

# The Selectional Features of an Infinite Phrase

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Yu, Chong-Taek. 1996. *The Selectional Features of an Infinite Phrase*. *Linguistics*, 4, 125-144. A head of INFP INF selects [+Infp] and [+PL -] features. INF checks off its IPM-feature against an INP feature of PL. A head of Infp, GerP, or ParP covertly checks off its feature against the FF of null- $\varnothing$  verb with a null-suffix, *-ing*, or *-en*. Inf checks off its EPP feature against a D feature of DP. Ger covertly checks off its GPM-feature against a GEP-feature of gerundial part. Par checks off its PAM feature against a PAP feature of participial part. A head of Par-ProP Par-Pro checks off its PAPRM-feature against a PAPRP-feature of *been*. Among all features suggested in this paper, the PAPRM-feature is a unique compound feature. (Chonbuk Sanup University)

## 1. Introduction

The grammar of the Minimalist Program (MP) should satisfy the Bare Output Condition (BOC), which is an interface condition of phonetic form (PF) and logical form (LF). A proper LF to be read in C-I system is derived from the complete feature-match between targets and formal features (FF) of lexical items.

Chomsky (1995) suggests four functional categories — DP, TP, CP and vP, yet it seems that his MP suggests enough functional categories to describe the feature-checking relations of an infinite phrase (INFP). An INFP contains one of *to-* or *bare-*infinitive, gerund, and past (pas.) or present participle (pre. pple). We are willing to include even an infinitive after an auxiliary verb, since it must be a null- $\varnothing$  verb with no suffix. We wonder what functional category an INFP has in computational system.

We will first examine the origin and development of infinite verbs

from old English (OE) to modern English (ModE). Then we will examine the feature-checking relations of INFP using a newly suggested functional categories and features.

## 2. The origin and development of infinite verbs

According to Yu (1996), a null-suffix verb (infinitive) makes a head of TP T have a null- $\phi$  feature, and a head of InfP (infinitive phrase) Inf selects [+ DP —] as its feature. As the result, T checks off its null- $\phi$  feature against a null-suffix verb, whereas Inf checks off its infinitive-clause-merging (ICM) feature against an infinitive-clause (INC) feature of a prepositional link PL *to* or  $\Phi$  (an alternant of *to*), and its EPP-feature against a D-feature of DP in Spec position of Inf.

However, we will alter the terms of some phrases and features with their basic functions unchanged. First of all, we will expel a preceding InfP from the position of an infinite phrase, and insert a new functional category INFP there, since the former is a part of the latter; besides, we will abolish a preceding TP used in infinitive constructions, and use the expelled InfP instead. Before we establish such an assumption on the feature-checking structures of infinite phrases, let us look at the origin and development of infinite verbs.

### 2.1. Infinitives

As mentioned in Cassidy and Ringler (1971), the verbal endings in OE inflect in accordance with infinitives as well as number, person, mood, and tense. OE has two kinds of infinitives; the inflected infinitive and the simple infinitive. The former adds an inflectional ending *-anne* or *-enne* to its verbal stem. It is always preceded by *tō* (= *to*), representing the dative (dat.) like an object of preposition.<sup>1</sup> Its inflectional ending is almost leveled and simplified to reduce to *-en*, *-e*, or null suffix in ME. It finally becomes *to-* or bare-infinitive

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<sup>1</sup>A preposition *tō* before the dative infinitive has the same meaning and use as before the ordinary substantives. See *to* in *The Oxford English Dictionary* (OED).

without any inflectional endings in ModE.

Let us now consider the inflected (dat.) infinitives drawn from the OE, ME, and ModE literary works:

- (1) a. *Æall þæt þā wilnast tō habbene.*

...a 900, *Soliloquy* (1902), 46.

(All that you desire to have.)

- b. He tō him wende *to helpe* him in suche nēde.

...1297, R. Glouc. (Rolls), 3523.

(He went to him to help him in such need.)

- c. Her husband thinks *to come* downe tomorrow.

...1694, S. Meade in *Frrnl. Freieinds' Hist. Soc.* (1912) IX., 182.

