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Some Aspects of Infinitival Complements in English

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The present paper is to explore some aspects of infinitival complements in English in terms of investigating syntactic properties of *wager*-class infinitives, taking into consideration those of *believe*-class infinitives. We assume that the syntactic properties of infinitives in English reflect the mental or cognitive process of human brain. Based upon Chomsky's (2000, 2001) analysis of the syntactic operation of Agree and the concept of phase, we focus on the syntactic behaviors of the infinitival subjects of these two types of verb-class.[1] We examine the previous studies of *wager*-class verb and *believe*-class verb, distinguishing the syntactic difference between these two classes of verb. In the course of our syntactic analysis of them, we mainly refer critically to the argument provided by Bošković (1997). The difference is associated with different θ-roles which are assigned to matrix subjects. Our syntactic analysis puts forward the fact that *believe*-class verbs permit lexical NPs in the subject position of its infinitival complement, while *wager*-class verbs do not. *Wager*-class verbs are capable of *wh*-extraction, passive-raising and heavy NP shift out of their infinitival complement. Also the expletive *there* could be licensed as an infinitival subject in this class of verb. Our analysis came to offer a piece of evidence favoring the Chomsky's suggestions, which enable us to support the existence of the two VP-shells of *wager*-class infinitivals in contrast to the non-existence of the two VP-shells of *believe*-class infinitivals.

Key Words: *Infinitival Clause, θ-role, ECM, PIC, Case-Licensing, Agent, Experiencer*

1.0 Introduction

The purpose of constructing a grammar is to explain adequately the association between representations of form and those of meaning. Chomsky (1981: 7) claims that in a highly idealized picture of language, UG (Universal Grammar) is taken to be a characterization of the child's pre-linguistic initial state. The rationale of a linguistic theory is to be drawn from the assumption that language faculty in human being is innate and biologically founded. He once summarized the entire linguistic theory in the following schematic procedure which reflects the subcomponents of the rule system of language:

(1) (i) lexicon
 (ii) syntax
  (a) categorial component
  (b) transformational component
 (iii) PF-component
 (iv) LF-component

Lexicon implies the list of stored knowledge of lexical items in our brain. These are mapped to surface structure by the transformational rule Move-α (i.e. the antecedent-trace relations). The categorial component is represented with the configurational frame of X-bar theory. The transformational component works out the rule which transforms D-structure into S-structure.

The configurational scheme of X-bar is considered to represent the categorial properties of language which consist of Spec (specifier), the core category X and Comp (complement). XP potentially stands for the phrasal set of NP, VP, AP and PP. X' is an intermediate subphrase between XP and the core category of X.

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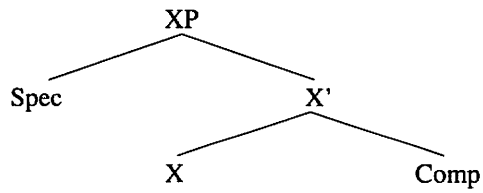
The configurational process in this description is to be represented as follows:



Spec in the above is a node of NP in Inflectional Phrase (IP) and Comp implies the syntactic properties of complementizer such as *that* clause, *for-to* infinitive and gerundive phrase. X implies the main categories of N (noun), V (verb), A (adjective), P (preposition) and also I (inflection) and C (complement). Inflectional Phrase (IP) undertakes the syntactic property of tense and Complement Phrase (CP) works out to be an infinitival phrase.

In our analysis we will take advantage of the above configurational frame in so far as both the *wager*-type verb and the *believe*-type verb are to be described in the configurational frame of the above. In particular, we will analyze the behaviors of their infinitival subjects using the above frame. According to the Chomsky's (2000, 2001) suggestion that a syntactic structure is built up by phase, we argue that we can account for the syntactic structure of *wager*-class verbs' infinitival complements.

Chapter one is an introduction of this paper. We will introduce in chapter two some characteristics of infinitival *to* complements and the definition of exceptional case-marking construction.

In chapter three, we will introduce the definition of *believe*-class verbs and *wager*-class verbs. Then we will show some characteristics of the infinitival complements of *believe*-class verbs and *wager*-class verbs and clarify the similarities and differences of their syntactic behavior.

In chapter four, we will examine the theories of infinitival complements of *believe*-class verbs and *wager*-class verbs, which have been proposed by a number of linguists. In particular, we will outline the argument by Bošković (1997) and point out the problems, which lead us to reconsider the syntactic properties of *believe*-class verbs and *wager*-class verbs.

In chapter five, we will clarify the difference of syntactic properties between *wager*-class verbs and *believe*-class verbs which is associated with different θ-roles assigned to matrix subjects (*wager*-class verbs; Agent, *believe*-class verbs; Experiencer) and thereby analyze their syntactic structures. Their differences make clear to us the reason why *believe*-class verbs allow lexical NPs in the subject positions of their infinitival complement, while *wager*-class verbs disallow them. Finally, chapter six will be a conclusion of this thesis.

