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Null Subjects in Imperatives, Mad Magazine Sentences, and Child English*

Hajime Miyamoto

1. Introduction

As is well-known, null subjects are permitted in Italian but not in English as in (1).

(1) a. Palra Italiano. (Italian)
b. *Speaks English.
(Roberts and Holmberg (2010: 4))

Previous studies discuss the correlation between null subjects and the strength of agreement (Rizzi (1982, 1986), Chomsky (2015), among others). Specifically, Italian has "strong agreement" unlike English, so missing subjects are attested in Italian but not in English. However, English allows null subjects in special situations as follows.

(2) a. Close the window! (Kondo (2000: 591))
b. (Me) get a respectable job! (Akmajian (1984: 4))
c. Shake hands. (Eric, 2; 20) (Bloom (1970: 108))

The example in (2a) shows an imperative sentence and (2b) presents an example of a Mad Magazine Sentence (MMs). The sentence in (2c) is produced by an English-speaking child. Though null subjects are not allowed in English under normal circumstances, all the examples in (2) permit null subjects. The question arises as to why null subjects are licensed in (2) but not in (1b). Also, are the missing subjects in (2) like the option found in pro-drop languages as in (1a)? This paper argues that the existence/absence of agreement is related to null subjects in English but the null subjects in (2) are quite different from those found in pro-drop languages such as (1a).

The organization of this paper is as follows. Section 2 overviews the properties of imperatives, MMs, and child English. Section 3 outlines the main theoretical background of this paper: Chomsky (2013, 2015) and Miyamoto (2024). In section 4, we will propose that the analysis by Miyamoto (2024) can be extended to imperatives, MMs, and child English. Section 5 concludes the discussion.

2. The Properties of Imperatives, MMs, and Child English

2.1. Imperatives

It is well-known that the subject of an (English) imperative is restricted to the addressee and the subject of an imperative sentence must be in the second person as follows.

(3) a. Wash yourself! (Zanuttini (2008: 187))

b. Raise your hand, won't you/ *he? (Kaur (2020: 2))

The null subject can bind 2nd-person anaphors as shown in (3a) and when a tag question follows the imperative sentence, the subject position in the tag is a 2nd-person pronoun as in (3b). Let us show the unique properties of imperative subjects in English. First, the pronunciation of subjects in imperatives is optional and these are not restricted to 2nd person as illustrated in (4) and (5).[1]

(4) a. You take out the trash!

b. Take out the trash!

(Kondo (2000: 595))

(5) John come here, Mary stay where you are! (Zanuttini (2008: 192))

Second, verbs in imperative sentences are not inflected as in (5) and (6).[2] The subjects in (5) are 3rd person singular but the verbs do not take *-s*. In addition, the verb in (6) is the infinitive form of the copula *be*.

(6) (You) be quiet! (Rupp (2003: 13))

Third, proper names as subjects can bind a 2nd-person element in imperatives, unlike declaratives and interrogatives as in (7).[3]

(7) a. John$_i$ raise your$_i$ hand. Mary$_j$ wiggle your$_j$ fingers!

b. *John$_i$ raised your$_i$ hand, while Mary$_j$ wiggled your$_j$ fingers.

c. *Did John$_i$ raise your$_i$ hand, while Mary$_j$ wiggled your$_j$ fingers?

(Zanuttini (2008: 192))

The contrast between (7a) and (7b, c) shows that subjects in imperatives differ from those in declarative and interrogatives.

2.2. MMs

Akmajian (1984) refers to a special type of exclamative sentences as Mad Magazine Sentences (MMs), an example of which is shown in (8).

(8) What! *Her* call me up?! Never. (Akmajian (1984: 3))

MMs have interesting syntactic properties as follows.

(9) a. Him worry/*worries??

b. *Him broke a promise??