- d. Her husband thinks [INFP [INF' [INF<sup>OMAX</sup> to INF [INFP come down tomorrow]]]].

In (a), an OE preposition *tō* immediately before the dative *habben* (have) has the same meaning as before an ordinary substantive, representing the adverbial relationship with the dative. It is dependant on a transitive verb *wilnast* (desire) with weakened sense of purpose. Likewise, in (1b), an ME preposition *to* also represents the adverbial relationship with the dative *helpe*. The ME dative completely loses its inflectional ending. to become a null-suffix verb, that is, an infinitive. In (1c), an ModE *to* is a PL, which is ultimately a mere sign without any meaning of its own, yet, after intransitive verbs, or in the passive voice, the infinitive *to* is a preposition still now.<sup>2</sup> As shown in (1d), we assume following Yu (1994, 1996) that, *to* is not a head of TP, but an interpretable lexical item which checks off its infinite phrase (INP) feature against an infinite-phrase merging (IPM) feature of uninterpretable INF.<sup>3</sup> Here the infinite feature corresponds to the infinitive feature suggested in Yu (1996). A feature attractor INP is a head of INFP. We also assume that

<sup>2</sup>In case an infinitive is a subject, or direct object of a sentence, the preceding *to* loses its meaning completely, and becomes a mere sign or prefix of the infinitive. See *to* in the *OED*.

<sup>3</sup>Certain features of FF(LI) enter into interpretation at LF while others are uninterpretable and must be eliminated for convergence. Among the Interpretable features are categorial features and the  $\phi$ -features of nominals. The Case features of V and Tense are eliminated at LF. See Chomsky (1995).

an INFP doesn't consist of Inf and TP, but INF and InfP. A head of InfP Inf has no tense and agreement including Case feature.<sup>4</sup>

Supposing all the infinite phrases contain a functional category INFP, we will now examine the simple and inflected infinitives drawn from the OE, ME, and ModE literary works:

(2) a. *Geseon* is *geltefan*.

...on the analogy of an infinitive sentence in the OED.

(To see is to believe.)

b. I *þenke tellen* a partie.

...John Gower (1330-1408), *Confessio Amantis*, 3956.

(I think to tell a party a story.)

c. Ye *nede* not to *care* if ye folow my sawe.

...1460, Towneley Myst. vii, 163.

(You need not to care if you follow my command.)

d. I hope I shall not *need employ* them to win another.

...1654-65, Earl Orrery Parthen, (1676) 668.

e. But who shal *helpe* me now for to *compleyne*?

...c 1430, Lydg. *Compl. Bl Kent.* xxvi.

(But who shall help me now to complain?)

f. All the leaves that *helped nourish* it.

...1853, Lynch, *Self-improv.* iii, 58.

g. Hwyder *wilt þu gangan*? Min Drihten, ic *wille gangan* to Rome.

...971. *Blickl. Horn*, 191.

(Where will you go? My God, I will go to Rome.)

The OE simple (nom.-acc.) infinitive without *tō* adds an inflectional ending *-an* to its stem. Its inflectional ending is leveled and dropped to reduce to *-en*, *-e*, or null-suffix in the ME period. The OE simple infinitive is used as the accusative after modals or a certain number of verbs, and in the accusative-with-infinitive (the bare-infinitive in

<sup>4</sup>Case is not a separate feature but a property pied-piped by  $\phi$ -features. Therefore a category which contains  $\phi$ -features also contains a Case property. Otherwise it does not contain the Case property. See George and Kornfilt (1981), Kayne (1994) and Yang (1996).

