On Infinite Functional Categories

Chong-Taek Yu
(Howon University)

Yu, Chong-Taek. 2000. On Infinite Functional Categories. *Linguistics* 8-2, 1-24. An infinite phrase is assumed to contain a functional head FH, which is a head of an InfP Inf, that of a GerP Ger or that of a ParP Par. Besides both quasi- and selectional features, Inf contains an uninterpretable φ-incomplete, i.e., a [person]-feature, Ger a [number]-feature, and Par a [number]- and [gender]-feature, and a Case-feature. An InfP is selected by C or v*. The C seems to contain φ-complete (including a Case-feature) by which the φ-complete can be deleted in narrow syntax. The v* is a light verb containing φ-complete in a construction with full argument structure. A FH C selecting a GerP does not contain a [+Q]-feature to Attract a *wh*-feature unlike an InfP. Besides, a ParP is selected by not C but V. **(Howon University)**

1. Introduction

Language is an optimal/perfect solution to Bare Output Conditions BOCs. Most works in Minimalism have been and will be concerned with correcting misdescribed imperfections. Although less machinery is better than more, I think that we should look for optimal machinery to correct them in case of infinite phrases.

Thus I will establish infinite phrases such as an infinitival phrase InfP, gerundial phrase GerP, and participial phrase ParP. I will further come to an assumption that an infinite phrase contains its own individual FH. Following Chomsky's (1999) intuition,[1] I will show that

---

1) Features deleted within the cyclic computation remain until the phase PH level, at which point the whole PH is handed over to the phonological component. The deleted features then disappear from the narrow syntax, allowing

a non-feature-driven movement of a base verb may be a head movement to a FH for phonetic realization in phonology. Finally, I will consider Agree between formal features FFs in an InfP, GerP and ParP, respectively.

2. Three types of Infinite functional categories

Such functional categories as a vP, TP, and CP have been involved in feature-checking between targets and goals since Chomsky (1995). And a participial phrase PartP or PRTP (I'll call it ParP in this paper) is newly added to them in Chomsky (1998, 1999). If so, then I argue that both an InfP and a GerP can be simultaneously established in infinite phrases.

As mentioned in Yu (1996), an infinite phrase, which has no tense, is a *to-* or bare-infinitive, gerund, or present participle pre. pple or past participle pas. pple. Let us first examine three types of infinite phrases diachronically, establishing their functional categories FCs.

2.1 An infinitival phrase InfP

T (=*to*) in Chomsky (1998) or T_{def} in Chomsky (1999) is assumed to be a head of an InfP:

(1) The man$_i$ seems [$_{TdefP (=TP)}$ t$_i$ to be likely [$_{TdefP (=TP)}$ t$_i$ to be [$_{PP}$ t$_i$ in the room]]].

The defective TP, i.e., $T_{def}P$ has a defective head T_{def} (=*to*), which is unable to determine Case-agreement but has an EPP-feature. In other words, T_{def} is assumed to contain a defective [person]-feature. The φ -complete of the probe *the man* Agrees cyclically with T_{def} (=*to*) for successive-cyclic raising, but it cannot delete its Case-feature. The φ

convergence at LF, but they may have phonetic effects.

-complete of the goal *the mann* is deleted by the φ-complete of T. Under the Agree between FFs, the infinitival *to* behaves as if it were a head of T_{def} at first sight. However, it seems to me that the infinitival *to* is not the head of T_{def}. and that the T_{def}P is not an appropriate FC for the infinitival FC. It's because we cannot distinguish it from the other infinite FCs—a GerP and ParP—more clearly. I therefore want to establish an InfP instead of the TP or T_{def}P.[2)]

First of all, both infinitival *for* and *to* were originally mere signs added to an infinitival subject and infinitive, respectively:

(2) a. Þanne wolde he maken hem *to drynken*···

···*The Travels of Sir John Mandeville*, 44

(Then he wanted to make them drink···)

b. Hyt ys no nede eke *for to axe*···

···*The Book of the Duchess: The Dream*, 416

(There is also no need to ask···)

c. Hit bycomeþ *for* clerkus Crist *for to severn*, and knaves uncrouned *to cart* and *to worche*···)

···*The Author and His Life*, 61-62

(It is fitting for clerks to serve Christ, and for untonsured laymen to cart and work···)

d. He came *to help* his friends.

(=He came to the help of his ·friends.)

In (2a), the dative dat. inflected infinitive *drynken* (drink) in middle English ME had a reduced inflectional ending -*en* corresponding to an old English OE inflectional ending -*anne* or -*enne*.[3)] Contrary to

---

2) As assumed in Baker (1989), an infinitival clause Inf-C consists of a *for* -phrase *For*-P plus an infinitival phrase InfP, or an InfP alone. Kayne (1991) also assumes that an INFinitivalP may be contained in an infinitival construction. According to Nash (1994), an INFinP may be contained in an English causative construction.

3) OE had two types of infinitives, that is, simple infinitive and inflected infinitive. The former took an inflectional ending quite different from the one that

ordinary acc.-with-simple infinitives, the matrix verb *maken* (make) selected the acc.-with-inflected infinitive as its complement.[4] It is certain that the meaning of *to* immediately before the inflected infinitive had weakened to be almost meaningless like the simple infinitive. In (2b), the ME *for to* was used with the inflected infinitive *axe* (ask) in adjectival relation with the noun phrase *nede* (need). There was no longer any difference of meaning between *to* and *for to* from the end of 13th century, and by way of reciprocity, just as *to* was used for purpose, *for to* was used where no purpose was involved. In (2c), *to* and *for to* were alternately used without any distinct meaning. It seems that the *it ~for NP to ~* construction had already begun to be used in the ME period.[5] In (2d), the infinitival *to* expresses purpose toward the act expressed by the infinitive *help*. After intransitive verbs, it is still a preposition.[6] In short, infinitival *tō* (=*to*) almost became a prepositional link PL, and *for* became a PL, too.