(Schütze (1997: 189))

(10) (Me) get a respectable job! (Akmajian (1984: 4))

(11) Him/*'im get a job?! (Akmajian (1984: 8))

First, verbs in MMs never inflect for tense, person, and number as illustrated in (9). Second, the phonological realization of subjects in MMs is optional as in (10). Third, phonological reductions of pronouns in a subject position are impossible in MMs, and subjects in MMs are always stressed (see Akmajian (1984) for details). Given these facts, previous studies argue that T and C in MMs are nonfinite (Akmajian (1984), Grohmann and Etxepare (2003), Etxepare and Grohmann (2005), among others). In addition, it has been argued that C has a focus feature (Tamada and Kondo (2021), Moritake (2021, 2022, 2024), among others).[4]

2.3. Child English

It is well-known that English-speaking children around the age of two permit subjects to be dropped (Bloom (1970), Hyams (1986, 1991, 1996, 2011), Hyams and Wexler (1993), Rizzi (1994, 2006), Sano and Hyams (1996)).

(12) a. Want more apple. (Eric, 2; 20) (Bloom (1970: 122))

b. Go on track. (NS=train, Adam, 2;5. 12)

(Sano and Hyams (1994: 544))

Hyams (1983, 1986) originally suggested that null subjects of English-speaking children could be analyzed through the null subject parameter. In other words, null subjects of English children are equivalent to those of Italian (a pro-drop language) speakers. However, Hyams's argument is dubious because these null subjects behave differently. First, the dropping of subjects in child English is restricted to root clauses but this restriction is not found in Italian as in (13) (see Valian (1991), Hyams (2010), among others).

(13) __ *so* *che cosa* _____ *hai detto*
(I) know what (you) said
'I know what you said.' (Italian: Rizzi (1994: 154))

Second, Italian shows rich agreement but English does not. In the literature, it has been argued that null subjects are possible in pro-drop languages because of the richness of agreement (Rizzi (1982, 1986), Chomsky (2015), among others). However, this is not the case with child English: the underspecification of agreement is responsible for the subject drop in child English (see Sano and Hyams (1994) for details.). (14) shows that verbs are not inflected when null subjects are third person.

(14) a. Bite me boot. (NS=Doggie, Adam 2;5. 12)
b. Where go? (NS=Humpty Dumpty, Adam 2;7. 14)

(Sano and Hyams (1994: 553))

In this section, we have overviewed the properties of imperatives, MMs, and child English. What is important here is that they have a similarity: they do not show verbal inflection in English when they have null subjects. Before proceeding to a detailed analysis, we will lay out our theoretical assumptions in the next section.

3. Theoretical Assumptions

3.1. Chomsky (2013, 2015)

Chomsky (2013, 2015) argues that Merge is essential in human language and applies to two syntactic objects α and β, forming a new syntactic object γ={α, β}. Any syntactic objects formed by Merge must have a label for interpretation at the

conceptual-intentional (CI) and sensorimotor (SM) interfaces. Therefore, he proposes the Labeling Algorithm (LA), where the nearest head is determined as the label by Minimal Search (MS). First, let us consider the simplest case, where a head merges with a phrase as in (15).

(15) $\{_{\alpha}$ H, XP$\}$ (α=H)

In this case, the nearest head found by MS becomes the label. The next case is an XP-YP configuration as in (16), where both elements are phrases.

(16) a. {{X,WP}, {Y, ZP}}={XP, YP}

b. {XP, $\{_{\alpha}$ ~~XP~~, YP}} (α=Y)

c. $\{_{\alpha}$ $\{X_{[F]}$, WP}, $\{Y_{[uF]}$, ZP}} (α=<F, F>)

MS cannot identify the label uniquely because MS finds both heads, X and Y, simultaneously. Given this, Chomsky offers two possible solutions. One is internal Merge (IM). Assuming that lower copies of the IM-ed element are invisible to MS, he argues that the label of the set can be determined as Y when XP, marked with a strikethrough, is internally merged in (16b). The second solution is feature sharing. He suggests that the agreeing feature offers the label <F, F> as in (16c), where X bears a valued feature [F] and Y has an unvalued feature [*u*F]. Let us consider the derivation in (17) concretely.

