim [John fixed the car t]

I thank Yukio Hirose for bringing this point to my attention.

[19] Our informant prefers prepositions being stranded to being piedpiped, as can be seen in (i):

(i) a. I wonder [who Mary claimed [John spoke of t]]
b.?? I wonder [of whom Mary claimed [John spoke t]
c. I wonder [who Mary claimed [John gave the book to t]]
d.?? I wonder [to whom Mary claimed [John gave the book t]]

Note here that (ib,d) are much better than (63b,d), which suggests that some

factor other than piedpiping should be involved in the ungrammaticality of (63b,d).

[20] Taking Baker's (1988) analysis into account, Watanabe assumes that incorporation of D obviates the need of Case checking through Agr, so AgrP does not exist between PoP and LP in (65).

[21] In the following sentences, PoP is moved within a finite clause and the acceptability is higher than that of (66c,d):

(i) a. I wonder [to whom John spoke t]
b. I wonder [on what shelf John put the book t]

Given this fact, we conjecture that the marginal status of (66c,d) might be due to the difficulty in cliticizing the wh-PoP which consists of more than one word rather than due to piedpiping of a preposition.

[22] In (69), Agr moves to Po and checks off an [F] feature which is created in Case-checking of PRO in the Spec of AgrP.

One might wonder whether when in (69), cliticized to L, can have scope in that position. It is well known that in Romance languages, some scope-taking elements undergo cliticization. Consider the following example in Romanian, where a cliticized negative element appears:

(i) Tom nu-e$_i$ crede inteligent pe Marine$_i$
Neg-her believe intelligent P
Tom doesn't believe Mary to be intelligent.

In Romanian, some adverbs also behave like clitics. I thank Daniela Caluiann (personal communication) for Romanian data.

[23] We leave open whether cliticization is forced by some fundamental principle in (68).

[24] According to Rizzi (1982), clitics can be moved out of clauses if the matrix verb is modal or aspectual and the embedded subject is PRO:

(i) Mario la comincia a battere a macchina domani.
M. it will start typing tomorrow.
'Mario will start typing it tomorrow.' Rizzi (1982: 4)

Rizzi suggests that in (i) the matrix verb and the embedded verb is restructured as a single verb. A similar process seems to be at work in the following case:

(ii) a. I wonder [when to start to fix the car]
b. I wonder [where to start to fix the car]

In (ii), when and where can be interpreted as modifying the complex predicate start to fix.

[25] We suppose that it depends on the language what category can be a clitic and assume that only wh-PoPs have the clitic status in English, though pronouns undergo cliticization in Italian and other languages, as shown in (71).

[26] Under the assumption in the text, clausal complements of temporal prepositions do not have a COMP position. If a clausal complement of these prepositions is finite, it is supposed to be an Agr-sP (=IP). Given this, we can account for the following cases in (i), which are noted by Larson (1990) and Johnson (1988):

(i) *Gary left before/after/since/while that Mary did. (Johnson 1988: 587)

Complementizers do not appear in clausal complements of temporal prepositions. Under our analysis, in (i), there is no position for that, because these temporal prepositions do not take a CP, but an Agr-sP here.

See Dubinsky and Williams (1995). Providing diachronic and dialectal evidence, they argue that temporal prepositions occupy the head position of CP whenever they occur before a clausal complement.

[27] Johnson (1988) points out that preposition stranding is impossible in temporal clauses, as shown in (i):

(i) *I left [before [$_{S'}$ Op_i [$_S$ you left at t_i]]]. (Johnson 1988: fn.6)

In view of this fact, he suggests that the empty operator in (i) can be a PP. This is compatible with the analysis in the text. The operator is assumed to be a PoP, which is a PP in the traditional sense.

REFERENCES

Abe, Jun (1986) "Prepositional to-infinitives in English," English Linguistics 3, 79-97.

Baker, Mark (1988) Incorporation, University of Chicago Press, Chicago.

Branigan, Philip (1992) Subjects and Complementizers, Doctoral dissertation, MIT.

Chomsky, Noam (1981) Lectures on Government and Binding, Foris, Dordrecht.

