The aim of this paper is to present a new syntactic analysis of the infinitival clause in OE, describing the historical development of tough constructions. In OE, the derivation of tough constructions involves NP movement. However, this does not mean that tough constructions were derived by passivization. Rather, it indicates that the null-NP movement to [Spec, vP] is involved in the derivation, and that the infinitival clause in OE is a bare vP. If this analysis is on the right track, we can explain a wide range of phenomena that are generally observed in the history of infinitival clauses.*

Keywords: tough constructions, passive infinitive, PRO, vP

1. Introduction

In this paper, I will explore the structure of the infinitival clause in Old English (OE, henceforth), stressing that the historical development of "tough constructions" such as in (1) could provide some informative clues to the analysis of the infinitival clause in OE.

(1) John is easy to please

As is well known, some instantiations of this construction are seen in OE.

(2) bære is swiðe earfoðe to gearcigenne
beer is very difficult to make

(ÆChom I, 12 188.4; Van der Wurff (1990: 520))

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Under the standard view of the generative framework, *tough* constructions in Present-day English (PE, henceforth) are assumed to be derived by null operator (OP, henceforth) movement within the infinitival clause, since the gap in the infinitival clause has many properties peculiar to the trace of A'-movements.

(3) John is easy [CP OP [C' [IP to please t]]]

On the contrary, *tough* constructions in OE have more properties incompatible with A'-movement than those in PE. In this paper, I will argue that the differences between *tough* constructions in OE and those in PE can be explained in terms of the differences in syntactic structures. The specific claims concerning the historical development of *tough* constructions are given below

(4) a. The infinitival clause of OE *tough* constructions is a vP.
   b. The derivation of OE *tough* constructions involves NP-movement (A-movement) to [Spec, vP].
   c. The infinitival clause in PE *tough* constructions is a CP.
   d. The derivation of PE *tough* constructions involves OP-movement (A'-movement) to [Spec, CP].

The arguments in (4a, b) will be examined by some general properties of OE infinitival clauses, and I will propose (5):

(5) PRO must be in [Spec, vP] of the OE infinitival clause.


2. Previous Analyses

2.1. Van der Wurff (1990)

Van der Wurff (1990) argues that OE *tough* constructions are derived by NP-movement. In OE *tough* constructions, the infinitive is always that of a transitive verb, which normally assigns accusative Case to its direct object, and this object is lacking in the surface form. The surface matrix subject can always be interpreted as the missing direct object. What Van der Wurff draws attention to is that there are no attested examples of OE *tough* constructions with preposition stranding.

(6) John is easy to talk to.

In (6), the matrix subject *John* is interpreted as the missing object of *to*. This is of course possible in PE, but not in OE. What is interesting is that preposition stranding is not possible in OE passives,
either.\(^1\) This does not mean that preposition stranding is not possible in any circumstances. Fischer et al. (2000: Ch. 8) show that "pretty-constructions," in which adjectives meaning "pleasant," "pretty," "beautiful" and the like are followed by infinitival clauses, are attested in a pattern with preposition stranding:

(7) Waes seó wunung þær swyþe wynsum on to wicenne
    was the dwelling-place there very pleasant in to live
    'The dwelling-place there was very pleasant to live in'
    (LS8 (Eust) 315; Fischer et al. (2000: 266))

Furthermore, in relatives introduced by the relative complementizer þe, preposition stranding is obligatory. According to Van Kemenade (1987: 147), pied-piping is unattested in this type.

(8) & het forbernan þæt gewrit þe hit on awritten wæs
    and ordered burn the writ that it in written was
    'and ordered to burn the writ that it was written in'
    (Oros, 141, 22; Van Kemenade (1987: 147))

It must be noted here that the relative clause is generally assumed to be derived by wh-movement. If it is the case that wh-movement allows preposition stranding and NP-movement disallows it, the impossibility of preposition stranding in OE tough constructions implies that they are derived by NP-movement. The derivation of OE tough constructions proposed by Van der Wurff (1990: 525) is illustrated in (9).\(^2\)

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\(^1\) The impossibility of preposition stranding in constructions involving A-movement such as passives is standardly explained by Case conflict. However, the Case-conflict approach is not enough to explain the full range of facts concerning preposition stranding. For details, see Tanaka (1997) and Van Kemenade (1987: 88ff.).

\(^2\) Van der Wurff (1990: 525) illustrates his analysis using the following sentence (in (ii), eow is omitted):

(1) pes traht is langsum eow to gehyrenne
    this exposition is long for you to hear
    (ÆCHom II, 41 308.138: Van der Wurff (1990: 523))

(2) e\(_3\) [AP e\(_2\) langsum [S e\(_1\) [VP [s e\(_4\) [VP pes traht] to gehyrenne]]]] is
    (ibid.: 525)

As shown in the statement (iii), it is clear that Van der Wurff (1990: 521) considers langsum as a tough adjective.

(iii) The group of adjectives concerned, based on the observable distributional facts, would comprise earfo(lic) 'difficult,' earmlic 'miserable,' leoht 'easy,' hefig(time) 'difficult,' eaðel(lic) 'easy,' lang(sum) 'long' and possibly some others. The adjectives are semantically similar, in that they describe the relative easy or difficulty associated with some intentional proposition.

    (Van der Wurff (1990: 521))

However, I agree with an anonymous EL reviewer in that langsum should not count
In (9), the surface subject *bere* lands in the subject position of the infinitival clause on the way to the matrix subject position. This means that the derivation of the active-infinitival clause in OE tough constructions is the same as the derivation of the passive-infinitival clause in PE.3

(9)  berei is \[\text{AP ti swiđe earfođe} \ [S ti \ [\text{VP ti to gearcigenne}]\] (=2)

In (9) and (11), the base-generated objects are moved to the subject-positions of the infinitival clauses.

In the next section, let us examine the analysis of Van der Wurff (1990) under the view of Fischer (1991).

2.2. Fischer (1991)

Fischer (1991), citing Bock (1931), notes that overall the occurrence of the passive infinitive in OE is rare. When it does occur, it is almost always as a complement of an auxiliary. OE uses an active infinitive in situations where PE employs a passive one.