(17) a. Tom read a book.

b. $\{_{\varepsilon}$ C $\{_{\delta}$ $Tom_{[phi]}$ $\{_{\gamma}$ $T_{[uphi]}$ $\{_{\beta}$ ~~Tom~~ $\{_{\alpha}$ read a book}}}}}

(α=β=<R-*v**>, γ=T, δ=<phi, phi>, ε=C)

Since β and δ are XP-YP configurations, MS cannot find the head uniquely. The solution to label β and δ is IM of Tom. Though <R-*v**>P and DP do not share any agreeing feature, <R-*v**> determines the label of β since the lower copy of *Tom* is invisible to MS. Moreover, the label of δ is identified as <phi, phi> since *Tom* and T share phi features.

Chomsky (2015) insists that the difference between English and Italian arises because of the strength of T. (18) and (19) show that English cannot have null subjects but Italian can.

(18) a. *Speaks English. (Roberts and Holmberg (2010: 4))

b. {$_{\alpha}$ T {$_{<R\text{-}v^*>}$ speaks English}} (α=?)

(19) a. Parla italiano.
Speaks Italian
'He/She speaks Italian.' (Roberts and Holmberg (2010:4))

b. {$_{\alpha}$ T {$_{<R\text{-}v^*>}$ parla italiano}} (α=T)

(18b) and (19b) illustrate the structures of (18a) and (19a), respectively. Chomsky argues that the strength of T results from richness of agreement: T, with rich agreement, is strong enough to be identified as the label, while T with weak agreement is too weak to serve as a label. Thus, English T cannot serve as a label because English has weak agreement in (18b). In contrast, Italian T with rich agreement can be determined as a label in (19b). Thus, he abandons the assumption that Italian has a null *pro* subject, keeping with the parametric difference in terms of rich agreement.

3.2. Miyamoto (2024)

Miyamoto (2024) points out that Chomsky's analysis cannot account for discourse pro-drop languages: Chinese, Japanese, Korean, and Vietnamese, among others. These languages do not show any kind of agreement but can have empty subjects as shown in (20).[5]

(20) a. *e* kuru-yo.
Come-YO
'[He] comes.' (Japanese)

b. *e* lai-le.
come-LE
'[He] came.' (Mandarin Chinese: Huang (1984: 537))

According to Miyamoto, Chomsky's analysis predicts that languages without agreement have weak T and cannot have null subjects, contrary to fact. Miyamoto suggests a revised LA to explain discourse pro-drop languages. Let us consider how the revised LA works below.

(21) a. {$_{\alpha}$ XP$_{[uF]}$, YP$_{[F]}$} (α=<F, F>)

b. {$_{\alpha}$ XP, YP} (α=X)

c. $\{_{\alpha}$ XP, YP$\}$ (α=Y)

Though the revised LA is the same as Chomsky's in that the agreeing features can be identified as labels, it abandons Chomsky's stipulation where lower copies of syntactic objects cannot participate in the identification of the label. Concretely, following Mizuguchi (2019), Miyamoto assumes that either head optionally takes part in labeling in (21b) or (21c) unless X and Y share features. Moreover, he points out that with Chomsky's LA it is not obvious why labels are necessary at the SM interface (cf. Takita (2020)). Given this, he argues that the structurally prominent copy is a copy which involves the identification of labels.[6] Thus, he proposes (22).

(22) A copy which does not take part in labeling is not externalized in the cases of (21b, c).[7, 8]

According to (22), syntactic objects are externalized as follows.

(23) a. $\{_{\alpha}$ XP, ~~YP~~$\}$ (α=X)

b. $\{_{\alpha}$ ~~XP~~, YP$\}$ (α=Y)

In (23a), Y, which does not involve the label of α, is not externalized. In contrast, (23) is reversed: X is not externalized since X does not participate in the identification of the label. Therefore, he derives the necessity of labels at the SM interface from the externalization of copies.

Contrary to Chomsky (2013, 2015), the label of the XP-YP configuration is necessarily determined under the revised LA. Since Chomsky (2013, 2015) attributes the obligatory IM of subjects from SPEC-<R-*v**> to a labeling failure, Miyamoto's analysis needs an alternative explanation. He explains this in terms of interface conditions. Consider (24).