Such a PL seems to have no FF to value and delete a φ-set of a goal in narrow syntax:[7]

---

the latter did. The simple infinitive without *tō*, which became the bare infinitive in ModE, added an inflectional ending *-an* to its stem. The ending was used for morphologically representing the accusative acc. or nominative nom. case. On the contrary, the inflected infinitive, which was often called the gerund in OE, added an inflectional ending *-anne* or *-enne* to its verbal stem. This infinitive was always preceded by *tō*, and it represented the dat. case like the object of a preposition. See Cassidy and Ringler (1971), Diamond (1970), Moore, Knott, and Hulbert (1955), and Yu (1994).

4) In case an infinitival subject contained the acc., as in *Sche bad alle opre go.* 'She bade all the others go,' the infinitival subject—*alle opre*—always preceded the acc. simple infinitive—*go*. See Mossé (1975).

5) The earliest infinitival form varied between *to V* and *for N to V*. The *for N to V* occurred first in 1391, widely used during the ME period. See Lightfoot (1981), Yim (1984) and the *Oxford English Dictionary* (OED).

6) After intransitive verbs as in 'he *went to stay*,' and 'he *prepared to depart* (i.e. for departure), or in the passive voice, an infinitival *to* is a preposition still now. See the *OED*.

7) We take uninterpretable features to be unvalued, receiving their values only under Agree. Once the Case-value is determined, N no longer enters into agreement relations and is frozen in place. See Chomsky (1999).

(3) a. I help [him to stand on his own feet].

　　b. I help [him stand on his own feet].

(4) a. I prefer [for you to call me Rocky].

　　b. I prefer [you to call me Rocky].

The numerations of (3-4a) are different from those of (3-4b), respectively, since the PL *to* is not selected from the Lexicon LEX in (3b), and the PL *for* is not selected from it in (4b).[8] Nevertheless, the sentence (3a) has the same meaning as the one (3b) does. Likewise, the sentence (4a) has the same meaning as the one (4b) does. It gives me a clear evidence that the PLs *to* and *for* don't have any Matching relation with the φ-sets of goals in narrow syntax. That is, they have only phonetic features PFs except particular cases.

Let us turn to ME simple (=plain) infinitives without *tō* (to) after a temporal auxiliary, verb *þenke(n)* (think), and acc. infinitival subject in an acc.-with-infinitive construction:[9]

(5) a. Þei wolde *go sle* such a lord or such a man that⋯

　　　　　　　　　　　　⋯*The Travels of Sir John Mandeville*, 54

　　　(They would go and kill such a lord and such a man that⋯)

　　b. I þenke *telle(n)* a partie.

　　　　　　　　　　　　⋯*Confessio Amantis*, 3956

　　　(I think to tell a party.)

　　c. Awei sche bad *alle oþre go*.

　　　　　　　　　　　　⋯*Ibid*, 4060

　　　(She bade all the others go away.)

---

8) One point that should be made immediately about W(ant)-verbs, in contrast to B(elieve)-verbs, is that some occur with contrasting types of infinitival complements, as seen in the case of *prefer, hate, intend, like, mean, wish*, etc. See Postal (1974).

9) The plain infinitive was used after temporal auxiliaries (*shall, will*) or modal auxiliaries (*may, can, dar, mot, lete*, etc.), and, just as in OE, after a certain number of verbs such as *go, hear*, and *think*. It was also used in the so-called acc.-with-infinitive construction. See Mossé (1975).

In (5a), the acc. simple infinitives *go* (OE gán or gangan: go) and *sle* (OE sleán: kill) were used after the temporal auxiliary *wolde* (would). They didn't contain the inflectional endings expressing the tense-feature, since the idea of time was expressed by the periphrastic tense-form *wolde*. The simple infinitive has always been used without the preposition *tō* (*to*) after the auxiliary. In (5b), the acc. simple infinitive *telle(n)* (tell) was also used after the verb *þenke*.[10] In (5c), the acc. simple infinitive *go*, which didn't contain the tense-feature, was used in the acc.-with-infinitive—*alle opre go* (all the others)—construction. In short, the simple infinitives (=ModE bare infinitive) has satisfied the BOCs without the PLs *to* and *for*.

Thus a ModE InfP seems to have its own head Inf which is irrelevant to a tense-feature whether PLs *to* and *for* are selected or not from LEX. It means that T or T_{def} which is relevant to a tense-feature may not be an appropriate head for the InfP. Based on the Chomsky's (1998, 1999) ideas, Inf is assumed to have the following features:

(6) A head of an InfP Inf contains an uninterpretable defective φ -feature, i.e., a [person]-feature and an EPP-feature.

According to (6), the InfP seems to be basically different from the TP or $T_{def}P$, since Inf does not contain a tense-feature as well as a Case-feature. When the uninterpretable defective φ -feature of Inf attracts the φ -complete of a goal—an infinitival subject—to SPEC-Inf, it is valued and deleted by the φ -complete of the goal. Nevertheless, the goal should be again Attracted overtly or covertly by the φ -complete of a probe due to its activation.[11] The fact shows that an InfP

---

10) With an infinitive in substantival relation, *to was* ultimately reduced to a mere sign of the infinitive without any meaning of its own. Many of the verbs which in OE took the simple infinitive could also be followed by *to* with the dat. infinitive, but the auxiliary verbs have always been followed by the simple infinitive. See *to* in the *OED*.

11) An uninterpretable feature of the Goal deletes if the Probe contains no defective FF, whereas an uninterpretable feature of the Probe deletes if the Goal

is selected for Agree by C, v* or V. Besides, the base verb must undergo a non-feature-driven head movement to Inf for phonetic realization—a null suffix ($\emptyset$)—in phonology.[12]

Inf cannot determine an uninterpretable Case-feature of a goal, since it does not contain a tense-feature. If so, how can the unvalued φ-complete of the goal be valued and deleted in narrow syntax?