(12) he het Nine mid strælum ofscotian
    he commanded him with arrows to shoot to death
    ‘he commanded him to be shot to death with arrows’
    (mart 5 (Herzfeld—Binz)211; Fischer (1991: 158))

What Fischer is concerned with is whether infinitives as in (12) are structurally identical to passives. An important criterion for the active/passive distinction has to do with the agentive PP. If active *to*-infinitives in OE can be derived in the same way as PE passive infinitives, we will expect to attest agentive PPs. That is, OE counterparts of (13) are expected to appear in OE.

(13) *to please by John

This way of expectation is valid. Interestingly enough, Modern Dutch has tokens of the infinitive accompanied by an agentive PP. Consider (14).

as a matrix predicate occurring in tough constructions.

3 No matter where it occurs, the passive *to*-infinitive is unacceptable in OE (cf. Fischer (1991)). I then use the PE example of passive *to*-infinitives.
In (14), the agent *Piet* is assigned Case by the preposition *door*, but not by the infinitive *spelen*. *Een fuga* might be assumed to receive Case from the infinitive, which is morphologically active, since the object precedes the verb in Modern Dutch. However, *een fuga* must be assigned Case by the matrix verb. Consider (15):

(15) a. Ik hoor [S Piet een fuga spelen]  
I hear Peter a fugue play  

b. Ik hoor [S een fuga spelen]  
I hear a fugue play (ibid.)

In (15a), *Piet* acquires Case from the matrix verb *hoor*, since it cannot acquire case from the infinitive, and *Een fuga* is assigned objective Case by the infinitive *spelen*. The above consideration leads us to expect *een fuga* in (15b) to be doubly Case-marked by *spelen* and *hoor*. As is well-known, this induces a violation of the Case-filter. The solution to this problem is that “*fuga* is NP-moved to the subject position of the infinitive, where it is governed and case-marked by the matrix verb.” It is natural to assume that *een fuga* in (14) is assigned Case in the same way as that in (15b). In other words, the infinitival clause is derived by passivization, and therefore it allows an agentive PP.

The analysis of Van der Wurff (1990) for OE *tough* constructions, which we reviewed in the previous section, is parallel to the analysis for (15). Fischer (1991: 172ff.) argues against this parallelism, because, as far as Fischer knows, “not a single example has been attested in Old English of the infinitive accompanied by an agentive phrase” as in the case in (14). Fischer points out that the constructions discussed by Van der Wurff (1987) involve agent phrases, but all of them appear in the dative, which seems strongly linked to the adjective (see (16)).

(16) ois me is hefi to donne  
this for-me is hard to do  
‘this is hard for me to do’

(Mart 5 (Kotzor) 2035 [SE16/A/14]; Fischer et al. (2000: 262))

Furthermore, Fischer provides more factual evidence that the parallelism between active infinitives in OE and passive infinitives in PE is not correct, at least for accusative-with-infinitive constructions:4

4 Strictly speaking, the sentence in (17) does not count as an instance of
(17) Moyses forbead swyn to etenne
    Moses forbade pigs to eat
    'Moses forbade the eating of pigs'

\cite{ELS(Maccabees) 85; ibid.: 226}

In (17), the matrix verb assigns dative Case in Old English (cf. Mitchell 
(1985: §1091ff.)). If the infinitival clause were passive, the italicized 
NP would be assigned dative Case by the matrix verb, since the passive 
infinitive cannot assign objective Case. However, this NP is assigned 
accusative Case. This means that the infinitive assigns Case to the ital-
ized NP. Therefore, the infinitive in (17) is structurally active, even 
if it is semantically passive.

Examples similar to (17) cannot be found for OE tough construc-
tions, since the matrix subject functions as the logical object of the in-
finite. However, all the considerations presented above are sufficient 
for Fischer to conclude that the infinitival clause in OE tough construc-
tions is structurally active. Fischer's (1991: 173) arguments concerning 
OE tough constructions are summarized as follows:

(18) a. The matrix subject must have started off as the subject 
of the adjectival predicate, theta-marked by the ad- 
dective and Case-marked by the verb be.
b. A to-infinitive—which was originally nominal and could 
therefore be unspecified for subject/object roles—could 
be added to this adjective. When this happens, ad- 
dective and infinitive together modify the subject.
c. Logically, the subject of the adjectival predicate func-
tions also as the object of the infinitive, but this pre-
sented no syntactic problem in OE.

Fischer (1991) does not give a clear definition of the categorial status 
of the infinitival clause in OE tough constructions, but the statement in 
(18b) is enough to expect it to be an NP. The difference between Van 
der Wurff (1990) and Fischer (1991) as to the categorial status of the 
ininitival clause in OE tough constructions is presented below:

accentive-with-infinitive constructions, because it has no element that is excep-
tionally Case-marked. See the discussion of (17). Fischer seems to imply that the 
matrix clause of this sentence is headed by the verb that can exceptionally Case- 
mark the subject of infinitival clauses. As we will see in section 4, accussative-with-
infinitive constructions were restricted to bare infinitive complements to causative 
and perception verbs.
BARE vP ANALYSIS OF THE INFINITIVAL CLAUSE IN OE

(19)  a. Van der Wurff (1990): S (or IP)

In the next section, we will address an alternative possibility to reconcile what we have seen in Van der Wurff (1990) and Fischer (1991).

3. vP-Analysis

3.1. Reconsideration of the Previous Analyses

Before we proceed to the details of our analysis, let us consider again the data presented by Van der Wurff (1990) and Fischer (1991). Van der Wurff (1990) gives weight to the fact that the OE tough construction disallows preposition stranding and the gap in the infinitival clause is always the direct object of the transitive verb that assigns accusative Case. This indicates that the derivation of OE tough constructions involves A-movement of the null NP that is base-generated as a complement of the infinitive. However, this does not necessarily mean that the structure of the infinitival clause in OE tough constructions is the same as that of passive-infinitival clauses. As far as the A-movement analysis is maintained, the structure of the infinitival clause in OE tough constructions can be different from that of passive infinitives in PE.

The data presented by Fischer (1991) is enough to show that infinitival clauses in OE tough constructions are not parallel to passive-infinitival clauses in PE, but they are not related directly to the assumption in (18b). At the same time, there is direct evidence that the infinitival clause in OE is indeed clausal. According to Van der Wurff (1990), the OE to-infinitive can be realized in a position where a tensed clause also occurs.

(20)  heo bið æfre geare men to acwellene
     she is always ready men to kill
     (LS 29(Nicholas) 340; Van der Wurff (1990: 526))

(21)  ic eom gearo þæt ic gange
     I am ready that I go (LS 1.1(AndrewBright) 306; ibid.)