(24) a. John will buy a car.

b. $\{_{C}$ C $\{_{<phi, phi>}$ DP$_{[phi]}$ $\{_{T}$ T$_{[u phi]}$ $\{_{\alpha}$ ~~DP~~, <R-*v**>P$\}\}\}\}$ (α=<R-v*>)

c. $\{_{C}$ C $\{_{<phi, phi>}$ DP$_{[phi]}$ $\{_{T}$ T$_{[u phi]}$ $\{_{\alpha}$ DP, ~~<R-v*>P~~$\}\}\}\}$ (α=D)

Following Mizuguchi (2019), Miyamoto assumes that selectional relations are evaluated at the CI interface. The possible derivations of (24a) are illustrated by (24b, c), where α is an XP-YP configuration without shared features. In (24b), <R-*v**> is identified as the label. According to (22), DP is not externalized, resulting in the

pronunciation of (24a). In addition, this derivation satisfies a selectional relation of T: T selects <R-*v**>P. Therefore, this derivation meets the conditions of the SM and CI interfaces. In (24c), where *John* serves as the label of α, the lower copy is externalized. This derivation predicts the pronunciation of the sentence: **John will John*, contrary to fact. Moreover, this derivation cannot meet the condition of the CI interface because T selects DP, not <R-*v**>P. As a result, (24c) cannot satisfy the properties of the SM and CI interfaces. Therefore, Miyamoto's analysis keeps the strength of Chomsky's argument.

Next, we will consider the derivations of discourse pro-drop in terms of the revised LA. (25) represents the two possible derivations of (20).

(25) a. $\{_C\ C\ \{_\alpha\ \sout{DP}\ \{_T\ T\ \{_{<R\text{-}v^*>}\ \sout{DP}, <R\text{-}v^*>P\}\}\}\}$ (α=T)

b. $\{_C\ C\ \{_\alpha\ DP\ \sout{\{_T\ T\ \{_{<R\text{-}v^*>}\ DP, <R\text{-}v^*>P\}\}}\}\}$ (α=D)

Following Huang (1982) and Saito (2007, 2016), Miyamoto assumes that discourse pro-drop languages lack phi-feature agreement. In addition, Miyamoto, with Hayashi (2020), abandons the difference between strong and weak T and assumes that all heads are strong enough to serve as labels. Though DP and TP do not share agreeing features, the revised LA predicts that the label of α is determined as T or D.[9] In (25a), DP does not involve the identification of the label and is not externalized. Consequently, TP is externalized, yielding the pronunciation of (20). Moreover, since C selects TP, the selectional relation is met. Thus, this derivation converges and predicts the correct pronunciation. In contrast, in (25b), where the label of α is D, DP is externalized. This derivation predicts that only the subject "*he*" is pronounced, but this is not properly reflected in each of the sentences in (20). Moreover, since C selects DP, this derivation cannot meet the selectional requirement of C. Therefore, (25b) crashes. Under his analysis, discourse pro-drop languages are explained properly without stipulating *pro*.

In the next section, we will insist that Miyamoto's analysis can be extended to other phenomena – specifically, those laid out in section 2.

4. Analysis

Before proceeding to a detailed discussion of null subjects in English, we show why null subjects are not permitted under normal circumstances as in (1b), repeated here as (26a).

(26) a. *Speaks English. (=(1b))

b. {C C {α DP[phi] {T T[*u*phi] {<R-*v**> ~~DP~~, <R-*v**>P}}}} (α=<phi, phi>)

(26b) illustrates the derivation of (26a). In (26b), the subject DP and T share phi-features, forming the label <phi, phi>. Since DP involves the identification of the label, it must be externalized. Thus, the sentences without overt subjects are predicted to be ungrammatical.[10]

4.1. Imperatives

Recall from subsection 2.1 that imperative sentences can have null subjects and verbs in imperatives are not inflected as in (3) and (4), repeated here as (27) and (28), respectively.

(27) a. Wash yourself! (=(3a))

b. Raise your hand, won't you/ *he? (=(3b))

(28) John come here, Many stay where you are! (=(4))

(29) illustrates the possible derivations of (27).