(7) a. [CP [TP John$_i$ seems [InfP t$_i$ to t$_i$ like study to me]]]

   b. I want [CP [C' [C^{MAX} FF$_{(you)j}$ C] [InfP you$_{i(tj)}$ to t$_i$ think carefully]]]

   c. I want very much [CP [C' [C^{MAX} for FF$_{(you)j}$ C] [InfP you$_{i(tj)}$ to t$_i$ think carefully]]]

   d. We [v*P FF$_{(him)j}$ believe [InfP him$_{i(tj)}$ to t$_i$ like her]]]

In (7a), the φ-incomplete of Inf is deleted by the φ-complete of the goal *John*, whereas the latter should be again Attracted overtly by the φ-complete of T due to the defectiveness of Inf. As shown in (7b-c), the infinitival *for* is not a feature-Attractor but a mere sign PL, which optionally Merges with C in narrow syntax. It is also a clear evidence that the φ-complete of C covertly Attracts the φ-complete of the goal *you* whether *for* is selected or not from LEX.[13] Like the features of an associate of an expletive EXPL *there*,[14] it seems that the covertly

---

contains no defective FF. See Chomsky (1998) and Yang (1999).

   12) It has been shown that the non-feature-driven movements or adjunction movements, i.e., head movements and stylistic rules like Extraposition, Transitive Expletive Movements, Heavy NP Shift, Right Node Raising, VP-Preposing, etc., may not be applied in syntax but in phonology. By assuming that head movements apply at SS, we may reach a generation that there is no double Attractor. For example, T is no longer a double attractor of both φ-feature of the subject and V-feature of the verb. See Chomsky (1998).

   13) The claim that English infinitival T (=*to*) has some φ-feature is crucially supported by the fact that Portuguese infinitival T manifests inflectional morphology. Likewise, the claim that English infinitival C has some φ-feature is crucially supported by the fact that Kwa C used by African Ewe people manifests inflectional morphology. See Yang (1998a, b).

Moved FF$_{(you)}$ is Tucked under *for* in order to Merge with C most closely. Besides, the φ-set of C is assumed to contain a Case-feature for full interpretation FI. Otherwise the φ-complete of the goal *you* has no other way to be valued and deleted. The *want*-infinitive is selected by C as in (7b–c), whereas the *believe*-infinitive is selected by v* as in (7d). Thus the φ-complete of the goal *him* is covertly Attracted by the φ-complete of v*.

I also assume that a FH C is a crucial element for computational operations in infinitival constructions:

(8) A FH C selecting an InfP contains a Case-feature.

2.2 A gerundial phrase GerP

A gerund was a form of the Latin verb, capable of being construed as a substantive, but retaining the regimen of the verb. Hence it was applied to forms functionally equivalent to the English verbal noun in *-ing* when used rather as a part of the verb than as a substantive.[15] In OE, its more usual form was *-ung* (an inflected form *-unge*), but *-ing* also was frequent. In early ME, *-ung* rapidly died out, being scarcely found after 1250, and *-ing* (in early ME *-inge*) became the regular form. In later ME, *-yng* was a frequent scribal variant.

The gerund never stopped gaining impotance during the ME period. As mentioned in Mossé (1975), it was in free variation with the infinitive as an adjunct to another verb. However, most of adjuncts to verbs were the simple infinitives in the OE and ME period. It makes me conjecture that the early or middle OE gerund might be in free

---

14) It ls not the associate that raises but its unchecked features, leaving the rest in situ. The natural assumption is that these features adjoin to INFL, not to its specifier *there*. See Chomsky (1995).

15) The inflectional ending *-ing* was the suffix forming verbal derivatives, originally abstract nouns of action which was feminine, but subsequently developed in various directions. It has been gradually added to ordinary verbs since 14th c. See the *OED*.

variation with the simple infinitive without a preposition *tō*:[16]

(9) a. *Séon* is *gelīefan.*

　　　　　···on the analogy of an infinitival sentence in the *OED*[17]

　　　(To see is to believe,)

　b. *Séung* is *gelīefung.*

　　　　　···on the analogy of the infinitival sentence in the *OED*

　　　(Seeing is believing.)

　c. *To séonne* is *to bilevenne.*

　　　　　···on the analogy of the infinitival sentence in the *OED*

　　　(To see is to believe.)

(10) a. *To herkene* Goddis word is more than to offre the ynnere fatnesse of rammes.

　　　　　···1338, Wyclif, *Sam.* ⅹⅴ. 22

　　　(To hearken God's word is more than to offer the inner fatness of rams.)

　b. *Herkenyng* Goddis word is more than to offre the ynnere fatnesse of rammes.

　　　　　···1338, Wyclif, *Sam.* ⅹⅴ. 22

　　　(Hearkening God's word is more than to offer the inner fatness of rams.)

The nom. simple infinitives *séon* (see) and *gelīefan* (believe) in (9a) might be used in the position of subject and complement during the OE period.[18] Likewise, the gerunds *Séung* (seeing) and *gelīefung* (believing) in (9b) might be used in the position of subject and complement during

---

16) The use of infinitive with *to* in place of the simple infinitive increased rapidly during the late OE. See *to* in the *OED*.

17) *To* is now prefixed also to the nom.-acc. infinitive, where OE had the simple infinitive form in *-an*, as in *to see* is to believe,' 'he likes *to see* it.' See *infinitive* in the *OED*.

18) In OE, the complement of a linking verb was in the nom. case. See Diamond (1970).

the same period. It means that the early or middle OE gerund was in free variation with the nom. simple infinitive. Ironically, the dat. infinitives with a PL *to* took the place of the nom. simple infinitives during the early ME as shown in (9c).[19] The infinitive *to herkene* (to hearken) in (10a) could be replaced by the gerund *herkenyng* (hearkening) in (10b) without changing any semantic contents.

As illustrated in Stockwell *et al* (1973), there are some examples in which the semantic potential of contrast is not realized between the ModE infinitival and gerundial phrases, just as they weren't in the OE and ME period:

(11) a. She continued *to work* for a long time.

b. She continued *working* for a long time.

(12) a. Just *to know* that you are here is reasoning.

b. Just *knowing* that you are here is reasoning.

(13) a. I hate *him to make* so much noise.

b. I hate *him making* so much noise.

The infinitive *to work* in (11a) must be originated from the OE inflected infinitive *tō wyrcanne*, whereas the gerund *working* in (11b) must be originated from the OE simple infinitive *wyrcan* or gerund *wyrcung*. Both of them have been used as the direct objects of the transitive verb *continued*. The gerund *knowing* in (12b) has been alternately used as a direct subject in place of the infinitive *to know* in (12a). Likewise, the gerund *making* in (13b) has been alternately used in place of the infinitive *to make* in (13a).