ModE) construction. It is also used rarely as the nominative (nom.) in case of the subject of a verb or the complement of a linking verb.<sup>5</sup> Both *Geseon* and *gelfeþan* in (2a) are analogized OE simple infinitives which represent the nom. In the late OE and ME periods, a preposition *to*, which is a simple infinitival maker, is added immediately before them like the inflected infinitives. A simple infinitive *tellen* in (2b) is used immediately after an ordinary verb *þenke(n)* (think). A preposition *to* is also added immediately before the simple infinitive in ModE. Contrary to them, A preposition *to* is always used immediately before an inflected infinitive *care* preceded by a quasi-auxiliary *need*.<sup>6</sup> However, it is optionally omitted since the late 15th century, as shown in (2d). In (2e), an inflected infinitive *compleyne* (complain) after a verb *helpe(n)* (help) has normally a PL *to* in OE and ME periods, but an inflected infinitive *nourish* in (2f) optionally does not in ModE. A PL *to* after a verb *help* is often omitted from the 16th century. Nevertheless, a PL *to* is never added to the simple infinitive after the auxiliaries of tense, mood, etc.. In (2g), the preposition *to* is not added to a simple infinitive *gangan*, since *wille* (will) is a temporal auxiliary. In short, we are sure that a PL *to* is added immediately before the simple infinitive, or omitted from the inflected infinitive, and that it is never added immediately before the simple infinitive after the modal auxiliaries.

It seems that in ModE, a PL *to* or its null alternant  $\Phi$  is always added immediately before a simple or inflected infinitive:

- (3) A head of INFP INF selects [+— InfP] and [+PL —] features.

Here INF cyclically merges with an InfP and PL, checking off its IPM-feature against an INP-feature of a PL. Before or after checking of their features, a head of InfP Inf attracts the FF of null- $\varnothing$  verb with no suffix in overt or covert syntax.

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<sup>5</sup>See Diamond (1970).

<sup>6</sup>In modern usage the *to* is expressed except when the clause has the form *it* (*he*, *I*, etc.) *need not*, (*why*) *need* (*it*, etc.)?

## 2.2. Gerunds

The OE and ME inflected infinitive is sometimes fancifully called by modern grammarians, the gerundial infinitive, as answering in some of its functions to the Latin gerund (supine). Examined it from a viewpoint of descriptive grammar, it must be a dative infinitive.<sup>7</sup>

An ModE gerundial *-ing* form is derived from a verbal substantive in *-ing*, or *-ung* in OE, and then in *-i(=y)ng(e)* in ME. In fact, OE gerundial ending is originally a suffix of a pure action-noun which is feminine, but it is gradually added to an ordinary verb since the 14th century. The gerund never stops gaining importance during the ME period. According to Mossé (1975), it is in free variation with the infinitive as an adjunct to another verb. As illustrated in (2), most of adjuncts to another verbs are the simple infinitives in the OE and ME periods. It makes us conjecture that the early and middle OE gerund is in free variation with the simple infinitive. It seems that the inflected infinitive can't at that time, since it is always preceded by a preposition *to* with semantic content.<sup>8</sup>

Let us consider OE and ME gerundial constructions:

(4) a. *Geseoung* is *gelifung*.

...on the analogy of a simple-infinitive sentence in (2a).

(Seeing is believing.)

b. And I herde *goynge*, both up and doun, Men, hors, houndes,  
and other thyngs;

...1369-70, Geoffrey Chaucer, *The Book of the Duchess*, 348.

(And I heard going, up and down, Men, horses, hounds, and  
other things;)

c. Whan that she hereth any herde tale, Or in the hegges any  
wyght *stiryng*,

...1380-86, Geoffrey Chaucer, *Troilus and Criseyde*, 1235-1236.

<sup>7</sup>See Cassidy & Ringler (1971).

<sup>8</sup>There was also a special idiomatic use of the infinitive with *to* as an indirect nominative, where logically the simple infinitive might be expected. From these beginnings, the use of infinitive with *to* in place of the simple infinitive increased rapidly during the late OE. See *to* in the *OED*.

(When she hears any shepherd talk, Or in the hedges anybody stirring,)

- d. To *herkene* (*Herkenyng*) Goddis word is more than to offre the ynnere fatnesse of rammes.

...1388, Wyclif, *Sam.* xv. 22.