(29) a. {C C {T T[2nd person] {α ~~DP~~ {<R-*v**> <R-*v**>P}}}} (α=<R-*v**>)

b. {C C {T T[2nd person] {α DP ~~{<R-*v**> <R-*v**>P}~~}}} (α=D)

Following Jensen (2003), we assume that T in imperatives contains an interpretable 2nd-person phi feature and subjects in imperatives remain in SPEC-<R-*v**>. In (29), DP and <R-*v**>P do not share any features, so there are two derivations: <R-*v**> or D is optionally identified as the label of α. In (29a), where <R-*v**> serves as the label of α, DP does not involve the identification of the label and is not externalized. Consequently, <R-*v**>P is pronounced, resulting in the pronunciation of (27). In addition, since T selects <R-*v**>P, the selectional requirement of T is met. Therefore, this derivation converges and predicts the correct pronunciation. In contrast, in (29b), where D is determined as the label of α, <R-*v**>P is not externalized since <R-*v**>P does not take part in the identification of the label. As a result, the pronunciation is

applied to the subject "*you*," but this is not reflected in each of the examples in (27), where subjects are covered. Moreover, this derivation cannot meet the selectional requirement of T since T selects DP, not <R-*v**>P. Thus, (29b) cannot satisfy the properties of the CI interface, causing this derivation to crash.

Next, we will consider the derivation of (28), where subjects are overt.

(30) $\{_{\beta}\ DP_{[Foc]}\ \{_{C}\ C_{[uFoc]}\ \{_{T}\ T_{[2nd\ person]}\ \{_{\alpha}\ \sout{DP}\ \{_{<R\text{-}v^*>}\ <R\text{-}v^*>P\}\}\}\}\}$

(α=<R-*v**>, β=<Foc, Foc>)

It has been argued that the realization of the imperative subject is related to (contrastive) focus or emphasis (see Potsdam (1998), Aikhenvald (2010)). We assume, with Aikhenvald (2010), that imperative subjects are introduced into the derivations with a focus feature and DP and C share focus features. Since the label of β becomes <Foc, Foc>, we predict that the imperative subjects are pronounced as in (28). In subsection 2.1, we have shown that imperative subjects can bind a second-person element as in (7), repeated here as (31).

(31) a. John$_i$ raise your$_i$ hand. Mary$_j$ wiggle your$_j$ fingers! (7)

If the lower DP (*You*) occupies SPEC-<R-*v**> and the higher DP (*John* or *Mary*) is base-generated in SPEC-C in the derivation of (30), *your hand* or *your fingers* is locally c-commanded by *you*, so this fact may be captured under our analysis.[11]

Our analysis, therefore, accounts for imperatives without stipulating *pro* or PR.

4.2. MMs

We have shown that verbs in MMs are not inflected and the realization of subjects in MMs is optional as in (9) and (10), repeated here as (32) and (33), respectively.

(32) a. Him worry/*worries?? (=(9a))

b. *Him broke a premise?? (=(9b))

(33) (Me) get a respectable job! (=(10))

Given these facts, we propose two potential derivations of (33), where subjects are not pronounced, as follows.

(34) a. $\{_{C}\ C\ \{_{\alpha}\ \sout{DP}\ \{_{T}\ T\ \{_{<R\text{-}v^*>}\ \sout{DP}\ \{_{<R\text{-}v^*>}\ <R\text{-}v^*>P\}\}\}\}\}$ (α=T)

b. $\{_{C}\ C\ \{_{\alpha}\ DP\ \sout{\{_{T}\ T\ \{_{<R\text{-}v^*>}\ DP\ \{_{<R\text{-}v^*>}\ <R\text{-}v^*>P\}\}\}}\}\}$ (α=D)

Following Moritake (2021, 2022, 2024), we assume that C in MMs lacks phi features. Since the subject DP does not share phi features with TP, there are two possible ways to determine the label of α: D or T can serve as the label. In (34a), T is identified as the label and is externalized. Since this derivation predicts that TP is pronounced and C selects TP, this derivation meets the conditions of the SM and CI interfaces. On the contrary, in (34b), where D involves the identification of the label, only the subject *me* is pronounced, contrary to the fact. Furthermore, this derivation cannot satisfy the condition of the CI interface because C selects DP. Hence, (34a) corresponds to the derivation of (33) without overt subjects.

Then, we will consider the derivation of (33), where the subject is overt.