In (20), the infinitival clause is the complement of the NP modified by the adjective geare. In (21), the tensed clause is used as the complement of the same adjective. It must be noted that the infinitival clause in (20) is in the position where NP cannot occur. Van der Wurff (1990) considers the data in (20) and (21) as the evidence that the projection of OE to-infinitives can be S’ (CP). Apart from the issue of
what categories the OE infinitival clause can be, one general point becomes very clear from the data presented above: the OE to-infinitive is clausal or propositional. This implies that the infinitival clause in OE is a verbal phrase with full argument structure. Either CP or vP is a structural realization of such clausal/propositional category (cf. Chomsky (1999: 9)).

In addition to this, as Fischer notes, to-infinitives can assign accusative Case (see (17)). This implies that they can assign thematic roles. As far as we assume that the base structure reflects thematic relations, it is reasonable to assume that the to-infinitive has an argument structure similar to that of the tensed clause.

We can now conclude that the infinitival clause of OE tough-constructions must satisfy at least the following requirements:

(22) a. The gap in the infinitival clause in OE tough constructions must be a trace left behind by A-movement (but not a trace left behind by passivization).
   b. The infinitival clause in OE tough constructions must have (full or not full) clausal structure.

3.2. Infinitival Clause as a vP

In this paper, I argue that the category satisfying the above requirements is a vP. The diagram below illustrates the derivation of tough constructions in OE. (NP_i) stands for a null NP, which has the same reference as that of the matrix subject.

(23) \[
\begin{array}{c}
\text{AP} \\
\text{NP}_i \quad A' \\
A \quad vP \\
\text{(NP}_i \text{)} \quad v' \\
\text{PRO} \quad v' \\
v \quad \text{VP} \\
\text{to-}V_j \quad t_j \quad t_i \\
\end{array}
\]
In (23), the structure of the vP encodes a reduced clause in that it is not projected to allow attachment of the complementizer. The phonetically null NP is base-generated as the complement of the infinitive and moved to [Spec, vP] in order to check off the accusative feature of the infinitive. This overt movement is commonly assumed in OV languages including OE (cf. Zwart (1993), Kayne (1994)). In [Spec, vP], the reference of the null NP is identified with that of the matrix subject.5

Since we adopt the OP movement analysis in PE tough constructions, which is illustrated in (3), the analysis of OE tough constructions might imply that the essential property of the movement of the null NP has been changed in the history of English. The OP movement is an A'-movement and the null-NP movement illustrated in (23) is an A movimiento.

Without any other assumptions, the historical reanalysis from A'-movement to A'-movement is drastic enough. However, if there is a common property to the derivations in (23) and (3), they can be related naturally. Can we find such a property?

It is widely assumed that the OP movement is driven in order to form an operator-variable chain and satisfy Full Interpretation at LF. However, at least for tough constructions, there is no reason to form an operator-variable chain since the operator is not required to take scope at LF. As Lasnik and Stowell (1991) point out, the operator is semantically nonquantificational, and therefore the trace of the OP movement is not a true variable. Most of the arguments for the OP movement in PE come from the parallelisms between the gap in tough constructions and the trace left behind by A'-movement. These properties are explained by the constraints on the derivation (i.e. Minimal Link Condition (MLC, henceforth) and others).

5 As for the concrete mechanism generally working in the identification of the OP/(NP) (Note that the identification of the OP is one of general issues concerning OP constructions (e.g. Parasitic Gap constructions, infinitival relatives, and so on.)), there seems to be little agreement, although a number of studies have been made on it (cf. Browning (1987)). The only one thing that is commonly assumed is that there should be some kind of local relation between the OP and the antecedent. The (NP) movement illustrated in (23) satisfies this requirement in that the operation that relates the antecedents to the (NP) satisfies Phase-Impenetrability Condition (cf. Nakagawa (2000)).
If the above analysis is correct, we must find another trigger for the movement. Nakagawa (2000) claims that some kind of locality is necessary to identify the reference of the OP. This intuition accords with Chomsky's (1998: 22) Phase-Impenetrability Condition (PIC, henceforth):

(24) In phase α with head H, the domain of H is not accessible to operations outside α, but only H and its edge.

(25) A phase is CP or vP, but not TP or a verbal phrase headed by H lacking φ-features ... (Chomsky (1998: 20))

Let us assume here that the identification of the OP/(NP) is a sort of operation, then the movements illustrated in (23) and (3) have a common driving force. Following PIC, the OP/(NP) must be in the uppermost [Spec, CP]/[Spec, vP] of the infinitival clauses. Given the cyclicity of derivation, the OP/(NP) must be attracted before the merge of the infinitival clause and the matrix clause. This accounts for the overtness of the OP/(NP) movement.

Now, the two types of movements (A/A'-movement) have a common property, but it is true that the vP analysis of OE tough constructions presented in the previous subsection is considerably different from the traditional analysis of PE infinitival clauses in the following aspects:

(26) a. PRO is in [Spec, vP]
    b. to is cliticized on to the infinitive in v.

In the following sections, we will examine the adequacy of the assumptions in (26) in terms of the general properties of OE infinitival clauses.

4. Subject of the Infinitive

4.1. Arguments for the External Argument

As is well known, the lexical subject (or the trace of the subject) cannot appear in OE infinitival clauses. In this section, I will argue that this is a consequence of the existence of PRO in [Spec, vP].

Before moving to the detailed examination of our analysis, let us briefly reconsider a competing analysis of the lack of the lexical subject, which stipulates that the OE infinitive assigns no external θ-role, because the to-infinitive was originally nominal. As is shown in (18b), Fischer (1991) has this line of thinking.

This analysis will face a serious theoretical problem. The lack of the external θ-role yields a violation of the principle known as “Burzio’s Generalization.”
(27) A verb that governs an NP Case-marks this NP structurally iff the verb has an external argument.  
(Webelhuth (1995: 44))

If the OE infinitive generally lacks the external \( \theta \)-role, the principle in (27) predicts that the infinitive with the lexical object is generally ruled out in OE, in the same way as (28):

(28) *It was widely believed the rumor.  
(iibid.: 42)

The main verb in (28) is a passive participle. Therefore, it does not have an external \( \theta \)-role, but assign Case to the italicized NP and induce a violation of (27). By the same way of thinking, the general unavailability of control constructions (see (29)) is predicted in OE, as far as we assume that the OE infinitive assign no external \( \theta \)-role.