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

Supposing that the early or middle OE gerund is in free variation with the simple infinitive, A gerund *Geseoung* ( seeing) in (4a) and a simple infinitive *Geseon* in (1a) are alternately used in the same nom. position. Likewise, a gerund *geltefung* (believing) in (4a) and a simple infinitive *geltefan* in (1a) are so. A gerund *goynge* (going) in (4b) is in free variation with a simple infinitive *go(n)* in an accusative-with-infinitive construction. A gerund *stiryng* in (4c) is alternately used in the position of a simple infinitive *stire* (stir) like (4b). An inflected infinitive *herkene* (hearken) in (4d) is alternately used with an analogized gerund *Herkenyng*, since the infinitive as direct subject is often replaceable by the gerund in *-ing*. The ME gerund is very early merged in form with the new pre. pple. Therefore the ModE gerund can alternately be used with the original simple infinitive.

Let us consider infinitivals and gerundives illustrated in Stockwell et al. (1973):

- (5) a. He began *to work*.  
 b. He began *working*.  
 c. I saw him *work*.  
 d. I saw him *working*.  
 e. It's been nice *knowing* you.  
 f. It's nice *to know* you.  
 g. Just *knowing* that you are here is reassuring.  
 h. Just *to know* that you are here is reassuring.

An infinitive *to work* in (5a) is an OE inflected infinitive, whereas *working* in (5b) takes the place of an OE simple infinitive. That's because a main verb *began* in (5a-b) is found construed either with the

simple infinitive or with the inflected infinitive in the OE period. A simple infinitive *work* in (5c) is in free variation with a gerund *working* in (5d). An gerund *knowing* in (5e) is an indirect subject instead of *it* (OE *hyt*), which originally takes the place of a simple nom. infinitive. In (5f), a Pl *to* is permitted to add to the simple nom. infinitive. A gerund *knowing* in (5g) is alternately used as a direct subject in place of a simple infinitive. In the late OE and ME periods, a PL *to* is added to the simple nom. as in (5h). We finally come to an assumption that the ModE infinite gerund has the similar feature-checking structure to the early OE simple infinitive with an empty PL  $\Phi$  (an alternant of *to*), even if they have different inflectional endings:

- (6) A head of INFP INF selects [+— GerP] and [+PL —] features.

Here INF cyclically merges with a GerP and PL, checking off its IPM-feature against an INP feature of an empty PL  $\Phi$ . After checking their features, a head of GerP Ger covertly attracts the FF of a null- $\varphi$  verb with a gerundial ending *-ing*.

### 2.3. Participles

Pyles (1964) mentions that 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*), but it did so less frequently. The system of such combinations was less fully developed. Combinations using both auxiliary verbs, such as *has been running*, did not occur in OE. The OE periphrastic locution with *be* and the pre. pple is used to emphasize an idea of duration. Little by little its use is extended and its area of meaning becomes more precise, but before the 15th century it is hardly to be found except in the preterit and the present. It is limited to a few verbs like *go*, *come*, *dwel*, *live*, *fight*, and *consent*, among others.<sup>9</sup>

<sup>9</sup>In OE, only *wæs* was used, forming a kind of imperfect: the present was in use by the 13th c. In later times this was confused with a formation upon the verbal substantive. For example, the OE *he wæs feohtende*, and ME 'he was a-fighting,' meet in the modern 'he was fighting.' See *be* in the *OED*.



Let us take a look at the OE and ME sentences with *be* and pre. pple:

- (7) a. *Æþelwulp ferde to Rome and þær wæs vii monaþ wuniende.*  
 ...885, *OE. Chron.*  
 (Athelwulp went to Rome and there was dwelling for 7 months.)
- b. *þere was dwellinge somtyme a riche amn.*  
 ...1366-7, Jehan De Bourgogne, *The Travels of Sir John Mandeville*, 4.  
 (Once upon a time a rich man was dwelling there.)

A preterit *wæs* in (7a) serves as an auxiliary verb, forming periphrastic tense. It is a time indicator, almost tense flection. A pre. pple *wuniende* (dwell) in (7a) is also in use by the 13th century. In later times it is confused with a formation upon the gerund. A pre. pple in *dwellinge* (dwell) in (7b) has the same inflectional form as that of gerund. A pre. pple is now an infinite verb with an inflectional ending *-ing*, since an auxiliary verb *be* has  $\phi$ -features including Case.