(35) $\{_{\beta}\ DP_{[Foc]}\ \{_{C}\ C_{[uFoc]}\ \{_{T}\ T\ \{_{\alpha}\ \sout{DP}\ \{_{<R\text{-}v^*>}\ <R\text{-}v^*>P\}\}\}\}\}$

(α=<R-*v**>, β=<Foc, Foc>)

(35) illustrates the derivation of (33) with the overt subject. We follow Moritake (2021, 2022, 2024) in that subjects in MMs share focus features with C, forming the label <Foc, Foc>. In this derivation, the label of β becomes <Foc, Foc>, so that the subject is pronounced as in (33).

4.3. Child English

We have shown that English-speaking children, at about two years old, permit null subjects when verbs are not inflected in subsection 2.3.

(36) a. Want more apple. (Eric, 2; 20) (=(12a))

b. Go on track. (NS=train, Adam, 2;5. 12) (=(12b))

Taking these facts into consideration, we propose two possible derivations of (36) as in (37).

(37) a. $\{_{C}\ C\ \{_{\alpha}\ \sout{DP}\ \{_{T}\ T\ \{_{<R\text{-}v^*>}\ \sout{DP}\ \{_{<R\text{-}v^*>}\ <R\text{-}v^*>P\}\}\}\}\}$ (α=T)

b. $\{_{C}\ C\ \{_{\alpha}\ DP\ \{\sout{_{T}\ T\ \{_{<R\text{-}v^*>}\ DP\ \{_{<R\text{-}v^*>}\ <R\text{-}v^*>P\}\}\}}\}\}$ (α=D)

Following Sano and Hyams (1994), we assume that T in child English has underspecified phi features when subjects are missing (see also Moritake (2024)). Thus, the subject DP and T do not share phi features and either head is optionally identified as the label of α. In (37a), where T serves as the label, DP is not externalized

since DP does not take part in the determination of the label. This derivation predicts the correct pronunciation of (35) and the selectional requirement of C is satisfied. Therefore, (37a) has the derivation of (35). On the other hand, DP is externalized because D is determined as the label in (37a). However, this derivation cannot meet the conditions of the SM and CI interfaces because only the subject is pronounced and C selects DP. Therefore, null subjects attested in child English can be captured by the same mechanism as null subjects in discourse pro-drop languages under our analysis. Our analysis relates to Yang (2002) in that English-speaking children maintain a Chinese-like topic drop grammar at first.

Note that English-speaking children can have an overt subject like adults in (38).

(38) That truck fall down. (Nina 2;0.24)

(Sano and Hyams (1994: 545))

(39) illustrates the derivation of (38).

(39) $\{_C$ C $\{_\alpha$ $DP_{[phi]}$ $\{_T$ $T_{[u phi]}$ $\{_{<R\text{-}v^*>}$ ~~DP~~, <R-v*>P$\}\}\}\}$ (α=<phi, phi>)

We assume that phi features which T has are specified when subjects are overt.[12] In (39), the label of α becomes <phi, phi> because DP and T share phi features. Thus, (39) predicts that the subject is pronounced, corresponding to the pronunciation of (38).

Before we conclude this subsection, it is important to mention the property shown in subsection 2.3. The occurrence of null subjects is restricted to root clauses in Child English. However, this restriction is not attested in discourse pro-drop languages as in (40).[13]

(40) Taro-wa e kinoo hon-wo kat-ta to
Taro-NOM (he) yesterday book-ACC buy-PST that
it-ta.
say-PST
'Taro said that he bought a book yesterday.'

If child English is identical to discourse pro-drop languages, this difference is problematic. However, this may be related to the processing ability of children because children do not produce many embedded sentences until they are about 3

years old (see Wexler (2011)). Needless to say, further research is necessary but this interesting research topic is left for future research.

5. Conclusion

In this paper, we first showed that null subjects are not permitted under normal circumstances in English but they occur in restricted situations: imperatives, MMs, and Child English. Then, we illustrated that phi features are absent or underspecified in these situations. In section 3, we introduced Miyamoto's (2024) analysis of discourse pro-drop in terms of the Labeling Algorithm. Then, we have proposed that null subjects which occur in special environments in English can be explained under Miyamoto's analysis. Note that the absence or underspecification of phi features plays a crucial role in the occurrence of null subjects in these environments. If the analysis in this paper is on the right track, we can offer a unified explanation of null subjects in these phenomena without stipulating *pro* or PRO.