Chomsky, Noam (1986a) Knowledge of Language: Its Nature, Origin, and Use, Praeger, New York.

Chomsky, Noam (1986b) Barriers, MIT Press, Cambridge, MA.

Chomsky, Noam (1991) "Some Notes on Economy of Derivation and Representation," Principles and Parameters in Comparative Grammar, ed. Robert Freiden, 417-454, MIT Press, Cambridge, MA.

Chomsky, Noam (1993) "A Minimalist Program for Linguistic Theory," The View from Building 20, eds. Kenneth Hale and Samuel Jay Keyser, 1-52, MIT Press, Cambridge, MA.

Chomsky, Noam (1994) "Bare Phrase Structure," MIT Occasional Papers in Linguistics 5, MIT, Cambridge, MA.

Chomsky, Noam and Howard Lasnik (1993) "The Theory of Principles and Parameters," Syntax: An International Handbook of Contemporary Research, by Joachim Jacobs et al., 506-569, Walter de Gruyter, Berlin.

Coopmans, Peter and Suzanne Stevenson (1991) "How Extraction from Finite and Infinitival Complements: A Surprising Asymmetry," Linguistic Inquiry 22, 359-367.

Dubinsky, Stanley and Kemp Williams (1995) "Recategorization of Prepositions as Complementizers: The Case of Temporal Prepositions in English," Linguistic Inquiry 26, 125-137.

Emonds, Joseph (1976) A Transformational Approach to English Syntax, Academic Press, New York.

Geis, Michael (1970) Adverbial Subordinate Clauses in English, Doctoral dissertation, MIT.

Henry, Alison (1992) "Infinitives in a For-To Dialect," Natural Language and Linguistic Theory 10, 279-301.

Huang, James (1982) Logical Relations in Chinese and the Theory of Grammar,

Doctoral dissertation, MIT.

Johnson, Kyle (1988) "Clausal Gerunds, the ECP, and Government," Linguistic Inquiry 19, 583-609.

Kaufman, Ellen (1975) Theoretical Responses to Navajo Questions, Doctoral dissertation, MIT. [Published by Garland, 1979]

Kayne, Richard (1984) Connectedness and Binary Branching, Foris, Dordrecht.

Koopman, Hilda and Dominique Sportiche (1991) "The Position of Subjects," Lingua 85, 211-258.

Kuroda, Shigeyuki (1988) "Whether We Agree or Not: A Comparative Syntax of English and Japanese," Linguisticae Investigationes 12, 1-47.

Larson, Richard (1985) "Bare-NP Adverbs," Linguistic Inquiry 16, 595-621.

Larson, Richard (1990) "Extraction and Multiple Selection in PP," The Linguistic Review 7, 169-182.

Lasnik, Howard and Mamoru Saito (1984) "On the Nature of Proper Government," Linguistic Inquiry 15, 537-577.

Lasnik, Howard and Mamoru Saito (1991) "On the Subject of Infinitives," CLS 27, 324-343

Martin, Roger (1992) "On the Distribution and Case Features of PRO," ms., University of Connecticut.

Matsuoka, Mikinari (1994) "The Accusative-ing Construction and the Feature Checking Theory," Tsukuba English Studies 13, 117-146, University of Tsukuba.

Postal, Paul (1974) On Raising, MIT Press, Cambridge, MA.

Raposo, Eduardo (1987) "Case Theory and Infl-to-Comp: The Inflected Infinitive in European Portuguese," Linguistic Inquiry 18, 85-109.

Reuland, Eric (1983) "Governing -ing," Linguistic Inquiry 14, 101-136.

Rizzi, Luigi (1982) Issues in Italian Syntax, Foris, Dordrecht.

Ross, John (1986) Infinite Syntax, Ablex, Norwood, New Jersey.

Suzuki, Tatsuya (1988) The Structure of English Gerunds, Doctoral dissertation, University of Washington.

Watanabe, Akira (1993) Agr-based Case Theory and Its Interaction with the A-bar System, Doctoral dissertation, MIT.

Zaenen, Annie, Joan Maling, and Höskuldur Thráinsson (1985) "Case and Grammatical Functions: The Icelandic Passive." Natural Language and Linguistic Theory 3, 441-483.

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