2.0 Characteristics of Infinitival *to* Complements

An infinitival complement is a clause which contains a verb in the infinitive form. We can consider *believe*-class infinitivals as in (2a) and *want*-class infinitivals as in (2b) to be representative infinitival complements.

(2) a. They believe [him to be innocent].
b. She wanted [John to apologize].

A complement clause in (2a) is exceptional in that the verb is in a different clause from the subject which it assigns accusative case to, in so far as the subject in the complement clause is also the object of the whole matrix sentence. For this reason, such clause is known as exceptional case-marking clause (i.e. ECM clause); and verbs (like *believe*) when used with an ECM clause as their complement are known as ECM verbs. In general ECM clauses are assumed to be IP because they cannot occur in focus position in a pseudo-cleft sentence as in (3a) and the subject of the complement clause can be passivised as in (3b).

(3) a. *What they believe is [*him* to be innocent].
b. *He* is believed to be innocent.

However, the subject of complement clause in (2b) occurs in focus position in a pseudo-cleft sentence as in (4a) and the subject of the complement clause cannot be passivised as in (4b).

(4) a. What she really wanted was [for John to apologize].
b. *John was wanted to apologize.

Thus the complement clause as in (2b) is assumed to be CP because CP can occur in focus position in pseudo-cleft sentence and the subject of an infinitival CP cannot be passivised. It follows from this that the complement clauses as in (2a) and (2b) are different kinds of clause from each other although they seem to have the same constructions.

3.0 Exceptional Case-Marking Construction

An ECM construction has recently become a hot topic largely for the light it promises to shed on the general linguistic trend of minimalist approach to grammar. In an ECM construction such as (5), in general, the verb *prove* was assumed to assign accusative Case to the Spec of its complement.

(5) John proved [$_{IP}$ Mary to be innocent]. (Bošković 1997: 2)

That is, *believe*-class verbs, i.e. typical ECM verbs, are assumed to assign accusative Case to subjects of infinitival clauses and thus lexical NPs, pronouns, expletives like *there* are licensed as infinitival subjects of *believe*-class verbs as illustrated in (5) and (6).

(6) a. John believed him to be crazy. (ibid.: 9)
b. Joan believes there to be trouble in Congo. (Postal 1974: 39)

On the other hand, in the case of *wager*-class verbs (Pesetsky's (1991) term), pronouns and expletives are licensed as infinitival subjects in contrast with lexical NPs as shown in (7).

(7) a. Mary alleged him to have kissed Jane. (Bošković 1997: 58)
b. John wagered there to have been a stranger in that haunted house. (ibid.)
c. *He alleged Melvin to be a pimp. (Postal 1974: 304)

At first sight, one could assume that *wager*-class verbs are similar to *believe*-class verbs. However, they are different in that the former cannot take lexical NPs as their infinitival subject like in (7c) and the latter can be like in (5).

3.1 Definition of *Believe*-class Verbs and Definition of *Wager*-class Verbs

Before we discuss different properties between infinitival complements of *believe*-class verbs and *wager*-class verbs, we would like to introduce definitions of *believe*-class verbs and of *wager*-class verbs. In general, *believe*-class verbs and *wager*-class verbs are characterized by different meanings. Thus we define them as follows:

(8) a. *believe*-class verbs…verbs that represent a thought and a recognition
(e.g. assume, believe, conceive, consider, expect, prove, etc.)
b. *wager*-class verbs…verbs that represent manners and intents of utterance
(e.g. affirm, announce, allege, guarantee, declare, wager, etc.)[2]

We deal here with some representative *believe*-class verbs and *wager*-class verbs, such as *believe, allege* and *wager.*

3.2 Some Characteristics of Infinitival Complements of *Believe*-class Verbs and *Wager*-class Verbs

The infinitival complements of *believe*-class verbs and *wager*-class verbs listed above share certain syntactic properties which we can summarize as follows, while exhibiting some differences:

< similar properties >

(9) Their infinitival complements are interpreted as a proposition because truth or falsehood can be predicted by them.
   a. John believed Peter to have played football, which was truth. (Bošković 1997: 13)
   b. Mary was announced to have left the room, which was true. (Pesetsky 1991: 144)

(10) They disallow PRO in their infinitival subject positions.
   a. *John believed PRO to be crazy. (Bošković 1997: 9)
   b. *John announced PRO to have entered the room. (Pesetsky 1991: 167)

(11) They allow the expletive *there* in their infinitival subject positions.[3]
   a. John believes there to be trouble in Congo. (Postal 1974: 39)
   b. He alleged there to be stolen documents in the drawer. (ibid.: 304)

(12) They allow pronouns, such as *him*, in their infinitival subject positions.
   a. John believed him to be crazy. (Bošković 1997: 9)
   b. Mary alleged him to have kissed Jane. (ibid.: 58)

(13) They allow passive raising from their infinitival complements.
   a. John was believed to be crazy. (Bošković 1997: 51)
   b. Peter was wagered to be crazy. (ibid.: 55)

(14) It is possible to extract *wh*-subject of their infinitival complements.
   a. Who did Mary believe to be crazy? (ibid.: 49)
   b. Who did Peter wager to be crazy? (ibid.: 61)

