

South Asian Perspectives on Argument Ellipsis.

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1.0 Introduction

This paper investigates the phenomenon of argument ellipsis as it is manifested in three languages of South Asia: Bangla, Hindi and Malayalam. Argument ellipsis is the term which has come to be associated with the omission of overt arguments from sentential structures in certain languages, where this critically results in the availability of interpretations of sloppy identity (Hoji 1998, Oku 1998, Saito 2004, Aoun and Li 2008, Şener and Takahashi 2009, Takahashi 2008a/b, 2011, Otaki 2012). This is illustrated in the Japanese examples (1-3), from Şener and Takahashi (2009), which show that null/empty subjects and objects permit sloppy as well as strict interpretations.

- (1) a. Taro-wa [zibun-no kodomo-ga eigo-o sitteiru] itta.
Taro-TOP [self-GEN child-NOM English-ACC knows that said
'Lit. Taro said that self's child knew English.'
- b. Hanako-wa [e furansugo-o sitteiru] itta.
Hanako-TOP French-ACC knows that said
'Lit. Hanako said that e knew French.'
Strict: Hanako said that Taro's child knew English.
Sloppy: Hanako said that her own child knew English.
- (2) a. Taro-wa zibun-no hahaoya-o aisiteiru.
Taro-NOM self-GEN mother-ACC loves
'Lit. Taro loves self's mother.'
- b. Hanako-wa e nikundeiru.
Hanako-TOP hates
'Lit. Hanako hates e.'
Strict: Hanako hates Taro's mother.
Sloppy: Hanako hates her own mother.

Such patterns, which have now been well documented in Japanese, Korean, Chinese and Turkish contrast with the interpretation of null arguments in

various other languages, which do not allow readings of sloppy identity and only permit strict interpretations, as illustrated in Spanish (3) and Italian (4).

- (3) a. Maria cree que su hija va a ganar el premio.
Maria believes that her daughter will C win the prize
'Maria believes that her daughter will win the prize.'
- b. Juan tambien cree que _ va a ganar el premio.
Juan also believes that will C win the prize
'Juan also believes that she will win the prize.' (only strict)
- (4) a. Gianni ha detto che su figlio è andato a Roma.
Gianni has said that his son has gone to Rome
'Gianni said that his son has gone to Rome.'
- b. Maria ha detto che _ è andato a Palermo.
Maria has said that his son has gone to Palermo
'Maria said that (he) has gone to Palermo.' (only strict)

Because the availability of sloppy interpretations in languages like Japanese is blocked when overt pronominal elements occur in place of argumental gaps, it is proposed in Şener and Takahashi 2009, and Takahashi (to appear) that phonetically unrealized subjects in languages such as Spanish which disallow sloppy readings of empty arguments are instances of base-generated null pronominals (pro), whereas Japanese and other languages which do permit sloppy interpretations of empty argument positions license this through a process of ellipsis - 'argument ellipsis' (henceforth frequently referred to as AE), which allows for a different range of interpretations at LF (both strict and sloppy).

The observation of differences in the way that null argument elements may be interpreted across languages is extremely interesting, and one which is leading to a rapid growth in hypotheses which may both account for the LF interpretation of argument ellipsis and also potentially predict which languages will and will not license AE. As such debates develop, it is necessary to expand the empirical coverage of languages exhibiting AE, as a way to provide a broader testing ground for theories proposing to explain the phenomenon. The present paper charts how AE is also robustly present in the languages of South Asia, both those in the Indo-Aryan family, represented here with Hindi and Bangla, and among Dravidian languages in the south of India, studied here with Malayalam.

A more specific, secondary goal of the paper is to examine a recent prominent proposal about AE, that patterns of AE occur in languages and structures in which arguments do not enter into *agreement* relations with their associated verbs. This is a hypothesis presented in Saito (2004), Şener

and Takahashi (2009), and Takahashi (to appear), primarily following comparative investigations of null argument phenomena in Japanese, Spanish and Turkish: Japanese is shown to exhibit AE and is a language without verbal agreement. Spanish, on the other hand, has rich verbal agreement and does not permit AE. Turkish is a language in which verbs sometimes are inflected for agreement and other times are not, and interestingly, the occurrence of AE might seem to be restricted to clauses in which verbal agreement is absent. Given such an intriguing potential correlation between the absence of agreement and the licensing of AE, the present paper considers agreement patterns present in Hindi, Bangla and Malayalam, and the interaction of agreement with the interpretation of null arguments in these languages. As in Turkish, there is the possibility to manipulate the occurrence of verbal agreement in South Asian languages, through the use of certain tense forms, case-marking and oblique subjects, and in Hindi to vary the occurrence of object agreement with null objects. These languages therefore offer a good opportunity to explore the agreement hypothesis of AE.