Notes

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[1] It may be said that the DPs which appear before the verbs are not subjects but vocatives in (4a) and (5). However, previous studies show that these DPs are subjects in light of the facts related with the following: an intonational break, co-occurrence of a vocative and a subject, and so on. See Potsdam (1998) and Zanuttini (2008) for details.

[2] Though verbs in imperatives are not inflected in English, there are languages whose verbs in imperatives are inflected. For example, Bhojpuri has a fully inflected paradigm in imperatives. (See Aikhenvald (2010) for other languages similar to Bhojpuri.). A crosslinguistic survey of

imperatives is beyond the scope of this paper, so this paper focuses on English imperatives.

[3] Note that third-person subjects can also bind a third-person element as in (i).

(i) One of the boys test himself while I wait! (Potsdam (1998: 182))

We will go back to the derivations of (i) in footnote 9.

[4] In the literature, alternatively, it is argued that subjects in MMs are interpreted as a topic (Lambrecht (1990), among others). However, Moritake (2024) offers evidence for the focus interpretation of subjects in MMs, not the topic interpretation. See Moritake (2024) for details.

[5] *Yo*, a sentence-final particle in Japanese, is used if the speaker assumes that the addressee is not conscious of the information (see Miyagawa (2022) for details). *Le* is also a sentence-final particle in Chinese, which is generally regarded as an aspectual perfective particle.

[6] Concerning covert movement, Chomsky (2013 :41) writes "universally in language, only the structurally prominent copy is pronounced." However, he does not show the detailed description about the structurally prominent copy. See Miyamoto (2024) for details.

[7] There are previous studies which propose that an elided element is invisible to MS (Saito (2019), Maeda (2021), among others). However, Miyamoto's analysis is slightly different from their analyses in that the directionality is reversed because elements invisible to MS result in non-realization. We hope to return to further discussion of this issue in future work. Thanks to Shogo Saito for bringing this discussion to me.

[8] As noted by Shogo Saito (p.c.), it is worthwhile to see whether non-externalization involves copy-deletion or ellipsis. Though these operations are different in some respects, it may be desirable to unify these operations. However, we will not go into a detailed discussion on the unification of these operations, since this would be beyond the scope of this paper.

[9] Although discourse pro-drop languages lack phi features, these languages may have some shared feature: a Case feature. In the derivation, where overt subjects appear, DP and TP share a Case feature, forming <Nom, Nom> label (see Saito (2016)). However, this discussion is beyond the scope of this article, so we leave it here open.

[10] Perhaps, it is said that null subjects are permitted in English like in Italian if T is strong enough to serve as a label. However, we assume, with Hayashi (2020), that English needs <phi, phi> label because a nominative Case of subjects is offered by <phi, phi> label. Since subjects must move to SPEC-TP to be assigned a nominative Case, it is predicted that null subjects are not

allowed in English.

[11] We have shown that third-person subjects can also bind a third-person element in footnote 3.

(i) One of the boys test himself while I wait!

If the higher and lower DP form the copy relation in (30), *one of the boys* locally c-commands *himself*. Thus, our analysis can capture the sentence in (i).

[12] Though the derivation of (39) captures the sentences with agreement, English-speaking children produce sentences without agreement when overt subjects appear as in (i).

(i) a. She drink apple juice. (Nina, 2;3) (Schütze and Wexler (1996: 674))

b. He bite me. (Sarah, 2;9) (Harris and Wexler (1996: 11))

If subjects and T do not share agreeing features, our analysis predicts the non-externalization of subjects, contrary to fact. We may offer some solutions for this problem. One is that subjects and T share some features such as aboutness topic features (Rizzi and Shlonsky (2006)). Second is that case features function as shared features (Saito (2016)). However, the question remains why English-speaking adults cannot use these strategies. I leave this matter to future research.

[13] The following abbreviations are used in the present paper: NOM=nominative case, ACC=accusative case, PST=past

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