(15) They permit heavy NP shift of the lexical infinitival subjects.
   a. I believe __ to be intolerant [all those who disagree with my fountain theory of language]. (Postal 1974: 405)
   b. They alleged __ to be pimps [all of the Parisians who the CIA had hired in Nice]. (ibid.: 305)

< different properties >

(16) Lexical NPs are licensed as infinitival subjects of *believe*-class verbs, while they are not licensed if the matrix verbs are members of the *wager*-class verbs.
   a. I believe John to be a liar. (Amano 2000: 27)
   b. *He alleged Melvin to be a pimp. (Postal 1974: 304)

So far we have outlined similar and different syntactic properties between infinitival complements of *believe*-class verbs and *wager*-class verbs. The *believe*-class verbs freely take lexical NPs, pronouns, the expletive *there* as the subjects of their infinitival complement. In addition, syntactic movements like passivization, *wh*-movement, and heavy NP shift are licensed. By contrast, the *wager*-class verbs do not allow lexical NPs as infinitival subjects like in (16b), despite the fact that pronouns and the expletive *there* are licensed as infinitival subjects. Moreover, as noted by Postal (1974), *wager*-class verbs permit syntactic movements of the subject of the infinitival complement like passivization, *wh*-movement, and heavy NP shift, considerably enhancing the grammaticality of an example like (16b).

4.0 A Previous Study of Bošković (1997)

In this chapter, we will discuss Bošković's (1997) hypothesis that is based on the Chomsky's (1993, 1995) early MP, in which he examines syntactic properties of infinitival complements of *believe*-class verbs and *wager*-class verbs. Bošković (1997) provides an economical account of the correlation between agentivity and ECM (i.e. Pesetsky's observation that agentive verbs cannot exceptionally Case-mark lexical NPs). Bošković (1997) develops a theory of agentivity based on Hale and Keyser's (1993) proposal that agentive constructions involve a null agentive V and Bošković's (1994) claim that movement into θ-positions is allowed in certain well-defined configurations. Taking into account Bošković's (1997) hypothesis of agentivity, we acknowledge that he observes that infinitival complements of *believe*-class verbs and *wager*-class verbs have different configurations and thus *wager*-class verbs cannot exceptionally Case-mark lexical NPs, while *believe*-class verbs can. We are apt to discuss these facts in detail. Bošković (1997) also claims that the defining characteristics of the *wager*-class verbs is that they all assign the agent θ-role to their subject; hence *wager*-class verbs are agentive, whereas *believe*-class verbs are not. Thus their structural differences are to be illustrated as follows:

(17) a. *John$_i$ wagered$_j$ [$_{AgroP}$ Peter$_k$ t$_j$ [$_{vagP}$ t'$_i$ t$_j$ [$_{VP}$ t$_i$ t$_j$ [$_{IP}$ t$_k$ to be t$_k$ crazy]]]].

b. John$_i$ believes$_j$ [$_{AgroP}$ Peter$_k$ t$_j$ [$_{VP}$ t$_i$ t$_j$ [$_{IP}$ t$_k$ to be t$_k$ crazy]]].

Bošković (1997) assumes that $V_{ag}P$ which heads 'null agentive V' dominates VP which heads *wager*, and AgroP projection dominates both VP shells as shown in (17a). Infinitival complements of *wager*-class verbs thus have the structure of AgroP-VP-VP order. On the other hand, the agentive VP shell is not projected in the case of *believe*-class verbs, so that in contrast to *wager*-class verbs, it is clear that infinitival complements of *believe*-class verbs have the structure of AgroP-VP order. Thus Bošković (1997) claims that the reason why the example of (17a) is ungrammatical is that the Minimize Chain Links Principle (henceforth MCLP) is violated.[4] Given the structure in (17a), the embedded subject *Peter* must reach the matrix Spec-AgroP in LF to be Case-checked, but that movement leads to skip over two Specs (t'$_i$, t$_i$) intervening between *Peter* and its trace and thus it violates the MCLP. However, the MCLP is not violated in (17b) since the agentive VP shell is not projected with *believe* and its movement to Agro makes the Spec-VP and Spec-AgroP equidistant from the embedded-clause subject position. Here the following definitions are relevant to the notion of equidistance:

(18) a. The domain of a head α (=Dom (α)) is the set of nodes contained in the maximal projection of α that are distinct from and do not contain α.

b. The minimal domain of α (=Min (α)) is the smallest subset K of α, such that for any member of Min (α) some member of K reflexively dominates it

c. α and β equidistant from γ if they are in the same minimal domain.

Thus, in the case of *believe*, *Peter* in the embedded-clause subject position originally can move to the Spec-AgroP position without violating the MCLP.

However, there are some problems in this analysis. First Chomsky (1995) discusses traces of A-movement as follows.