No matter how irrelevant gerunds are to the voice, the passive voice

---

19) The use of the infinitive with *tō* in place of the simple infinitive, helped by the phonetic decay and loss of the inflections and the need of some mark to distinguish the infinitive from other parts of the verbs and from the cognate substantives, increased rapidly during the late OE and early ME period, with the result that in ModE the infinitive with *to* is the ordinary form, the simple infinitive surviving only in particular connections, where it is very intimately connected with the preceding verbs. See *to* in the *OED*.

can be used in case there are different meanings between the voices. Thus an agent or patient—a gerundial subject—in an active or passive construction must move from its θ-position to a SPEC-position:

(14) a. He was afraid of [$_{CP}$ PRO$_i$ [$_{v*P}$ t$_i$ punishing me]].
      b. He was afraid of [$_{CP}$ PRO$_i$ [$_{VP}$ being punished t$_i$]].[20]

In (14a), the agent PRO seems to move to the SPEC-position for deleting an EPP-feature of a head. Likewise, in (14b), the patient PRO seems to move to the SPEC-position for deleting an EPP-feature of a head. If it is true, what is the SPEC-position for? It should be the SPEC position not for T or T$_{def}$ but for Ger, which is a head of a GerP. It's because Ger has no tense-feature to Agree with the φ-complete of PRO. As a result, it seems that the φ-complete of PRO is Attracted for Agree by the φ-complete of C.

A FH Ger seems to have a defective φ-feature, i.e., a [number]-feature except a very few gerunds:

(15) a, He enjoys [*goings* to and fro].
      b. A man made [*a knocking* at the door].
      c.*She has enjoyed [swimmings in this pool many times].
      d.*She enjoyed [a swimming in this pool only once].

In (15a), the gerund *goings* contains a plural ending -*s* just like an NP. In (15b), the gerund *knocking* is modified by the indefinite article *a*, which means "one time." On the contrary, (15c-d) are ungrammatical, since the gerunds contain interpretable [number]-features. It seems that most of gerunds cannot contain interpretable [number]-features except a very few gerunds. (I will not touch this problem any more.)

---

20) Unless selected by C or v*, T and V are defective (raising T, passive/unaccusative V, respectively). They do not enter into Case-agreement, and have no EPP-feature. When selected by C or v*, T and V are φ-complete, entering into Case-agreement structures. See Chomsky (1999).

As discussed above, a gerund, which has corresponded to a nom. or acc. infinitive, is assumed to contain the following features:

(16) A head of a GerP Ger contains an uninterpretable defective φ -feature, i.e., a [number]-feature and an EPP feature.

The GerP seems to be basically different from the TP or $T_{def}P$, since Ger does not contain a tense-feature as well as a Case-feature. When the defective φ-feature of Ger attracts the φ-complete of a goal—a gerundial subject—to SPEC-Ger, it is valued and deleted by the φ-complete of the goal. Nevertheless, the φ-complete of the goal should be again Attracted overtly or covertly by the φ-complete of a probe C due to its activation. Besides, the base verb must undergo a non-feature-driven head movement to Ger for phonetic realization—an -ing-suffix—in phonology.

2.3 A participial phrase ParP

Although OE could form verb phrases just as we do by combining the verbs for *have* and *be* with participles as in ModE *has run* and *is running*, it did so less frequently, and the system of such combinations was less fully developed. Combinations using both those auxiliary verbs, e.g., *has been running*, did not occur in OE, and one-word forms of the verb like *runs* and *ran* were used more than today.[21] The OE periphrastic locution with *be* and the pre. pple was used to emphasize an idea of duration. Little by little, its use was extended and its area of meaning became precise. It was limited to a few verbs like *go, come, dwell, live, fight,* and *consent*, among others. The auxiliary verb *be*, on the other hand, formed the passive voice or present perfect pres. fect with a pas. pple, while the auxiliary verb *have* formed only the pres. fect with the pas. pple:[22]

---

21) See Mossé (1975) and Pyles (1964).
22) See *be* and *have* in the *OED*.

Let us consider the OE and ME sentences which contained *be* and a pre. pple or pas. pple, and *have* and a pas. pple:

(17) a. Æþelwulf ferde to Rome and þær *wæs* vii monaþ *wuniende*.

···885, *OE Chron.*

(Athelwulf went to Rome and was dwelling there for 7 months.)

b. Adam þa *wes wuniende* on þeses life.

···c 1175, *Cott. Hom.* 225

(Adam was dwelling on this life then.)

(18) a. Ic *eom ofwundrod.*

···c 885, K. Ælfred, *Beoth* viii, 40

(I am astonished.)

b. Thre dais *es gon.*

···a 1300, *Cursor M*, 1432

(Three days is (has) gone.)

c. *Ha* yee *broght* him wit yow?

···a 1300, *Cursor M.,* 5182

(Have you brought him with you?)

The OE preterit *wæs* in (17a) served as the auxiliary verb, forming periphrastic tense. It was the time indicator, almost tense inflection, which was used with the pre. pple *wuniende* (dwelling). The ME preterit *wæs* in (17b) was also used with the pre. pple *wuniende* just like the OE preterit *wæs* did.[23] The OE transitive pas. pple *ofwundrod* (astonished) in (18a) was used with the auxiliary verb *eom* (am), forming the passive voice. The pas. pple of the ME intransitive verb *gon* (gone) in (18b) was used with the auxiliary verb *es* (is) to form the pre. fect.[24] The auxiliary

---

23) A pre. pple was used by the 13th century. In the later times, it was confused with a formation upon a gerund. For example, an OE sentence *he wæs feohtende,* and ME *he was a-fighting,* meet in ModE *he is fighting.* See *be* in the *OED.*

24) In ModE, an auxiliary verb *be* is largely displaced by *have* after the pattern of transitive verb. See Mossé (1975).

verb *ha* (have) in (18c), which was the time indicator, was used with the pas. pple *broght* (brought) to form the pre. fect of its own, expressing action already finished at time indicated. In short, auxiliary verbs—*be* and *have*—have been time indicators since the OE period, whereas both a pre. pple and a pas. pple have been the infinite verb phrases since it.