One auxiliary verb *be* forms a passive (pass.) voice or present perfect (pre. per.) with a pas. pple, whereas the other auxiliary verb *have* forms a pre. per. with it:

- (8) a. *Ic eom ofwundrod.*  
 ...c885, K. Ælfred, *Boeth.* vii, 40.  
 (I am astonished.)
- b. *Jesu Crist iss borenn þær.*  
 ...c1200, Orm, *The Ormulum*, 3654.  
 (Jesus Christ is born there.)
- c. *Thre dais es gon.*  
 ...a 1300, *Cursor M.*, 14322.  
 (Three days is gone.)
- d. *Himm hafst tu slagenn*  
 ...c1200, Ormin, 4458.  
 ((You) have struck him twice.)

In (8a), an OE transitive pas. pple *ofwundrod* is an infinite verb forming

a pas. voice with an auxiliary *be*. In (8b), an ME transitive pas. pple *borenn* forms a pas. voice, too. In (18c), an ME intransitive pas. pple *gon* (ModE *gone*) in (8c) forms a pre. per., in which use the auxiliary *be* is now largely displaced by *have* after the pattern of transitive verbs.<sup>10</sup> As in the other Germanic languages, an auxiliary *haffst* (*have*) in (8d) is used with *slagenn* (struck) to form a pre. per. of its own, expressing action already finished at time indicated.

It seems in (8) that an English pas. pple preceded by an aspectual auxiliary has just the same feature-checking structure as a simple infinitive preceded by a temporal, modal, or quasi-auxiliary:

- (9) A head of INFP INF selects [+— ParP] and [+PL —] features.

INF cyclically merges with an InfP and PL, checking off its IPM-feature against an INP feature of an empty PL  $\Phi$ . After checking their features, a head of participle phrase (ParP) Par covertly attracts the FF of a null- $\varphi$  verb with a participial ending *—ing* or *—en*.

Let us finally combine three types of selectional features of INFP suggested in (4), (6) and (9) into one:

- (10) A head of INFP INF selects [+— InfP, GerP, or ParP] and [+PL —] features.

It seems that the feature-checking structure of an INFP (10) universally applies to German except for its *gerund*, which has an inflectional ending *—ung* as in OE.<sup>11</sup>

<sup>10</sup>*Be* is retained only with *come, go, rise, set, fall, arrive, depart, grow*, and the like, when we express the condition or state now attained, rather than the action of reaching it, as 'the sun is set.' See Mossé (1975).

<sup>11</sup>The modern German seems to have the similar feature-checking structures to the Modern English. Each sentence contains an INFP:

- (1) a. Das kind geht [*INFP spielen*]. (The child went to play.)  
 b. Ich habe eine Taxe [*INFP stehen*]. (I have a taxi stand.)  
 c. Sie gab eine Rätsel [*INFP zu lösen*]. (She gave a riddle to solve.)  
 d. Der Brief ist [*INFP geschrieben*]. (The letter is written.)  
 e. Ich habe eine Stellung [*INFP gefunden*]. (I have found a job.)

### 3. The feature-checking structure of infinite phrases

Although Chomsky (1994, 1995) establishes categorial and lexical features, their features are not enough to accurately describe the checking relations of infinite phrases. For example, Yang (1995, 1996) explains following them that an infinitive marker *to* is a head of functional category which attracts an infinitive subject with a categorial feature. However, it seems that it lacks something of an explanatory power, since an infinitive marker *to* is often a PL with semantic content in a passive or intransitive construction. We hope that the above (10) can solve some syntactical questions raised in infinite phrases.

#### 3.1. Infinitival feature-checking structures

Lêa Nash (1994) suggests a fresh idea that a causative construction contains an INFinP (INFinitivalP in Kayne (1991)). Although his suggestion is not based on the Attract-F theory, it gives us a crucial hint that an INFP plays an important role in the computational system. We assume in (3) that a head of INFP INF selects [+— InfP] and [+PL —] features.