> "…The intermediate trace *t* of an argument cannot be attracted; hence, *t* does not prevent attraction of an element that it c-commands. The argument extends to traces of A-movement generally…" (Chomsky 1995: 301)

According to Chomsky's (1995) suggestion, it should be noted that *John*'s trace t$_i$ is not an intervention of the movement of *Peter* in (17a) because the trace is the intermediate trace of A-movement. On top of that, the analysis of Bošković (1997), which uses an Agr projection, is untenable since the Agr projection exists only to Case-check NPs, and we cannot find a principled reason why this Agr projection exists as Chomsky (1995) argues. Therefore, let us consider *v*P analysis which receives a straightforward account without introducing Agr projection. Taking into account this

projection, we will discuss an alternative analysis, which offers a unified account about the infinitival complement of *wager*-class verbs in the next chapter.

I would like to turn now to Case properties of an associate NP of *there*. Bošković (1997) suggests that the verb *be* is a partitive Case assigner and the associate NP is Case-marked by *be*, following Lasnik (1995). Bošković (1997) accounts for the example (19) by taking into consideration Lasnik's (1995) analysis.

(19) He alleged there to be stolen documents in the drawer.

Note that an indefinite NP, *stolen documents*, in (19) cannot be exceptionally Case-marked in the matrix Spec-AgroP because its movement induces MCLP violations like (17a). Bošković (1997) also argues that in fact, if, as argued by Chomsky (1993), *be* is not a Case assigner, there seems to be no way for the indefinite NP in (19) to be assigned a Case, and the constructions are incorrectly predicted to be strongly ungrammatical. Therefore, Bošković (1997) concludes that, as argued by Lasnik (1995) against Chomsky's (1993) proposal, *be* has the ability to assign Case and thus the associate of *there* is Case-marked.

However, if we consider that the partitive Case exists, as Chomsky (1993) rejects, we must state that the partitive Case is available only in existential constructions.

Finally, Bošković (1997) takes an example like (20) and discusses *wh*-extraction out of *wager*-class infinitivals, which is based on Ura's (1993) analysis.

(20) Who$_i$ did John wager [t_i to be crazy]?

Ura (1993) proposes that, while undergoing *wh*-movement, the *wh*-phrase in (20) adjoins to the matrix AgroP, where it is Case-checked. Furthermore, Kayne (1984) makes an influential proposal that the *wh*-phrase is assigned Case in an Ā-position while undergoing *wh*-movement. This makes the intervention of A-Specs irrelevant in this example; hence, the *wh*-movement cannot be ruled out by MCLP. Then Ura (1993) suggests that, in contrast to *wh*-phrases undergoing *wh*-movement, lexical NPs such as *Peter* in (17a) cannot be Case-checked in the AgroP-adjoined position, and he argues that this follows from economy principles. Let us consider derivations of the *wh*-movement and NP raising as shown in (21).

(21) a. $wh_i \cdots [_{AgroP}\ t'_i\ [_{AgroP}\ Agr\ [_{VP}\ V\ t_i]]] \cdots$
b. $wh_i \cdots [_{AgroP}\ [_{AgroP}\ t'_i\ Agr\ [_{VP}\ V\ t_i]]] \cdots$
c. $\cdots [_{AgroP}\ NP_i\ [_{AgroP}\ Agr\ [_{VP}\ V\ t_i]]] \cdots$
d. $\cdots [_{AgroP}\ [_{AgroP}\ NP_i\ Agr\ [_{VP}\ V\ t_i]]] \cdots$

Ura (1993) notes that, with respect to chain length, the wh_i-t_i chain of (21a), where the *wh*-phrase is Case-checked in the AgroP-adjoined position, and (21b), where the *wh*-phrase is Case-checked in Spec-AgroP, are equivalent. The t'_i-t_i chain link in (21a) is longer than the t'_i-t_i chain link in (21b), but the wh_i-t'_i chain link in (21b) is longer than the corresponding chain link in (21a). Bošković (1997) argues that since the wh_i-t_i chains of (21a) and (21b) are equivalent with respect to chain length, both derivations in (21a-b) are available. On the other hand, the NP_i-t_i chain in (21c), where the NP is Case-checked in the AgroP-adjoined position, is longer than the NP_i-t_i chain in (21d), where the NP is Case-checked in Spec-AgroP. As a result, Bošković (1997) argues, the availability of the derivation in (21d) blocks the derivation in (21c) via economy of derivation. The option of undergoing Case checking in the AgroP-adjoined position is thus ruled out for lexical NPs such as *Peter* in (17a) but not for *wh*-phrases undergoing *wh*-movement such as (20).

However, Bošković (1997) finally suggests an alternative analysis by adopting Chomsky's (1995) Move F theory. Chomsky (1995) proposes that in LF features rather than syntactic categories undergo movement, the proposal being a natural consequence of the minimalist assumption that movement is driven by feature checking. In order to satisfy the minimalist version of the Case Filter, the Case feature of the *wh*-chain in (21a) must adjoin to Agro, which has the relevant feature of V adjoined to it.