A ModE pre. pple and pas. pple can be both used immediately after an acc. NP just like an InfP:

> (19) a. I heard something [$_{InfP}$ *approach*].
>
>   b. I heard an apple [*falling*].
>
>   b. I heard my name [*called*].

In (19a), *approach* is the bare infinitive, which has formed the acc.-with-infinitive construction since the OE period. Likewise, both the pre. pple *falling*[25] in (19b) and the pas. pple *called* in (19c) form the acc.-with-participle constructions. This fact shows that a pres. or pas. pple may have an individual FC like an InfP.

As discussed in Chomsky (1998, 1999), an internal argument of a verb may be raised to SPEC-Par if the verb is raised to Par. As a result, a patient, i.e., a participial subject moves to SPEC-Par:

> (20) a. There have been [$_{ParP}$ many cakes$_j$ bake$_i$+ed [$_{VP}$ t$_i$ t$_j$]].
>
>   b. *There have [$_{ParP}$ many men$_j$ eat$_i$+ed [$_{v*P}$ t$_j$ t$_i$ [$_{VP}$ t$_i$ apples]]].
>
>   c. *There have [$_{ParP}$ apples$_j$ eat$_i$+ed [$_{v*P}$ t$_j$ [$_{vP}$ many men t$_i$ [$_{VP}$ t$_i$ t$_j$]]]].

(20a-c) may be accounted for as feature-driven movements in narrow syntax.[26] (20a) is grammatical, since the φ-complete of *many men* is

---

25) The event is perceived either in progress (*falling*), i.e. imperfective aspect or it is perceived, in contrast, at its end (*approach*), i.e. perfective aspect. See Stockwell *et al.* (1973).

26) It has been shown that the non-feature-driven movements or adjunction movements, i.e., head movements and stylistic rules like Extraposition, Transitive

Attracted to SPEC-Par by the defective φ-set of Par, whereas (20b) is ungrammatical, since the internal argument *apples* of the verb *eat* cannot move to SPEC-Par due to *many men*. (20c) is also ungrammatical, since the φ-complete of *many men* cannot be Attracted to SPEC-Par due to the internal argument *apples*.

Thus I assume following Chomsky (1999) that a head of a ParP Par has the following features:

(21) A head of a ParP Par contains uninterpretable defective φ-features, i.e., a [number]- and [gender]-feature, a Case-feature and an EPP-feature.

Participles are adjectival. The incomplete φ-set of Par is valued and deleted by the φ-complete of a goal, i.e., a participial subject. Nevertheless, the complete φ-set of the goal cannot be valued and deleted by the φ-incomplete of Par.[27] The φ-complete of the goal should be again Attracted by the φ-complete of T. It's because the goal has no other way to delete its Case-feature for FI. Besides, the base verb must undergo a non-feature-driven head movement to Par for phonetic realization—an -*ing*- or -*ed*-suffix—in phonology.

3. Agree between FFs in infinite FCs

Chomsky (1994, 1995) assume that FHs such as C, T, υ may be established in FCs. And Chomsky (1998, 1999) add a new FH Par to them in case of participial constructions. Based on their recent ideas, three kinds of FHs—Inf, Ger and Par were established instead of T or T_{def} in infinite FCs.

EXPL Movement, Heavy NP Shift Right Node Raising, VP Preposing, etc. may not be applied in syntax but in phonology. See Chomsky (1998) and Yang (1998a, b, 1999).

27) α must have a complete set of φ-features (it must be φ-complete) to delete uninterpretable features of the paired matching element β. See Chomsky (1999).

3.1 Agree between FFs in an InfP

According to (6) and (8), Inf contains a defective φ-feature, i.e., a [person]-feature and an EPP-feature. And an InfP is selected by C or V:

(22) a. She writes letterers for him to sign.
  b. She writes letters $[_{CP} [_{C'} [_{C}^{MAX}$ for $FF_{(him)}$ C] $[_{InfP}$ him$_i$ $[_{Inf'}$ $[_{Inf}$ to sign$_j$-$\emptyset$-Inf] $[_{v*P}$ t$_i$ t$_j$]]]]].

(23) a. She knows how to teach music..
  b. She knows $[_{CP}$ how$_j$ $[_{C'} [_{C}^{MAX}$ $FF_{(PRO)i}$ C] $[_{InfP}$ PRO$_i$ $[_{Inf'}$ $[_{Inf}$ to teach$_k$-$\emptyset$-Inf] $[_{v*P}$ t$_i$ t$_k$ music t$_j$]]]]].

(24) a. It is useless to persuade the man.
  b. $[_{CP} [_{TP}$ It$_k$ is useless $[_{CP}$ t$_k$ $[_{C'} [_{C}^{MAX}$ $FF_{(PRO)i}$ C] $[_{InfP}$ PRO$_i$ $[_{Inf'}$ $[_{Inf}$ to persuade$_j$-$\emptyset$-Inf] $[_{v*P}$ t$_i$ t$_j$ the man]]]]]].

(25) a. There seems to be a man in the room.
  b. $[_{CP} [_{TP}$ There$_i$ $[_{T'} [_{T}^{MAX}$ $FF_{(a\ man)j}$ T] $[_{VP}$ seems $[_{InfP}$ t$_i$ $[_{Inf'}$ $[_{Inf}$ to be$_k$-$\emptyset$-Inf] $[_{VP} [_{DP} [_{AdvP}$ t$_i]$ $[_{D'}$ a man$_{(ij)}]$ t$_k$ in the room]]]]]]]].