Let us first look at the feature-checking relations in infinitive constructions below:

- (11) a. He *yelled for Mary to do it*.  
 b.\* *He yelled to do it*.  
 c. *To err* is human.
- (12) a. He yelled [CP [C' for [INFP Mary<sub>i</sub> [INF' [INF<sup>OMAX</sup> to INF] [InfP [Inf' Inf [vP t<sub>i</sub> [v' v [VP do it]]]]]]]]]]]  
 b.\* He<sub>i</sub> yelled [CP [C' Φ [INFP PRO<sub>i</sub> [INF' [INF<sup>OMAX</sup> to INF] [InfP [Inf' Inf [vP t<sub>i</sub> [v' v [VP do it]]]]]]]]]]]  
 c. [CP [C' Φ [INFP PRO<sub>i</sub> [INF' [INF<sup>OMAX</sup> to INF] [InfP [Inf' [Inf<sup>OMAX</sup> FF<sub>(K)</sub> Inf] [vP t<sub>i</sub> [v' t<sub>i</sub> [VP err<sub>(FF)</sub>]]]]]]]]]]] ] [CP [TP t<sub>j</sub> is human]]

Infinitive constructions (11a) and (11c) are grammatical, but (11b) is not, since the latter does not contain a lexical NP in the position of infinitive subject. According to Stowell (1981), a non-bridge verb *yell*, which is

one of the manner-of-speaking verbs, assigns no  $\theta$ -role to its *that*-clause complement. Therefore the *that*-clause complement is only an adjunct added to a VP. Yu (1995) also proposes that it is not a DP-clause but a CP-clause in which any lexical item cannot raise to a higher clause as well as its FF. (12a) is a partial derivational structure of (11a) before Spell-Out. A head of INFP INF selects an InfP as its complement. It checks off its IPM-feature against an INP feature of a PL *to*, checking off its EPP-feature against a D-feature of *Mary*. Then a complementiser *for* assigns governed Case (GC) to an infinitive subject *Mary*. At LF, a head of InfP Inf covertly checks off its Inp-feature against an InfP merging (Ipm) of null- $\varphi$  verb with no suffix, which has no tense, agreement, and Case features to check off against the FF of a subject. (12b) is a partial derivational structure of (11b). Here an alternant of *for*  $\Phi$  assigns a null-Case to PRO, but its derivation instantly crashes.<sup>12</sup> That's because PRO never refers to a matrix subject *he*. (13c) is a partial derivational structure of (11c) in covert syntax, where Inf checks off its Ipm-feature against an Inp-feature of *err*.

We assume that a *want*-type verb selects an infinite complement-clause which differs from a *believe*-type verb. The former selects a DP -clause, whereas the latter selects only an INFP. As suggested in Yu (1996), *want*-type verbs select two types of complementisers of *want*-type verbs — *for* or  $\Phi$ , but here we will add a missing complementiser (*for*) to them:

- (13) a. I *want to meet* Mary.  
 b. I *want John to meet* Mary.  
 c.\**John is wanted to meet* Mary.  
 d. I *want very much for John to meet* Mary.  
 e.\**I believe to meet* Mary.  
 f. I *believe John to meet* Mary.  
 g. *John is believed to meet* Mary.

- (14) a. I want [DP [CP [C'  $\Phi$  [INFP PRO<sub>i</sub> [INF' [Inf<sup>OMAX</sup> to INF] [InP t<sub>i</sub> meet Mary]]]]]]

<sup>12</sup>A phonologically null complementiser  $\Phi$  must be present for interpretation at the C-I interface as if it were a lexical item, but never appears overtly. See Chomsky (1995) and Yu (1995).