If we discuss the licensing of the *wh*-phrase in terms of Agree operation instead, it seems that light verb *v* (by virtue of being transitive) values the Case feature of the *wh*-phrase as accusative in its base position and (by virtue of being ϕ-complete) deletes it in *v*'s search domain. Accordingly, if Chomsky's (2000, 2001) proposal of the operation Agree is on the right track, then we cannot agree with Bošković's proposal based on Chomsky's (1995) Move F theory. On top of that, the assumption that the *wh*-phrase is Case-checked in the AgroP-adjoined position is considered to be adhoc because the assumption is available only in the *wh*-movement of the infinitival subjects of *wager*-class verbs.

Based on the above discussion, we will propose in the following chapter an alternative analysis so as to account for a number of differences between infinitival complements of *wager*-class verbs and *believe*-class verbs.

5.0 An Alternative Analysis

In this chapter, we would like to present an alternative analysis with the aim of describing the differences between infinitival complements of *wager*-class verbs and *believe*-class verbs listed in chapter three. We will begin with showing below how θ-role are assigned to matrix subjects of *believe*-class verbs and *wager*-class verbs as follows:

(22) All the verbs that belong to *believe*-class assign an Experiencer θ-role to their subject, while all the verbs that belong to *wager*-class assign an Agent θ-role to their subject.

Note that θ-roles assigned to subjects of *believe*-class verbs and *wager*-class verbs are different as shown in (22), while the infinitival complements of both are interpreted as a Proposition.

Second, we will direct our attention to some differences of meaning between the two types of verb. The *wager*-class verbs have a kind of meaning that"state[s] publicly that something is true." In other words, they imply that we have an idea or a feeling of doing a speech act. Hence, we assume that the subject of the *wager*-class verbs is assigned not only the Agent θ-role, but also the Experiencer θ-role, in that we have an idea or a feeling to represent as in the definition of *believe*-class verbs in chapter three. Evidence favoring such an analysis comes from occurrence of certain adverbs (Postal 1968, Fillmore 1972). According to Fillmore (1972), certain adverbs may be introduced into a sentence as ways of qualifying one participant's role in the activity, (Experiencer, Agent, etc.). Thus, manner adverbs of a type *viciously* may appear only in sentences having underlying Agents. Postal (1968) has noticed that the adverb *personally* occurs only in sentences with subjective experience verbs and in connection with the NP identified as the Experiencer. Examples like Postal's (1968) are given below:

(23) a. Personally, I don't like roses.
b. *Personally, you hit me. (Fillmore 1972: 10)

In the example (23a), the subject *I* is identified as the Experiencer, since the adverb *personally* occurs only with it, while in the example (23b), the subject *you* is not identified as the Experiencer, but as the Agent and thus it cannot occur with the adverb *personally*. We turn to examine the *wager*-class verbs, taking into consideration the discussion of (23). If the adverb *personally* occurs with the agentive subject of the *wager*-class verbs, then their subject is also considered to be the Experiencer. Our native informants give the following judgments:

(24) a. Mike viciously alleged/announced her to be a liar.
b. ?*Mike viciously believed her to be a liar.

(25) a. Mike personally alleged/announced her to have accepted his proposal.
b. Mike personally expected her to accept his proposal.

Our native informants see a clear contrast between (24a) and (24b). That is, they find the example in (24a) is better than in (24b). Hence, the adverb *viciously* may appear only in sentence having underlying the Agent. As for the sentences in (25), our native informants find both sentences are acceptable. According to this result, *Mike* in (25a),

which is the subject of the *wager*-class verbs, is assigned the Experiencer θ-role as well as the Agent θ-role, since the adverb *personally* occurs with only the Experiencer. Thus, it follows that both the Experiencer and the Agent are the same person in the case of *wager*-class verbs. We thus propose that the Experiencer is supposed to be *pro* coreferential with the Agent and the structure of the infinitival complement of *wager*-class verbs has a hierarchical one as Agent (henceforth Ag) > Experiencer (henceforth Ex) > Theme order. In the case of *believe*-class verbs, as stated in (24b), the subject is not interpreted as an Agent, but an Experiencer, so that a hierarchical structure like Experiencer > Theme order is assembled.

In this section, we also present Chomsky's (2000, 2001) suggestion that a syntactic structure is built up by phase. Suppose, then, we take CP and *v*P to constitute phases, as noted by Chomsky (2001). We also develop a discussion based on the condition of (26).

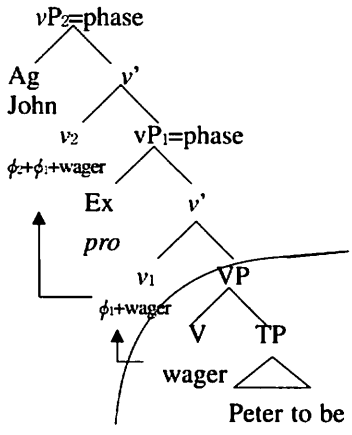
(26) Phase Impenetrability Condition/PIC
The domain of H is not accessible to operations at ZP, only H and its edge are accessible to such operations. (ZP and H are phases) (Chomsky 2001a: 14)

According to the PIC in (26), an external probe can only access to a phase head or an edge (Spec). In addition, we adopt a VP-shell analysis in this discussion like in Bošković (1997). Taking into consideration these assumptions, we thus suggest a structure as illustrated in (28), based on the example of (17), repeated in (27).