(22-25b) are the derivational structures of (22-25a), respectively. In (22b), the FH Inf merges with the PL *to,* which has almost been the simple infinitival marker since the late OE or early ME period. Although the interpretable φ-complete of the goal *him* is Attracted and deleted by the φ-incomplete of the probe Inf, it cannot be valued and deleted, again activated due to the defectiveness of Inf. Thus the φ-complete of the goal *him* is covertly Attracted by the φ-complete of C. Its Case-value is finally determined by C, which has already Merged with the mere infinitival sign *for.* In (23b), the φ-incomplete of the probe Inf can be deleted by the φ-complete (including a null Case) of the goal PRO. Nevertheless, the φ-complete of PRO may be covertly Attracted by the φ-complete of the Probe C due to the defectiveness of Inf. It seems that C Agrees with the φ-complete of PRO, bearing no relation to the Case-value of PRO.[28] And then the [+Q]-feature of C overtly Attracts the interpretable *wh-*feature of the goal *how,* triggering the ancillary

Merge. Contrary to Chomsky's (1998) assumption that an EXPL, i.e. *it* or *there* may purely Merge with T in a SPEC-T position,[29] I assume in (24b) that the EXPL *it* Merges parasitically with C in the SPEC-C position so that the ψ-complete of the EXPL *it* may be Attracted and deleted by the ψ-complete of the probe T. I rather think that such an operation observes the Merge over Move principle more perfectly. It is also assumed in (25b) that the EXPL [$_{AdvP}$ *there*] Merges parasitically with D in the SPEC-D position so that the φ-incomplete of Inf can be deleted by the φ-incomplete of *there*.[30] The EXPL [$_{AdvP}$ *there*] can be again Attracted by the complete φ-set of T, since Inf contains a defective φ-feature. At last, the φ-complete of the associate [$_{DP}$ *the man*] is covertly Attracted to T by the φ-complete of T. Besides, the base verbs—*sign, teach, persuade* and *be*—above must undergo a non-feature-driven head movement to Inf for phonetic realization—a null suffix ($\emptyset$)—at SS.

Let us consider Agree between FFs in infinitival complements selected by a *want*-type verb and *believe*-type verb:

(26) a. I want you to love me.

b.*I want for you to love me.

c. I want very much for you to love me.

---

28) Agree does not and cannot see the values of the features of uninterpretable features since the values of uninterpretable features need and should not be specified for uninterpretable features since they are contextually predictable. See Chomsky (1998).

29) There is a serious problem with *there*-constructions: Chomsky (1998) claims that pure Merge does not induce Agree. If so, how should the uninterpretable defective ψ-feature of the most embedded T (Inf in this paper) be deleted? The Rosenbaum (1967) gives me a hint that an "*it for-to*" complement can be base-generated.

30) According to Chomsky (1995), a pure expletive *there* lacks Case or φ-features in an expletive-associate construction. However, Chomsky (1998) assumes that it contains a defective φ-feature, i.e., [3rd person]-feature. And its interpretable feature deletes even if a goal contains a defective FF. Besides, the expletive *there* seems to be an adverb as shown in such a sentence as '[$_{PP}$ *In the garden*] *is a beautiful statue, isn't* [$_{PP}$ *there*]?'

d. I want [$_{CP}$ [$_{C'}$ [$_C$^{MAX} FF$_{(you)i}$ C] [$_{InfP}$ you$_{(ti)}$ [$_{Inf'}$ [$_{Inf}$^{MAX} to love$_j$-$\emptyset$ -Inf] [$_{v*P}$ t$_i$ t$_j$ me]]]]].

(27) a. I expect her to come.

b.*I expect for her to come.

c.*I expect very much for her to come.

d. I [$_{v*P}$ FF$_{(her)i}$ expect [$_{InfP}$ her$_{(ti)}$ [$_{Inf'}$ [$_{Inf}$^{MAX} to come$_j$-$\emptyset$-Inf] [$_{vP}$ t$_i$ t$_j$]]]].

(26-27d) are the derivational structures of (26-27a), respectively. (26-27b) are both ungrammatical, since the complementizer COMP *for* is selected rightly before the infinitival subjects—*you* and *her*. On the contrary, (26c) is grammatical, since the COMP *for* is selected rightly before the infinitival subject *you*, Ironically, (27c) is ungrammatical, since the COMP *for* is selected rightly before the infinitival subject *her*. The fact shows that a *want*-type verb contains a feature to select a CP-clause complement, whereas a *believe*-type verb contains a feature to select an InfP-clause complement. It is sure that a COMP *for* is not a feature-Attractor but a mere infinitival maker. I therefore conjecture that an infinitival FH C may contain uninterpretable complete φ-features (including a Case-feature) apart from the other features. In (26d), the φ-complete of the goal *you* is covertly Attracted by the φ-complete of C. And the former is valued and deleted by the latter in syntax right after it is transferred to PF component at the PH CP.[31] In (27d), the φ-complete of the goal *her* is covertly Attracted by the φ-complete of the probe v*, since the *believe*-type verb always selects the InfP-clause complement.

Let us in turn consider Agree between FFs in bare-infinitival constructions:

---

31) We take CP and v*P to be PHs. Nevertheless, there remains an important distinction between CP/v*P PHs and others; call the former strong PHs and the latter weak. The strong PHs are potential targets for XP-movement; C and v* may have an EPP-features, which provides a position for XP-position, and the observation can be generalized to head-movement of the kind relevant here. Spell-Out is cyclic at the PH level. See Chomsky (1999).

(28) a. I heard him laugh alone.

    b. I [$_{v*P}$ FF$_{(him)i}$ heard [$_{InfP}$ him$_{(ti)}$ [$_{Inf'}$ [$_{Inf}$ laugh$_{j}$-$\emptyset$-Inf] [$_{VP}$ t$_i$ t$_j$ alone]]]]]]]

(29) a. He will certainly come.

    b. [$_{CP}$ [$_{TP}$ He$_i$ [$_{T'}$ [$_{T}$ will$_k$-T] [$_{AdvP}$ certainly] [$_{InfP}$ [$_{Inf'}$ [$_{Inf}$ come$_j$-$\emptyset$-Inf] [$_{AuxP}$ t$_k$ [$_{VP}$ t$_i$ t$_j$]]]]]]]]

(28-29b) are derivational structures of (28-29a), respectively. In (28b), the infinitive *laugh* is the bare-infinitive, which had been the simple infinitive from the OE to the ME period. forming the acc-with-infinitive construction. The φ-complete of the Goal *him* is covertly Attracted through SPEC-Inf to v* by the φ-complete of the probe v*, since the perceptive verb selects the InfP. In (29b), the bare infinitive *come* must be the base verb combined with a null suffix ($\emptyset$), which had been also the simple infinitive from the OE to the ME period. The φ-complete of the goal *him* is Attracted through SPEC-Inf to SPEC-T by the φ-complete of T, since Inf contains an incomplete φ-feature.