(29) John tried to give Mary a book.

However, control infinitives with the Case marked object are attested in OE, contrary to the prediction (see (17)).

One might argue that the external \( \theta \)-role is absorbed only in OE tough constructions. However it is difficult to prove this assumption. Furthermore, this analysis induces the possibility of deriving OE tough constructions in the same way as passives. As we have seen in 2.2, this possibility is denied by Fischer (1991) herself.

The above discussion leads us to assume that the OE infinitive has an external \( \theta \)-role unless it lacks the external \( \theta \)-role inherently (e.g. beon).

Unfortunately, it is very difficult to find direct arguments for the analysis presupposing the external \( \theta \)-role of the infinitive, but we can indirectly deduce it from three facts.

We begin by reconsidering the fact that the agentive PP does not appear in OE to-infinitival clauses. As we saw in 2.2, OE counterparts of (13), repeated here as (30), are not attested in OE.

(30) *to please by John

This fact shows that active to-infinitives that are semantically passive are not derived in the same way as passive infinitives. As we saw in section 2.2, this does not mean that the semantically-passive infinitival clause never includes an agent argument. The Dutch sentence in (14) proves that the semantically-passive infinitival clause can include an agent argument. The fact that the infinitival clause as in (14) cannot be found in OE implies that the agent role cannot be assigned by the agentive PP. Thus, the only possible candidate for the assigner of the agentive role is the infinitive itself.
Furthermore, the fact that the OE *to*-infinitival clause can be realized in a position where a tensed clause also occurs (see (20) and (21)) suggests the possibility that the OE infinitival clause has a full argument structure.

The sentence in (16) indicates that *tough* constructions are a subset of object-control constructions. According to Fischer et al. (2000: 226), after object-control verbs, the *past*-clause is far more usual than the infinitival complement. This fact also supports the analysis presupposing the infinitival clause with a full argument structure.

The above arguments are not enough to prove the existence of an external argument in the infinitival clause, but lead us to suppose an external argument for the OE infinitive.

If the OE infinitive has an external *θ*-role, a generalization known as "the Visibility Condition" requires that some syntactic element must be generated as the subject of the infinitive.

(31) A chain is visible for *θ*-marking if it contains a Case position. 
(Chomsky and Lasnik (1995: 119))

Furthermore, adopting the checking theory of the *θ*-role and the phase-based derivation, we should assume a syntactic position for the non-lexical subject in infinitival clauses.

Hornstein (1999: 78) considers *θ*-roles as feature-like elements, and adopts the following assumptions:

(32) a. *θ*-roles are features on verbs.

b. A D/NP "receives" a *θ*-role by checking a *θ*-feature of a verbal/predicative phrase that it merges with.
Some potential advantages of these assumptions for the spirit of Minimalist Program are briefly discussed in Nakagawa (2000). Adopting (32) implies that the checking of the *θ*-role is an operation, which is subject to PIC. PIC requires the *θ*-role of the infinitive to be checked within the infinitival clause. Let us now reconsider the sentence in (16), repeated here as (33):

(33) δis me is hefi to donne

In (33), *me* is interpreted as the subject of the infinitival clause, and therefore the external *θ*-role of the infinitive should be checked off by *me*. However, *me* is Case-assigned by the matrix adjective. This means that *me* is not in the infinitival clause. PIC prohibits *me* from checking off the external *θ*-role of the infinitive.

The above consideration leads us to assume some kind of external argument in OE *to*-infinitival clause. In the last ten years, several arti-
cles have been devoted to the study of the realization of the external argument (cf. Kageyama (1992), Tanaka (1994)). In this paper, I argue that the non-lexical external argument (i.e. PRO) checks the external \( \theta \)-role of the infinitive and refers to an element outside the phase.

To sum up, we have some theoretical reasons to assume PRO in \([\text{Spec, vP}]\) of the OE infinitival clause. Assuming that infinitival clauses have essentially the same structure as finite clauses enables us to treat propositional complements uniformly as verbal phrases with full argument structure. We are now going to examine the empirical adequacy of our analysis in terms of the general properties concerning the subject.

4.2. Realization of the External Argument

4.2.1. To as an External Argument

Before discussing the consequences of our analysis, let us now briefly review two previous analyses of the lack of the subject in the OE infinitival clause.

Kageyama (1992) argues that the appearance of the lexical subject depends on the existence of to: the lexical subject can appear only in bare-infinitival constructions. According to Kageyama (1992), the ECM construction after "believe-type" verbs can occur only when the infinitival clause is headed by bare infinitive.

(34) Ic hæbbe afandod ðe habban gode geferan.
    I have found thee have good comrades
    'I have found thee to have good comrades'

However, Fischer (1996: 126ff.) claims that the lexical subject cannot appear in "believe-type" constructions, regardless of the presence/absence of to. According to Fischer, all of Kageyama's examples are slavish translations from Latin. She gives two examples of ECM constructions with to from Latin-based sources. (35) is one of them:

(35) ... witende for pi hi to underfonne mede gode
    ... knowing for this them to receive reward good
    '... knowing that for this they will receive a good reward'
    (BenRGL 64.3; Fischer (1996: 127))

If the research of Fischer (1996) is correct, we must conclude that "Old English only allowed the 'lexical subject' construction after physical perception verbs and causatives," and that the presence of to is
irrelevant to the absorption of the external $\theta$-role. The fact that to also occurs with a verb like beon in OE also supports Fischer’s argument:

\begin{equation}
\text{(36) He tiolað ungelic to bionne þæm oðrum}
\text{He tries unlike to be the others}
\text{‘He tries to be unlike the others’}
\end{equation}

(Bo. 39.135.4; Fischer (1996: 128))

Fischer, citing Beukema and Van der Wurff (1993), claims that beon cannot be assumed to have an external $\theta$-role, and that there is therefore no reason for the claim that to absorbs the external $\theta$-role.