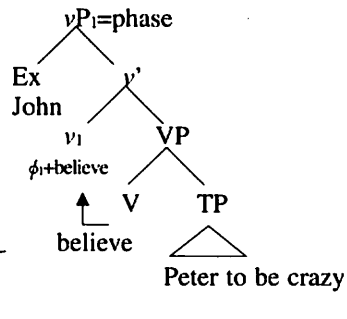
(27) a. *John wagered Peter to be crazy. (= (17a))
b. John believed Peter to be crazy. (= (17b))

(28a) shows the infinitival complement structures of *wager* and (28b) of *believe.*

(28) a. *wager*



b. *believe*



In the case of (28a), the verb *wager* adjoins to the null light verb ϕ_1. We also suppose that this light verb is affixal in nature (or has a strong V-feature). The resulting v_1 also adjoins to ϕ_2. We assume that vP_1 is a phase because it is a transitive *v*P, which takes the Experiencer *pro* as an external argument. The resulting upper *v*'-structure is then merged with the subject *John* (which is assigned the θ - role of Agent argument of the causative light verb), to form the complex vP_2 in (28a). The vP_2 is also a transitive *v*P, so that we consider it to be a phase. Accordingly, in the case of (28a), the infinitival complement of *wager*-class verbs has two phases such as vP_1 and vP_2.

By contrast, in the case of (28b), the verb *believe* adjoins to the null light verb ϕ_2 and occupies the v_1 head position. The vP_1 is a phase since it is a transitive *v*P which takes the Experiencer, *John* as an external argument. The structures of (28a) and (28b) are considered to be almost the same at this point. However, the subject *John* in (28b) is not assigned the θ-role of Agent, but of Experiencer. Hence, in (28b), there is not the vP_2 projection like in (28a) and

thereby the infinitival complement of *believe*-class verbs has only one phase, vP_1.

6.0 Licensing of Lexical NPs as the Infinitival Subject of *Wager*-class Verbs

In this section, we will explain why the *wager*-class verbs are not capable of Case-marking lexical NPs with respect to Chomsky's (2000) proposal of the operation Agree. In the structural description (28a), the lexical NP, *Peter*, which serves as a nominal goal, must have an agreement relation with v_2, which serves as a probe searches for the goal, to be licensed as an infinitival subject. According to the concept of phase and the PIC condition as stated in chapter four, vP_1 is a phase and only the elements in the Spec-vP_1 position and in the v_1 position are accessible to an external probe, v_2. That is, VP undergoes transfer to the phonological and semantic components at the end of the vP_1 phase and v_2 cannot access to *Peter*. We thus assume that *Peter* in the complement clause TP cannot be accessible to further syntactic operations and so it cannot have an agreement relation with v_2. For this reason, it can be inferred that uninterpretable ϕ-features of v_2 and an uninterpretable Case-feature of *Peter* cannot be deleted and (27a) is ungrammatical.

Since in the structure (28b), instead, both v_1 (a probe) and *Peter* (a goal) are in one phase, vP_1, v_1 can access to *Peter* in the complement clause, TP without the violation of the PIC. In other words, v_1 agrees with *Peter*. We have thus deleted all uninterpretable Case/ ϕ-features of both probe v_1 and goal *Peter*, and the unvalued Case feature of *Peter* is assigned the value accusative and *Peter* is licensed as the infinitival subject. The example (27b) results in a grammatical sentence. As noted above, we can account for the grammatical differences between (27a) and (27b), in terms of Chomsky's (2000) suggestion of Agree, the concept of phase, and the structural differences between (28a) and (28b).

6.1 *Wh*-Extraction out of *Wager*-class Infinitivals

In this section, we would like to account for the reason why *wager*-class verbs can Case-mark the *wh*-phrase as shown in (14b), repeated in (29), even though they cannot Case-mark lexical NPs.

(29) Who did Peter wager to be crazy? (= (14b)) (Bošković 1997: 61)

The following analysis is based on the structure in (28a). First, according to the phase-based theory of syntax in Chomsky (2000, 2001), we assume that *wh*-movement applies in a successive-cyclic fashion, and that a C-head has an [EPP] feature and a [WH] feature which together trigger movement of the closest *wh*-expression to become the specifier of the CP. That is, the *wh*-phrase cannot be licensed unless it undergoes movement to the Spec-CP position. Chomsky (2001:34) accounts for the [EPP] feature as follows:

(30) Optional operations can apply only if they have an effect on outcome: in the present case, *v** may be assigned an EPP-feature to permit successive-cyclic Ā-movement or Int (under OS).
(*v**: full argument structure, Int: "surface" interpretation, OS: Object Shift) (Chomsky 2001a: 34)

Accordingly, the *wh*-movement will involve movement through Spec-*v*P into Spec-CP in a successive-cyclic fashion to delete the [EPP] features of the phase heads. As for Case-checking of the *wh*-phrase in the example of (29), it can be assigned an accusative Case when it moves to Spec-vP_1 because the *wh*-phrase enters into a search domain of the verb *wager* and because they can have an agreement relation without violating the PIC. To make our discussion more concrete, we take the example of (29) with its derivation shown in skeletal form as in (31).