3.2 Agree between FFs in an GerP

According to (16), Ger contains an uninterpretable φ-incomplete, i.e., a [number]-feature and an EPP feature. Thus the φ-complete of a gerundial subject may be covertly Attracted by the φ-complete of C (including a Case-feature) due to its activation.

However, it seems that a FH C selecting a GerP does not contain a [+Q]-feature to Attract a *wh*-feature unlike an InfP:

(30) a. [$_{CP}$ How$_i$ [$_{InfP}$ to live t$_i$]] is a serious problem.

    b.*[$_{CP}$ How$_i$ [$_{GerP}$ living t$_i$]] is a serious problem.

    c. I don't know [$_{CP}$ how$_i$ [$_{InfP}$ to swim t$_i$]].

    d.*I don't know [$_{CP}$ how$_i$ [$_{InfP}$ swimming t$_i$]].

    e. I like [$_{CP}$ [$_{GerP}$ John's coming here]]

    f.*I like [$_{CP}$ whose$_i$ [$_{GerP}$ t$_i$ coming here]]

In (30a, c), the interrogative infinitival constructions are grammatical in the matrix subject and object position, respectively, whereas, in (30b, d), the interrogative gerundial constructions are ungrammatical there, respectively, since the *wh*-feature of *how* cannot be valued and deleted. The gerundial construction in (30e) is grammatical, whereas the one in (30f) is ungrammatical, since the *wh*-feature of *whose* cannot be valued and deleted. It gives me a strong evidence that a FH C selecting a GerP does not contain a [+Q]-feature to Attract a *wh*-feature in narrow syntax.

Let us consider Agree between FFs in gerundial constructions:

(31) a. Appearing to have been killed is hard.

b. [$_{CP}$ [$_{C'}$ [$_C$^{MAX} FF$_{(PRO)i}$ C] [$_{GerP}$ PRO$_{(ti)}$ [$_{Ger'}$ [$_{Ger}$ Appear$_j$-ing-Ger] [$_{VP}$ t$_j$ [$_{InfP}$ t$_i$ to have been killed t$_i$]]]]]] is hard.

(32) a. I'm surprised at John's making that mistakes.

b. I'm surprised at [$_{CP}$ [$_{C'}$ [$_C$^{MAX} FF$_{(John's)i}$ C] [$_{GerP}$ John's$_{(ti)}$ [$_{Ger'}$ [$_{Ger}$ make$_j$-ing-Ger] [$_{v*P}$ t$_i$ t$_j$ that mistakes]]]]].

(31-32b) are derivational structures of (31-32a), respectively. In (31b), the φ-complete of the goal PRO is covertly Attracted by the φ-complete of C, which contains a Case-feature—a possessive poss., acc. or common Case-feature,[32] since Ger contains an incomplete φ-feature, i.e., a [number]-feature and an EPP-feature. As a result, the φ-complete of PRO can be valued and deleted by the φ-complete of the probe C. Likewise, in (32b), the φ-complete of the goal *John's* is covertly Attracted to C by the φ-complete of the probe C. In (31-32b), the base verbs—*appear* and *make*—undergo a non-feature-driven movement to Ger for phonetic realization—an *ing*-suffix—at SS, respectively.

---

32) PRO has to move categorically since it receives not only the primary θ-role Patient from the verb *killed* but also the secondary θ-role Agent from the raising construction. And a gerundial subject requires genitive Case in formal style, and objective or common Case in informal style. See Quirk *et al* (1973) and Yang (1999).

3.3 Agree between FFs in a ParP

There has been two types of pples since the OE period—a pres. pple and pas. pple. According to (21), a head of a ParP Par contains uninterpretable incomplete φ-set, i.e., a [number]- and [gender]-feature, a Case-feature and an EPP-feature.

Let us take a careful look at Agree between FFs in pres. pples:

(33) a. John is writing a letter.

    b. [$_{CP}$ [$_{TP}$ John$_i$ is [$_{ParP}$ t$_i$ [$_{Par'}$ [$_{Par}$ write$_j$–ing–Par] [$_{v*P}$ t$_i$ t$_j$ a letter]]]]]

    c.*It is [$_{CP}$ FF$_{(John)i}$ [$_{ParP}$ John$_{(ti)}$ writing a letter]].

(34) a. There were several people watching him.

    b. [$_{CP}$ [$_{TP}$ There$_j$ FF$_{(several\ people)k}$ were [$_{ParP}$ [$_{DP}$ t$_j$ [$_{D'}$ several people$_{(tk)}$]]$_i$ [$_{Par'}$ [$_{Par}$ watch$_m$–ing–Par] [$_{v*P}$ t$_i$ t$_m$ him]]]]]]

    c.*There$_i$ are [$_{CP}$ whom$_i$ [$_{ParP}$ t$_i$ watching him]].

(33b) is the derivational structure of (33a). In (33b), the φ-complete of the goal *John* is cyclically Attracted through SPEC-Par to SPEC-T by the φ-complete of the probe T, since it cannot be valued and deleted by the φ-incomplete (including a Case-feature) of Par. In (33c), if the ParP is selected by C, and if the EXPL *it* purely Merges with T, the derivation will crash without fail. The fact shows that a ParP is selected for Agree by not C but V. And (34b) is the derivational structure of (34a). In (34b), the EXPL *there* is assumed to Merge parasitically with D in the SPEC-D position. The φ-complete of the goal *[$_{DP}$ there several people]* is Attracted by the φ-incomplete of the Probe Par, but it cannot be valued and deleted due to the φ-incomplete of Par. This time the φ-incomplete of the goal *there* i.e., a [person]-feature is separately Attracted from the DP, deleted by the φ-complete of the probe T. Nevertheless, the φ-complete of T cannot be deleted due to the φ-incomplete (including a [3rd person]-feature) of *there*. It can be covertly deleted by the φ-complete of the associate *[$_{DP}$ several people]*. In case of (34c), the *wh*-feature of *whom* cannot be deleted by [+Q]-feature of C, since the

ParP is selected by not C but V. Besides, the base verbs—*write* and *watch*—must undergo a non-feature-driven movement to Par for phonetic realization—an *ing*-suffix—at SS, respectively.