4.2.2. Infinitival Ending as an External Argument

Another promising approach to the lack of the lexical subject is proposed by Tanaka (1994). He assumes that OE to-infinitives were headed by the preposition to as in (37), and that the infinitival morpheme (-an) functions as an external argument if and only if it is Case-marked.

\begin{equation}
\begin{array}{l}
\text{(37) PP} \\
\text{P AGRP} \\
\text{|} \\
\text{to AGR VP} \\
\text{|} \\
\text{-enne ...}
\end{array}
\end{equation}

Given the above assumptions, the impossibility of realizing lexical subjects in OE to-infinitival clauses can be explained in the following way:

Since to was a preposition in OE, it assigned dative Case to the infinitival morpheme (which was sometimes manifested as -en, as well as -enne; ...). Moreover, this Case assignment was obligatory, in view of the fact that the following verb always appeared with dative case-marking on it. Therefore, the infinitival morpheme (-enne) always functioned as the external argument in OE to-infinitives ... It thus follows that the external argument of a to-infinitive in OE was realized neither as a lexical NP nor as an empty category in [Spec, PP].

(Tanaka (1994: 94))

We can realize that the analysis of Tanaka (1994) inherits the problem pointed out by Fischer (1996) from Kageyama (1992), because it expects that the lexical subject cannot appear in OE to-infinitival
4.2.3. PRO as an External Argument

It will take a long time to decide the reliability of the statement in (38):

(38) A lexical subject cannot appear in to-infinitival clauses in OE.

At this point, it seems to me that we should not directly (and theoretically) relate the lack of lexical subject to the appearance of to. However, we agree that it is rare to find a co-occurrence of to and a lexical subject, and maintain (38) as a descriptive generalization. The analysis of this paper exemplified in (23) indicates that the lack of the lexical subject is not directly related to the appearance of to, but indirectly related to it: the lack of lexical subject in OE to-infinitival clauses is directly related to the lack of a functional category TENSE, and the incompatibility of to and the lexical subject is reduced to to’s inability to appear in TENSE.

In the following three subsections, let us examine more closely some empirical consequences of our analysis.

4.3. Overt Subject

As we saw in the previous subsection, we can maintain (38) as a trend in OE. Interestingly enough, the phenomenon described in (38) can be seen in other Germanic Languages such as German and Dutch. Consider the following sentences, which are acceptable in English and German/Dutch:

(39) a. It is bad for you to smoke.
    b. Es ist ungesund für dich zu rauchen.
    c. Het is slecht voor je om te roken.

(Fischer et al. (2000: 215))

Here the phrase for you/für dich/voor je functions as a prepositional phrase, which receives its thematic role from the adjectival matrix predicate is bad/ist ungesund/is slecht. OE also has the benefactive constructions as in (39), but with the benefactive role expressed by the dative Case:

(40) Hit is swiðe earfoðe æninum [DAT] to ðeowienne twam hlafordum
    ‘It is very difficult for-anyone to serve two lords’

(ÆAdmon 1.2.46; Fischer et al. (2000: 216))
Fischer et al. (2000: 215) propose the structure of (39a–c) as follows:

(41) \[\text{AP bad/ungesund/slecht} \ [\text{PP for you/für dich/voor je}] \ [\text{CP PRO to smoke/zur rauchen/om te roken}]\]

The OE sentence in (40) has almost the same structure.

What we must notice here is that sentences like (42), which have the same surface strings as those of (39), only occur in PE.

(42) a. It is intolerable for John to get away with this.
   b. *Es ist inakzeptabel für Johann ungeschoren davon zu kommen.
   c. *Het is onverdraaglijk voor Jan om hieronder uit te komen.

According to Fischer et al. (2000: 215), in (42a) for cannot be interpreted as a preposition because the lexical entry of intolerable does not allow for a benefactive role. Rather, the NP John functions as the subject of the infinitival clause. The structure of (42a), then, would be as given in (43):

(43) \[\text{AP intolerable} \ [\text{CP for [IP John to get away with this]]}\]

The data illustrated in (42) show that the infinitival clause allows a lexical subject in PE, but the to-infinitival clause in German/Dutch never allows it. The OE to-infinitive also rejects the lexical subject.

In German and Dutch, a dass/dat-clause as in (44) would be necessary to express the same meaning since, unlike for, the prepositions für and voor did not develop into complementizers.

(44) a. Es ist inakzeptabel, dass Johann ungeschoren davon kommt.
   b. Het is onverdraaglijk dat Jan hieronder uit zou kunnen komen.

(45) exhibits an example of OE counterparts to the sentences in (44).

(45) It is gecyndelic þæt ealle eorðlice lichaman beoð fulran on it is natural that all earthly bodies are fuller on weaxendum monan þonne on wanigendum waxing moon than on waning

‘It is natural for all earthly bodies to be fuller under a waxing moon than a waning moon’ (Ætemp 8.13; ibid.: 216)

In (45), the adjectival predicate is followed by the þæt-clause.

The contrast between (42b, c) and (44), which also appears in OE, suggests that the structure of infinitival clauses in these languages is not the same as that of tensed clauses: the structure of infinitival clauses is defective in that it has no place where the lexical subject is licensed.
The structure in (23) reflects the above observation.\(^6\)

### 4.4. Traces

Even more problematic is that the structure in (23) might allow the ECM constructions as in (46).

(46) She believed the event to be of minor importance.  

(47) She \[vP \text{believed} \[vP \text{the event} \[v' \text{to be of minor importance}\]]\]  

If the ECM subject is supposed to remain in \([\text{Spec, TP}]\) of the infinitival clause, constructions as in (46) can be ruled out in the same way as other OE infinitival clauses with lexical subjects. However, in OE, the ECM subject is attracted to \([\text{Spec, vP}]\) of the matrix clause in order to check off the strong Case feature of the matrix verb. This might imply that the ECM subject can be attracted directly from \([\text{Spec, vP}]\) of the infinitival clause. In that case, sentences as in (46) can be derived, even if we do not assume the TP projection. Consider the derivation of (46) with the infinitival structure in (23).

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\(^6\) The data presented in this subsection indicate that Germanic languages such as Dutch and German have the phrase structure in (23). This seems a desirable simplification. However, before we conclude, we must reconsider the difference between OE and other Germanic languages concerning the realization of agentive PP (see (14)). I leave this problem for future research.

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TPs, Van Gelderen argues that the complement clause of the believe-type verb is a CP in Dutch and OE and this makes it impossible for the ECM subject to get Case from the matrix verb.

However, Van Gelderen’s analysis cannot predict the impossibility of the “subject-relation” infinitival relatives in OE.