(31) [$_{CP}$ Who [C did] Peter$_i$ [$_{vP2}$ who [$_{v''}$ t$_i$ [$_{v'}$ v_2-wager [$_{vP1}$ who [$_{v''}$ Ex [$_{v'}$ v_1 t$_v$ [$_{VP}$ [$_{V'}$V t$_V$[$_{TP}$ who [$_{T'}$ to] [$_{vP}$ who be crazy]]]]]]]]]]

The double-specifier analysis in (31) is in accordance with Chomsky's (2000) assumption that a head can have multiple specifiers-in the case of (31), the lower inner specifier, Experiencer representing the external argument of the light verb, and an outer specifier *who* which deletes the [EPP] feature of the light verb. In the same way, in vP_2 projection, the inner

specifier, Agent representing the external argument of the light verb, and an outer specifier, who, which deletes the [EPP] feature of the light verb. Finally, the *wh*-phrase who can move to the Spec-CP.

To conclude, based on the structure in (28a), we can account for the reason it is possible to extract the *wh*-phrase out of the infinitival complements of *wager*-class verbs.

6.2. Licensing of the Expletive *there* as the Infinitival Subject of *Wager*-class Verbs

In this section, we would like to examine the expletive there as the infinitival subject of *wager*-class verbs and its associate NPs. We will also account for the expletive *there* by means of the structure of (28a). The expletive *there* in general does not receive a stress in a sentence. Following the fact that the expletive *there* can occur in the *wager*-class infinitival subject position, we assume that it can be treated as a clitic like in Amano (2000) and Bošković (1997). Therefore, it seems that the expletive *there* undergoes incorporation into verbs. For the sake of concreteness, let us consider the derivation of (32b).

(32) a. He alleged there to be stolen documents in the drawer. (=(11b)) (Postal 1974: 304)

b. $[_{vP2}$ he $[_{v'}$ v_2-allege-there$_i$ $[_{vP1}$ Ex $[_{v'}$ v_1 t_v $[_{vP}$ $[_{v}$ t_v $[_{TP}$ t_i to be stolen documents in the drawer]]]]]]]

In the derivation (32b), both vP$_1$ and vP$_2$ involve external arguments (*he* and Experiencer) and thus they are considered to be transitive vPs; hence, they are thought to be phases. The expletive *there*, in the derivation of (32b), is originally in the complement of vP$_1$'s head and thereby it may be considered that *there* cannot have an agreement relation with v_2 because of the PIC. The expletive *there* is supposed to undergo a process of cliticization and so is essentially treated as a clitic. Taking into consideration this analysis of cliticization, we propose that the expletive *there* undergoes incorporation into V and movement to v_1. At this position, the expletive *there* is in a search domain of v_2 and therefore engages in an agreement relation with v_2 appropriately.

However, the question we have to ask here is how the associate NP of *there* can be licensed in the infinitival complement of *wager*-class verbs. According to Chomsky's (2001a) Agree-based suggestion, in the case of *believe*-class verbs, the associate NP (*a man*) exists in the search domain of v_1 head, and thus they have an agreement relation as follows:

(33) a. We expect there to arrive a man.

b. $[_{vP1}$ we $[_{v'}$ v_1-expect $[_{vP}$ t_v $[_{TP}$ there to arrive a man]]]] (Chomsky 2001a: 16)

Chomsky's (2001a) proposal is summarized as follows: a phase does not occur between the v_1 head and the expletive *there*, therefore they have an agreement relation without violating the PIC. Then, the uninterpretable ϕ-feature (the only person feature) of *there* was deleted by the operation Agree. In addition, v_1 has an agreement relation with *a man* since a phase does not exist between v_1 head and *a man* in the complement TP, which means the PIC does not prevent the relation. As a result, the uninterpretable ϕ-features of v_1 are deleted and *a man* is assigned accusative Case by the operation Agree.

However, this Chomsky's (2001a) suggestion is not applicable to *wager*-class verbs because the associate NP of *there* (*stolen documents*) as shown in (32b) is in the complement of vP$_1$'s head, and thus v_2 cannot access to it, yet the sentence (32a) is grammatical. In other words, if we rely on this Chomsky's (2001a) analysis without any assumption, the associate NP of *there* (*stolen documents*) cannot be licensed, contrary to fact. We must then consider another licensing condition of the associate NP of *there*.

Here, we take up Hazout's (2004) proposal of the associate NP of *there*. Hazout (2004) proposes an account of the syntax of existential constructions, (e.g.,*There are [too many problems]*) based on a view of the postcopular NP as a predicate. This NP figures as the predicate in an embedded clausal complement of *be* with expletive *there* as its subject. Hazout (2004) takes examples like (34)-(35) and considers them to be one piece of evidences to analyze the postcopular NP as a predicate.