- b. I want [DP [CP [C' for<sub>(MPF)</sub> [INFP John<sub>i</sub> [INP' [INF<sup>OMAX</sup> to INF] [INFP t<sub>i</sub> meet Mary]]]]]]]
- c. I want very much [DP [CP [C' for [INFP John<sub>i</sub> [INP' [INF<sup>OMAX</sup> to INF] [INFP t<sub>i</sub> meet Mary]]]]]]]
- d. \*I<sub>i</sub> [VP t<sub>i</sub> [V' [V<sub>B</sub><sup>OMAX</sup> FF<sub>(K)</sub> believe<sub>j</sub>] [VP [V' t<sub>j</sub> [INFP PRO<sub>UFFK</sub> [INF' [INF<sup>OMAX</sup> to INF] [INFP t<sub>K</sub> meet Mary]]]]]]]]]
- e. I<sub>i</sub> [VP t<sub>i</sub> [V' [V<sub>B</sub><sup>OMAX</sup> FF<sub>(K)</sub> believe<sub>j</sub>] [VP [V' t<sub>j</sub> [INFP John<sub>UFFK</sub> [INF' [INF<sup>OMAX</sup> to INF] [INFP t<sub>K</sub> meet Mary]]]]]]]]]

Both (13c) and (13e) clash soon after Spell-Out, since both have no Case features to check off against the  $\emptyset$ -features of T. (14a) is a partial derivational structure of (13a). In (14a), an alternant of *for*  $\Phi$  assign GC — a null Case — to an infinitive subject PRO.<sup>13</sup> In (14b) which is a partial derivational structure of (13b), *for<sub>(MPF)</sub>* assign GC to an infinitive subject *John* in overt syntax. We will call it *for* with missing phonetic feature (MPF).<sup>14</sup> Before Spell-Out, it merges with an INFP and assigns GC to an infinitive subject. After Spell-Out, it enters into not PF but MF, meeting Chomsky's (1995) inclusiveness condition. We assume that MF is a storing place of invisible formal, semantic, or phonetic features. As the result, all the lexical items entering into one of the computational system can pass through the interface into three types of output forms — PF, MF, and LF. In (14d), a FF of PRO mismatches with Case and D-features of *believe* at LF. Contrary to (14d), (14e) fully observes the BOC, since a FF of *John* matches with Case and D-features of *believe* at LF. The believe-type verbs select [+— InfP] feature.

Now, let us explore a new feature-checking structure of an InfP (OE simple infinitive) after an auxiliary verb:

- (15) a. Mary *will be* right.
- b. [CP [C'  $\Phi$  [AuxP Mary<sub>i</sub> [Aux' [Aux<sup>OMAX</sup> will AUX] [INFP t<sub>i</sub> [INF' [INF  $\Phi$  INF] [INFP [InP' [InP<sup>OMAX</sup> FF<sub>(j)</sub> Inf] [VP t<sub>i</sub> [V' [v be<sub>+V</sub>] [VP [V' [V t<sub>j</sub>] [A<sub>DP</sub> right]]]]]]]]]]]]]]]]]]]]]

<sup>13</sup>Pesetsky (1992) proposes to consider  $\Phi_{for}$  the complementiser of certain infinitives despite the fact that it is a zero-morpheme. See Ormazabal (1994).

<sup>14</sup>Chomsky (1995) assumes that the deletion operation (Delete  $\alpha$ ) marks some object as invisible at the interface; the material deleted, though ignored at the interface, is still accessible within C<sub>HL</sub>. Confer Palmer (1989).

Here (15b) is a derivational structure of (15a) at LF. For simplicity's sake, we ignore a minute process of the repair strategy, by which *Mary* merges with *Aux* and move to the *Spec* position of *AuxP* for repairing phonetic and semantic properties. As mentioned in Hock (1986), *Aux* ordinarily is finite, i. e., marked for person or gender, number and tense, while a main verb is infinite. Therefore (13b) should cyclically contain an *InfP*, *INFP*, and *AuxP*. *INF* checks off its *IPM*-feature against a *INP*-feature of a alternant of *to*  $\Phi$  and its *EPP*-feature against a *D*-feature of *Mary*. A head of *AuxP* *Aux* checks off its *AuxP*-merging (*APM*) feature against a *AuxP* (*AUP*) feature of *will* and its *EPP*-feature against a *D*-feature of *Mary*. Since a *D*-feature of *Mary* is interpretable, it can be checked off repeatedly. *Inf* covertly checks off its *IpM*-feature against a *INp*- feature of *be*.