(49) a. a man to do the job
   b. many years to come (Tanaka (1997: 321))

In the examples in (49), the antecedents are interpreted as the subjects of the infinitival relatives. As Tanaka (1997: 334ff.) points out, the lack of the subject-relation infinitival relative “seems to be a mystery, because subject-relation finite relatives such as (32) [our (50)] and object-relation infinitival relatives such as (33) [our (51)] were possible in OE.”

(50) ... sealde þæm munucum corn genog þe wæron æt
   gave those monks corn enough that were at
   Hierusalem
   Jerusalem
   ‘... gave enough corn to the monks that were in Jerusalem’
   (Or. 6, 4, 260, 9; Traugott (1992: 226); Tanaka (1997: 334-335))

(51) Íc hæbbe ðone mete to etanne ...
   I have the food to eat
   ‘I have food to eat’
   (J. 4, 32; Callaway (1913: 180); ibid.: 335)

Van Gelderen’s (1993) analysis predicts that the subject of the infinitival clause can be relativized, because the relative operator can be attracted from [Spec, vP] to [Spec, CP]. Note that the subjective Case can be licensed in [Spec, vP] in the framework of Van Gelderen (1993).

(52) a man [CP OPi [vP ti to do the job]]

We are now in a position to rule out the existence of the trace in [Spec, vP]. Let us consider in detail the existence of PRO in [Spec, vP]. In the GB framework, PRO is restricted to ungoverned positions. In contrast, the trace must be subject to Empty Category Principle (ECP, henceforth):

(53) A trace of movement must be properly governed.

This analysis has a very important consequence in (54):

(54) The trace cannot appear in the place where PRO can appear.

It is very difficult to derive the consequence in (54) in the MP
framework, since the MP framework dispenses with the notion "government." However, this consequence is proved in a variety of areas, and therefore we should maintain (54). The generalization in (54), interacting with the structure in (23) rules out the possibility of ECM constructions and subject-relation infinitival relatives in OE, because NP-movement to the Spec of the matrix verb and null operator attraction leave traces, which violate the condition in (54).7

The unavailability of subject-raising constructions in OE also supports the above analysis.

(55) Daniel seems to have full control of the matter.

(Fischer et al. (2000: 213))

According to Fischer et al. (2000: 212ff.), subject-raising constructions as in (55) came to appear in Middle English (ME, henceforth).

ECM constructions as shown in (46) are found from about the 14th century onwards (see Tanaka (1997), Van Gelderen (1993)).

(56) I beleeueuerlasting liif to be or to come

'I believe everlasting life to be or to come.'

(Pecock Donet 104, 7; Visser (1973: 2309); Tanaka (1997: 330))

Before ending this section, I would like to discuss briefly another possibility to solve the problems concerning the subject of the infinitival

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7 If we adopt the GB framework and the traditional definition of proper government as in (i), they will induce a serious theoretical problem: we will expect that the trace can appear in [Spec, vP], because [Spec, vP] is the edge of the vP-phase.

(i) A trace of movement is properly governed iff
   a. it is antecedent-governed, or
   b. it is lexically governed.

Since [Spec, vP] can be governed by the matrix predicate, the trace can appear there. In other words, we must assume that PRO may be governed.

There has been heated controversy over the definition of proper government. What is important for our discussion is that no matter what kind of definition of proper government we adopt, it must expect that the trace cannot appear where PRO can appear. At this point, I'd like to stress that the assumption that PRO must be ungoverned is a consequence of adopting the GB framework: PRO, which is [+anaphor, +pronominal], cannot be subject to either Binding Principle A or B, and therefore must not be governed.

This means that we need another kind of definition of PRO in the framework of MP, which dispenses with "government." In this paper, I will not present a concrete definition of PRO, but argue that the obligatoriness of PRO is related to the lack of the TP projection in the infinitival clause.
clause in OE. One might argue that the understood subject of the infinitive is inferred in semantics. This kind of analysis expects the structure of the infinitival clause to be (57):

$$\text{(57)} \quad [vP \ v [vP \ V \ NP(obj)]]$$

In (57), the external argument is implicit. As we saw in 4.1, this analysis has a theoretical problem concerning the Visibility Condition. And now we can point out that this analysis has an empirical difficulty concerning the subject to be inferred: it is difficult to determine whether a subject can be inferred or not, in terms of semantic properties. Especially, the impossibility of the subject-related infinitives in OE does not seem to depend on semantic properties of the subject and others, since the subject-related infinitival relatives are possible in PE. Therefore, unless the interpretation of the subject is always arbitrary/generic, we should not assume a subject-less structure as in (57).

To sum up, the lack of the subject trace in OE infinitival clauses can be explained by the assumption that PRO must be in [Spec, vP] of the infinitival clause. The analysis assuming only that the structure of OE infinitival clauses does not have a TP-node cannot account for the impossibility of subject-relation infinitival relatives and ECM constructions, since it allows the movement of the subject/the OP to Spec of the matrix vP. Of course, the above discussion leaves a more substantial problem: why PRO must be in [Spec, vP], but not [Spec, TP]. We will return to this problem in the next section.

4.5. PRO in [Spec, vP]

The discussion in the previous section is based on the hypothesis that PRO must be in [Spec, vP] of the infinitival clause. However, traditionally, PRO is positioned in [Spec, TP], and Null Case is checked in the specifier position of T.

Let us turn now to conceptual grounds for assuming that PRO is in [Spec, vP]. Under the vP internal subject hypothesis (see Chomsky (1995)), any kind of subject is generated in [Spec, vP], but v cannot license subjective Case in the normal case. Then, the subject must be licensed by T. In the bare-vP structure, vP does not merge with T, and therefore, the subjective Case cannot be licensed. This implies that the subject cannot be lexicalized in the bare-vP structure. However, if there is not any syntactic element in [Spec, vP], this induces a violation of the Visibility Condition. Therefore, I propose that the subject not governed by T must be assigned Null Case by
default. Apart from the question whether the Spec of v is an un-
governed position or not, PRO is introduced as a sort of “default sub-
ject,” which appears where the lexical subject cannot appear. In other 
words, PRO as a default subject is available when the feature to be 
checked is a $\theta$-role only.