Let us finally consider Agree between FFs in pas. pples:

(35) a. Her father was killed in the war.

b. [$_{CP}$ [$_{TP}$ Her father$_i$ was [$_{ParP}$ t$_i$ [$_{Par'}$ [$_{Par}$ kill$_j$-ed-Par] [$_{VP}$ t$_j$ t$_i$ in the war]]]]]

(36) a. He has finished his work.

b. [$_{CP}$ [$_{TP}$ He$_i$ has [$_{ParP}$ t$_i$ [$_{Par'}$ [$_{Par}$ finish$_j$-ed-Par] [$_{v*P}$ t$_i$ t$_j$ his work]]]]]

(37) a. I will have a new coat made tomorrow.

b. [$_{CP}$ [$_{TP}$ I$_m$ will [$_{InfP}$ t$_m$ [$_{Inf'}$ [$_{Inf}$ have$_n$-$\emptyset$-Inf] [$_{v*P}$ t$_m$ t$_n$ FF$_{(a\ new\ coat)j}$ [$_{ParP}$ a new coat$_{i(tj)}$ [$_{Par'}$ [$_{Par}$ make$_k$-ed-Par] [$_{VP}$ t$_k$ t$_i$ tomorrow]]]]]]]]]

(35-37b) are derivational structures of (35-37a), respectively. In (35b), the φ-incomplete of the probe Par is deleted by the φ-complete the goal *her father*, but the latter cannot be deleted by the former. As the result, the φ-complete of the goal *her father* is again Attracted by the φ-complete of the probe T, valued and deleted by it at the PH CP. In (36b), the φ-complete of the goal *he* is Attracted by the φ-incomplete of the probe Par, again Attracted by the φ-complete of the probe T. In (37b), the φ-complete of the goal *a new coat* is covertly Attracted to v* by the φ-complete of v*, since Par contains the φ-incomplete. Besides, the base verbs—*kill, finish,* and *make*—must undergo a non-head-driven movement to Par for phonetic realization—an *ed*-suffix—at SS, respectively.

4. Conclusion

An infinite phrase is assumed to contain a FH—a head of an InfP Inf, that of a GerP Ger or that of a ParP Par. Besides each quasi- and selectional feature, Inf contains an uninterpretable defective φ-feature, i.e., a [person]-feature, Ger a [number]-feature, and Par a [number]-

and [gender]-feature, and a Case-feature.

An InfP is selected by v* or C, which seems to contain φ-complete (including a Case-feature). Thus the φ-complete of a goal i.e., an infinitival subject can be valued and deleted by the φ-complete of v* or C in narrow syntax.. A base verb must undergo a non-feature-driven head movement to Inf for phonetic realization—a null suffix ($\emptyset$)—at SS.

However, a FH C selecting a GerP contains no [+Q]-feature to Attract a wh-feature unlike an InfP. A base verb must undergo a non-feature-driven head movement to Ger for phonetic realization—an ing-suffix—at SS.

A ParP is selected by not C but V. A base verb must undergo a non-feature-driven movement to Par for phonetic realization—an ing- or ed-suffix—at SS.

References

양동휘. 1998a. "Recent Developments and Issues in Minimalist Syntax," 특강자료 모음집, 한국생성문법학회.

양동휘. 1998b. "최소주의의 최근 동향과 문제점들," 한국언어학회.

양동휘. 1999. "Recent Developments in Minimalist Syntax," 문법이론과 영어교육, 현대문법학회·대한언어학회.

유종택. 1994. "The IP Structures of Infinitives," 논문집 (인문사회학 편) 제16집, 호원대학교.

유종택. 1995. On the Feature-Checking of Embedded Clauses," 언어학 제3권, 대한언어학회.

유종택. 1996. "Selectional Features of an Infinite Phrase," 언어학, 제4권, 대한언어학회.

임영재. 1984. "Case-Tropism: The Nature of Phrasal and Clausal Case," 한신출판사.

Baker, C. L. 1989. *English Syntax*, MIT Press, Cambridge, Massachusettes.

Cassidy, F. G. and R. N. Ringler. 1971. *Bright's Old English*, Holt, Rinehart and Winston Inc., New York.

Chomsky, N. 1995. *The Minimalist Program*, MIT Press, Cambridge, Massachusetts.

Chomsky, N. 1998. "Minimalist Inquiries: the framework," Ms., MIT.

Chomsky, N. 1999. "Derivation by Phase," *MIT Occasional Papers in Linguistics* Number 18.

Diamond, R. E. 1970. *Old English*, Wayne State University Press. Detroit.

Kayne, R. S. 1991. "Romance Clitics. Verb movement and PRO," *Linguistic Inquiries* 22.

Lightfoot, D. 1981. "The History of NP Movement," in Baker, C. L. & J. McCarthy (eds.), *The Logical Problem of Language Acquisition*, MIT Press.

Moore, S., T. A. Knott, & J. R. Hulbert. 1965. *The Elements of English*, The George Wahr Publishing Co., Ann Arbor, Michigan.

Mossé, F. 1975. *A Handbook of Middle English*, The John's Hopkins University Press, Baltimore.

Nash, L. 1994. "On the categorial Specification of Causative Morphemes: Evidence from Georgian," *NELS* 24.

Postal, P. M. 1974. *On Raising*, MIT Press, Cambridge Massachusetts.

Pyles, T. & J. Algeo. 1993. *The Origins and Development of the English Language*, Harcourt Brace Jovanovich, Inc.

Quirk, R., & S. Greenbaum. 1973. *A University Grammar of English*, Longman Group UK Ltd. England.

Rosenbaum, P. S. 1967. *The Grammar of English Predicate Complement Construction*, MIT Press, Cambridge, Massachusetts.

Stockwell, R. P., P. Schachter, & B. H. Partee. 1973. *The Major Syntactic Structures of English*, Holt, Rinehart and Winston, Inc., New York.

Dept. of English language, College of humanities
Howon University
727, Wolha, Impi
Kunsan, Chonbuk 573-718, Korea
E-mail: yuct@sunny.howon.ac.kr
Fax: (063) 224-9807