### 3.2. Gerundial feature-checking structures

As assumed in (6), a head of *INFP* *INF* selects [+ $\text{--}$  GerP] and [+PL  $\text{--}$ ] features. The *ModE* gerund is originally derived from the OE simple (nom.-acc.) infinitive. It is never derived from the OE inflected (dat.) infinitive preceded by a preposition *to*. Strickly speaking, only a gerund can take place of the original simple infinitive with a PL  $\Phi$ :

(16) a. *Reading* is a pleasant relaxation.

b.\*[How<sub>i</sub> living t<sub>j</sub>]/[How<sub>i</sub> to live t<sub>j</sub>] is a serious matter.

c. [CP [C' [C<sup>OMAX</sup>  $\Phi$  C] [TP [DP [D' [d] [NP [PosP [Pos' [Pos<sup>OMAX</sup> FF(i) Pos] [INFP [INF' PRO<sub>IPF1</sub> [INF<sup>OMAX</sup>  $\Phi$  INF] [GerP [Ger' [Ger<sup>OMAX</sup> reading<sub>j</sub> Ger] [VP [V' t<sub>j</sub> [VP [V' [V t<sub>j</sub>]]]]]]]]]]]]] [T' [T<sup>OMAX</sup> is<sub>k</sub> T] [VP [V' [V t<sub>k</sub>] [VP [V' t<sub>k</sub> a pleasant relaxation]]]]]]]]]]

(16c) is a derivational structure of a gerundial construction (16a) at LF. In (16b), it seems that a gerundial construction does not allow a *wh*-phrase to appear before its subject. The first  $\Phi$  in (16c) is an alternant of *that*, and the second an alternant of a PL *to*; besides, [d] is an empty determiner.<sup>15</sup> A head of *PosP* *Pos* covertly checks off its

<sup>15</sup>Chomsky (1994) assumes following Abney's (1987) Strong DP Hypothesis that a simple NP is a DP with an empty determiner [d] as in [<sub>DP</sub> (d) [<sub>NP</sub> Mary]].









#### 4. Conclusion

An English INFP contains one of *to-* or bare-infinitive, gerund, and pre. or pas. pple. OE has two types of infinitives. Their inflectional endings becomes a null-suffix verb (a verb with null- $\varphi$  feature: infinitive) since the ME period. In ModE, an infinitival *to* is nearly a PL. INF merges with an InfP and PL, checking off its IPM-feature against an INP-feature of PL. An OE gerund is in free variation with the infinitive as an adjunct to another. An ModE gerund has the similar feature-checking structure to the early OE simple infinitive. INF merges with a GerP and PL. A head of GerP Ger covertly attracts the FF of null- $\varphi$  verb with a gerundial ending. An English pas. pple preceded by an aspectual auxiliary has just the same feature-checking structure as a simple infinitive preceded by a temporal, modal, or quasi- auxiliary. INF merges with an ParP and PL. A head of ParP Par covertly attracts the FF of null- $\varphi$  verb with a participial ending. We assume that a head of INFP INF selects [+— InfP, GerP, or ParP] and [+PL —] features.

In infinitive constructions, Inf checks off its an EPP-feature against a D-feature of DP. At LF, a head of InfP Inf covertly checks off its Ipm-feature against an Inp-feature of null- $\varphi$  verb with null suffix. In gerundial constructions, Ger selects a PosP instead of a CP. A head of GerP Ger covertly checks off its GPM-feature against a GEP-feature of gerundial part. A head of ProP Pro checks off its  $\varphi$ -features against the FF of *be*. A head of PreP Pre checks off a PRM-feature against a PRP-feature of present-participial part. A head of PasP Pas checks off its PSM-feature against a PSP-feature of *be*. Besides, a head of a ParP Par checks off its PAM-feature against a PAP-feature of participial part. A head of PerP Per checks off its  $\varphi$ -feature against the FF of *have* or *be*. A head of Par-ProP Par-Pro checks off its PAPRM-feature against a PAPRP-feature of *been*.

We conclude that a head of INFP INF selects [+— InfP, GerP, or ParP] and [+PL —] features. We don't touch the raising of aspectual verbs to the Spec position of CP.

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