A similar analysis concerning PE has already been proposed by Bal-
tin (1995). Let us review some of his arguments. Consider first the 
contrast in (58):

(58) a. I persuaded the men all to resign.
    b. *The men promised me all to resign. (Baltin (1995: 222))

Object-control constructions (see (58a)) permit floating quantifiers to 
immediately precede the infinitival marker to, but subject-control con-
structions (see (58b)) do not. If the floating quantifier follows the in-
finitive marker, the sentence in (58b) becomes fully acceptable.

(59) The men promised me to all resign. (ibid.)

According to Baltin (1995), the contrast between (58a) and (58b), and 
the contrast between (58b) and (59) have a natural explanation, based 
on the assumption that PRO is base-generated in [Spec, vP] and 
licensed there. Baltin (1995: 223) presupposes that the structure of 
(58b) is as follows:

(60) [TP the men ... [vP promise me [CP [TP all [T' to [vP PRO [v
    resign]]]]]]]

Baltin assumes that floating quantifiers are restricted to the specifier 
position of predicates. What is crucial in distinguishing between gram-
matical and ungrammatical sentences is the definition of the predicate. 
Baltin (1995: 217), adapting Williams’ (1980) proposal, supposes that 
the predicate must c-command the subject, as well as the subject’s c-
commanding the predicate. In (60), the subject the men c-commands 
T’ headed by to, but the T’ cannot c-command the subject. There-
fore, the TP projection cannot serve as a predicate and the floating 
quantifier all is ruled out. In contrast, in (58a), a mutual c-command 
relation is established between the object and the infinitival clause, and 
the floating quantifier is licensed. (The precise description of the 
structure of the object-control construction is not given in Baltin 
(1995), and we suppose the controller should be in the place of me in 
(60). Then, we should consider the CP projection as a predicate.)

As I mentioned earlier, the above discussion is based on the assump-
tion that PRO remains in [Spec, vP] (at least in overt syntax). The 
position of the floating quantifier in (59) directly supports this assump-
tion, because the floating quantifier in (59) can be licensed only if PRO and the infinitive’s v’ are in a mutual c-command relation in the infinitival TP.

Next, consider the data in (61) and (62):

(61) a. I want PRO to visit Sally.
    b. I wanna visit Sally.

(62) a. Who do you want t to visit Sally?
    b. *Who do you wanna t visit Sally? (Baltin (1995: 244))

Wanna-contraction is not blocked by a PRO subject, whereas it is blocked by an A’-trace that intervenes. If the PRO in (61a) and the A’-trace in (62a) occupy the same position, the difference illustrated in (62) is mysterious. However, under Baltin’s (1995) analysis of PRO, PRO does not intervene between want and to. According to his analysis, (61a) have the following structure, which is borrowed from Radford (1997: 155).

(63) \[ TP I [T T [VP want [IP to [VP PRO [v' help you]]]]] \]

Since no category is intervening between want and to, to can be cliticized onto want. In contrast, in (62b), the A’-trace is intervening:

(64) \[ CP Who do [IP you [I' I [VP want [IP t [I' to [VP visit Sally]]]]]] \]

Therefore, we can expect the unacceptability of (62b).

Under the analysis that PRO is positioned in [Spec, VP], the problem raised by the data in (61) and (62) disappears. If this analysis is on the right track, we may go on to the assumption that PRO in OE can originate in [Spec, vP] and remain there in overt syntax.

What is interesting for us is that Baltin (1995: 241ff.) is pursuing the idea that there may in fact be two notions of Case to be distinguished. One is relevant to the requirement for a DP to be visible for θ-marking, and called “[-actualized] Case.” The other is relevant to Case filter that requires the lexical DP to be morphologically licensed and therefore, rules out any lexical DP that lacks Case. Baltin calls the second type “[+actualized] Case.” From the perspective of our analysis, [-actualized] subjective Case is assigned by v and [+actualized]
subjective Case is assigned by T. If this analysis is on the right track, we can explain the lack of the lexical subject in OE infinitival clauses in terms of the lack of the TP projection, because the [+actualized] Case feature of the lexical NP cannot be checked off by v. A difference between OE and PE is that [-actualized] Case must be checked by PRO in OE infinitival clauses since the OE infinitival clause has no TENSE-node, and therefore there is no other Case to be checked off. On the contrary, [-actualized] Case can be checked by PRO or the lexical subject in PE, because the infinitival clause in PE has TP projection and [+actualized] Case can be checked off by the lexical subject. When the lexical subject checks off [+actualized] Case in [Spec, TP], it can also check off [-actualized] Case in [Spec, vP]. Hence, PE allows the subject-relation infinitival relative, in which the subject of the infinitive is base-generated in [Spec, vP] where [-actualized] Case is checked off and then attracted to [Spec, TP] in order to check off [+actualized] Case. In contrast, OE does not allow the subject-relation infinitival relative, because the relative operator cannot have [+actualized] Case feature. This difference seems to be natural, if we take it into account that the structural Case system is not developed enough in OE.

Of course, further considerations are needed to explain the lack of ECM constructions in terms of [+actualized] Case: there is a possibility that the subject of the infinitive is base-generated in [Spec, vP] where [-actualized] Case is checked off, and then attracted to [Spec, TP] of the matrix verb in order to check off [+actualized] Case. We must tentatively assume here as follows:

(65) The subject in [Spec, vP] must be assigned Null Case iff vP does not merge with T.

There are some other problems in Baltin's analysis. For example, Baltin's analysis of PE must allow PRO and DP-trace to appear in the same environments (i.e. [Spec, vP]). To discuss the technical details of PRO licensing in PE within the framework of Baltin (1995) is beyond the scope of this paper. However, what is important for us is that Baltin's analysis suggests the possibility of placing PRO in [Spec, vP] for the purpose of checking a $\theta$-role. At least under the vP analysis of OE infinitival clauses, the base-generated subject in [Spec, vP] must be licensed by the subjective $\theta$-role only, and therefore, no element other than PRO cannot appear there.

To sum up, the lack of the lexical subject and the subject trace supports the vP analysis of OE infinitival clauses that assumes that PRO
must appear in [Spec vP]. Now I’d like to stress again that this analysis is strongly supported by OE tough constructions. The movement of the null element in OE is different from that in PE. The former involves an A-movement and the latter involves A’-movements. However, they are driven by the requirements of PIC. This makes it easier to explain the historical reanalysis of the derivation of OE tough constructions, which apparently seems drastic, because it is natural for identification to require locality regardless of the period. In the next section, we will examine the vP analysis in terms of the position of to and the infinitive.