(34) a. The coffee is cold.
b. It is cold (today/in Siberia).

(35) a. This room is (too) dark.
b. It is (too) dark (in this room).

In the (a) sentences in these pairs, a certain property is attributed by a predicate to an entity that is denoted by the subject. On the other hand, in the (b) members of these pairs, the subject position is occupied by the semantically empty expletive *it*. In particular, semantically these sentences do not involve the attribution of a property to some entity. Thus Hazout (2004) claims that the adjective *cold* in (34b) describes a certain property related to the notion of temperature, just as it does in (34a). However, in (34b) this property is not attributed to any specific entity. Based on this analysis, Hazout (2004) takes the pairs in (36) as analogous to the pairs in (34)-(35).

(36) a. John and Bill are *students in this class*.
b. There are *students in this class*.

That is, the particular type of interpretation associated with existential constructions in (36) is a result of using a nominal predicate in the way that adjectival predicates are used in sentences like the (b) examples in (34)-(35). Therefore, Hazout (2004) suggests that the indefinite noun (*students*) following the copula in, say, (36b) is a predicate just like the postcopular noun in (36a). Hazout (2004) also assumes, in the spirit of current minimalist theory, that the predicate nominal, as opposed to an argument NP/DP, lacks a specification for a structural Case feature. Thus, the associate NP does not need to be engaged in a relation of feature checking for the purpose of erasing such a feature (Chomsky 2000). In other words, being a predicate nominal is a form of grammatical licensing available to an NP/DP as an option in a given structure (the other being Case checking/assignment).

If it is correct to view the analysis of Hazout (2004) as corresponding to the analysis of the associate NP of *there* in (32a), the associate NP (*stolen documents*) in (32a) is considered to be a predicate nominal just like the associate NP (*students*) in (36b). Therefore, the associate NP in (32a) does not have to engage in a feature checking relation, in other words, an agreement relation. To put it concretely, in the derivation of (32b), the associate NP needs not enter into an agreement relation with v_2.

To sum up, we suggest that the associate NP in (32a) is licensed as a predicate nominal like in Hazout (2004), and *there* in (32a) is thought to be a clitic, which undergoes incorporation into V and movement to v_1. At that position, *there* in (32a) engages in an agreement relation with v_2 appropriately because it is in a search domain of v_2.

7.0 Conclusion

This thesis has investigated syntactic properties of *wager*-class infinitivals, taking into consideration syntactic properties of *believe*-class infinitivals. In particular, we focused on the behaviors of their infinitival subjects. Based on Chomsky's (2000, 2001) suggestions of the operation Agree and the concept of phase, we proposed the syntactic structure of *wager*-class infinitivals.

We first introduced the characteristics of infinitival *to*-complements and clarified what the exceptional case-marking (i.e. ECM) construction is. Second, we introduced the definition of *believe*-class verbs and *wager*-class verbs and presented some characteristics of the infinitival complements of *believe*-class verbs and *wager*-class verbs and clarified their similarities and differences. Third, we examined a previous study of infinitival complements of *believe*-class verbs and *wager*-class verbs. We focused on the argument by Bošković (1997) and pointed out the problems. Fourth, we clarified the differences of meaning between *wager*-class verbs and *believe*-class verbs associated with different θ-roles assigned to matrix subjects and thereby suggested their syntactic structures. Taking into consideration their differences, we accounted for the reason why *believe*-class verbs permitted lexical NPs in the subject position of their infinitival complement, while *wager*-class verbs did not permit them.

Notes

[1] A phase is a unit of derivation which Chomsky (2000, 2001) proposes. Chomsky (2000, 2001) argues that CP and *v*P constitutes a phase. The phase head is *v* or C and its edge is Spec-*v*P or Spec-CP.

[2] The term *wager*-class verbs is Pesetsky's (1991). It is difficult to classify the *wager*-class verbs comprehensively because of disagreement on what verbs constitute *wager*-class verbs. For instance, according to Postal's (1974) observation, the verb *assume* is analyzed as a *wager*-class verb, while we analyzed it as a *believe*-class verb. In addition, Postal (1974) treats the verb *acknowledge* as *wager*-class verbs, in contrast to Pesetsky's (1991) proposal. In our study, we deal with the representative *wager*-class verbs, like *allege, wager*, which are less controversial.

[3] Not only the expletive *there*, but also an expletive *it* is licensed as an infinitival subject of *believe*-class verbs and *wager*-class verbs. Their examples are shown in (a) and (b):

a. This letter proves it to be useless to talk to Bob. (*believe*-class) (Postal 1974: 19)

b. He guaranteed it to be untrue that this client was a werewolf. (*wager*-class) (Postal 1993: 361)

[4] Bošković (1997) does not offer a clear definition of the Minimize Chain Links Principle, yet Chomsky (1995:295) defines a Minimal Link Condition, which Bošković seems to follow.

Minimal Link Condition (MLC)

"At a given stage of derivation, a longer link from α to K cannot be formed if there is a shorter legitimate link from β to K."

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