5. Position of To in OE

5.1. OV Order in Infinitival Clauses

One of the remaining problems of our analysis of the infinitival clause in OE is concerning the assumption that to is cliticized onto the bare infinitive in v. In this section, we will examine the adequacy of this analysis in terms of some general properties of infinitival clauses in OE.

There have been a number of debates heating up on the phrase structure in SOV languages such as Dutch, German, and OE. In this paper, I assume that OE has the following “Infl-initial” phrase structure:

(66) [TP DP [T T [vP DP [v v VP]]]]

For advantages of assuming Infl-initial phrase structure in SOV languages, see Zwart (1993), Pintzuk (1999). If this analysis is on the right track, we cannot derive the OV word order in infinitival clauses, as far as we assume that the to infinitive occupies T. Consider the following sentence.

(67) Moyses forbead swyn to etenne (=17))

In (67), if the to infinitive to etenne occupies T, the object swyn must be in [Spec, TP]. However, it cannot be licensed there. To derive the OV order in infinitival clauses, to infinitive must be in v. Then, the object can be licensed in [Spec, vP].

5.2. Split Infinitives

Next, let us consider the assumption that to is cliticized onto the bare infinitive. Tanaka (1997), citing Kageyama (1992), claims that split infinitives as in (68b) were impossible in OE.
In OE, no element can appear between to and the following infinitive. In the framework of this paper, we can account for this fact, because to is cliticized onto the infinitive, and therefore they behave like a word. Van Gelderen points out that “real” split infinitives start to occur around 1380, and occur frequently around 1400. The appearance of split infinitives implies that the to is independent from T, and therefore, the infinitival clause was reanalyzed as a TP (or CP) in ME.

5.3. Pro-Infinitives

It is also impossible in OE to delete the VP-complement of to. Van Gelderen (1993: 42) argues that pro infinitives came to appear in ME:

(69) Executur þat wyl nat do As pe dede ordeyned to,
     ‘(An) executor that will not do as (he) was ordained to.’
     (Manning Handl. Synne 6367–8; Van Gelderen (1993: 42))

The fact that OE has no pro-infinitive means that to is not independent from the bare infinitive. This also supports the structure in (23), in which to is cliticized onto the bare infinitive.

To sum up this section, the vP analysis that places to in v is supported by the OV word order, split infinitives, and pro-infinitives.

6. Middle English

6.1. From A-movement to A’-movement

In ME, we can see some constructions, which cannot be seen in OE:

(70) a. infinitival clauses with lexical subjects
    b. ECM constructions
    c. subject-relation infinitival relatives
    d. split infinitives
    e. pro-infinitives

The appearances of these constructions suggest the introduction of a functional category to the left of vP, and it is standardly assumed that the introduction of a functional category reflects the loss of inflectional ending of the verb. This analysis is widely accepted since the loss of the morphological licensing requires the structural licensing generally. We can then assume a TP structure of infinitival clauses in ME:
(71) John is easy \[[\text{CP OP}} \ [C \ [\text{TP (Subj.)}] \ [T \ [vP \ [v \ [\text{please}] \ [v \ [\text{t}]]]]]]

What I would like to stress here is that the introduction of TP inevitably induces the introduction of CP in the derivation of tough constructions. Let us consider the TP structure that does not merge with C.

(72) John is easy \[[\text{TP (Subj.)}] \ [T \ [\text{to}] \ [\text{vP (NP)}} \ [v \ [\text{please}] \ [v \ [\text{t}]]]]

I leave open the question whether PRO is attracted to [Spec, TP] or not (cf. Baltin (1995)), but T is associated with the subject of the infinitival clause, and therefore, the intervention of TP between the matrix subject and the null NP makes it impossible to associate them. Furthermore it is natural to assume that the null NP (or OP), which must be related to the antecedent in the matrix clause, must be raised to the top-most position of the infinitival clause.\(^9\) In order to license the identity with the matrix subject, then, the null NP must be attracted to the position c-commanding [Spec, TP]. At this stage, the null-NP movement, which used to be an A-movement, had to be replaced by the movement to [Spec, CP], which is an A'-movement. Now I would like to stress again that the transition (originally claimed by Van der Wurff (1990)) from A-movement to A'-movement in the historical development of the derivation of tough constructions, which apparently seems drastic, can be given a principled explanation: the OP-movement to [Spec, CP] was inevitably induced by the emergence of the TP-node.

Around 1400, we can see some changes in the behavior of the infinitival clauses in tough constructions. Above all, the appearances of preposition stranding and the passive infinitive are the major events to be explained. The appearance of preposition stranding is a direct reflection of the wh-movement analysis.

The appearance of passive infinitives is another reflection. The appearance of the T-node means the structural (i.e. [+actualized]) Case of the subject must be licensed and therefore the subject must be in [Spec, TP]. This forced speakers to move the OP into [Spec, TP] on its way to [Spec, CP] in at least some cases.\(^10\) In this respect, our

\(^9\) We therefore assume that the license of the (NP) must satisfy PIC.

\(^10\) ME tough constructions allow both the active infinitive and the passive infinitive. One of the remaining problems is that the passive infinitive cannot be used in
analysis coincides with that of Fischer (1991), which points out that the development of an obligatory subject forced the relation between subject and verb to be primary and induced the appearance of the passive infinitive.

7. Conclusion

In this paper, we have discussed the structure of the infinitival clause in OE and ME, especially in terms of the historical development of tough constructions. In OE, the derivation of tough constructions involves A-movement in the infinitival clause, but does not involve passivization. This indicates that the derivation of OE tough constructions involve the null-NP movement to [Spec, vP]. Moreover, if we assume that the infinitival clause must have PRO subject, a wide range of phenomena that are generally observed in OE infinitival clauses can be given a unified account. In ME, the T-node was introduced, by which the null element base-generated as a complement of the infinitive had to move to [Spec, CP]. This implies that the wh-movement is involved in the derivation in ME. The appearances of the passive infinitive and preposition stranding are consequences of the reanalysis. Apparently, the replacement of NP-movement by wh-movement is drastic, but they have a common trigger, i.e. PIC.

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Nagoya Sangyo University
3255–5 Arai-cho, Owari-Asahi-shi
Aichi 488–8711
e-mail: n.nakagawa@nagoya-su.ac.jp