The paper is structured as follows. Section 2 shows that AE is clearly licensed in all three languages, Hindi, Bangla and Malayalam. Section 3 then considers how AE may or may not interact with agreement in the three languages, and reaches the conclusion that there is in fact no correlation between presence/absence of agreement and the licensing of AE in these languages. Section 4 reflects on alternative perspectives which may predict and account for AE as a cross-linguistic phenomenon. The paper is closed with a brief summary of findings in section 5.

2.0 AE and sloppy interpretations in Hindi, Bangla and Malayalam

In Hindi, Bangla and Malayalam, it is possible to omit the object of verbs, under appropriate discourse configurations relating to recovery of reference. Examples (5-7) below show that when objects are phonetically null, they regularly allow for sloppy interpretations, as in Japanese and other languages with argument ellipsis, in addition to other, strict interpretations.

- (5) a. Ram nijer premika ke bhalobashe.
Ram self's girlfriend-ACC loves
'Ram loves his girlfriend.'
- b. Raj o _ bhalobashe.
Raj also loves _
'Raj also loves (his girlfriend).' (sloppy ok) [*Ban.*]
- (6) a. John avan-te adhyapakan-e adharikk-unnu.

- John 3-GEN teacher-ACC respect-PRES
'John respects his teacher.'
- b. Mary-um _ adharikk-unnu
mary-UM respect-PRES
'Mary also respects (her teacher).' (sloppy ok) [*Mal.*]
- (7) a. Ram aksar apni ninda karta hai.
Ram often self's criticism does
'Ram often criticizes himself.'
- b. Raj bhi _ ninda karta hai.
Raj also criticism does
'Raj also criticizes (himself/him).' (sloppy ok) [*Hin.*]

Sloppy interpretations of omitted arguments are also possible in other positions. Examples (8-10) illustrate this with omitted subjects in the three languages, while (11-13) show instances of possible sloppy identity with omitted selected PP arguments.

- (8) a. John-ko lagta hai uska beta Italian seekh raha hai.
John-DAT thinking is his son Italian learn ASP is
'John believes that his son is learning Italian.'
- b. Bill-ko lagta hai _ Spanish seekh raha hai
Bill-DAT thinking is Spanish learn ASP is
'Bill believes that (his son) is learning Spanish.' (sloppy ok) [*Hin.*]
- (9) a. John [avan-te teacher orupaatu nallathu aanu ennu] vichariccu
John his-GEN teacher a lot good-NOML COP COMP think-PAST
'John feels his teacher is very nice.'
- b. Bill [_ orupaatu strict aanu ennu] vichaarikk-unnu
Bill a lot strict COP COMP think-past
'Bill feels (his teacher) is too strict.' (sloppy ok) [*Mal.*]
- (10) a. John [_{CP} nijer chele Italian sikhche bole] bhabe.
John self's son Italian learns C thinks
'John believes that his son is learning Italian.'
- b. Bill [_ Spanish sikhche bole] bhabe.
Bill Spanish learns C thinks
'Bill believes that (his son) is learning Spanish.' (sloppy ok) [*Ban.*]
- (11) a. John ar Mary protidin E-ke-Opor-ke chiThi paThae.
John and Mary every day eachother-DAT letter send
'John and Mary send each other letters every day.' [*Ban.*]
- b. Bill ar Sue-o protodin _ email paThae.

Bill and Sur too every day email send
 'Bill and Sue also send (each other) emails every day.' (sloppy ok)

- (12) a. John khud-se nafrat karta hai.
 John self-with hate do is
 'John hates himself.'
 b. Bill bhi _ nafrat karta hai.
 Bill also hate do is
 'Bill also hates (himself).' (sloppy ok) [*Hin.*]
- (13) a. John-um Mary-kk-um avar-avaril-ninnu cards labhiccu.
 John-UM Mary-UM each other from cards received
 'John and Mary received greetings cards from each other.'
 b. Bill-um Sue-in-um sammanam labhiccu. [*Mal.*]
 Bill-UM Sue-UM presents received
 'Bill and Sue received presents (from each other).' (sloppy ok)

The widespread presence of AE in Hindi, Bangla and Malayalam is confirmed by two further observations. As in Japanese and other languages which permit sloppy interpretations of omitted arguments, such interpretations are no longer possible in Bangla, Hindi and Malayalam if an overt pronoun is inserted in the position of the omitted object/subject/selected PP. This is illustrated in (14) and (15) below (compare with (5) and (6)).

- (14) a. Ram nijer premika ke bhalobashe.
 Ram self's girlfriend-ACC loves
 'Ram loves his girlfriend.'
 b. Raj o take bhalobashe.
 Raj also loves _.
 'Raj also loves (her).' (strict only) [*Ban.*]
- (15) a. John avan-te adhyapakan-e adharikk-unnu.
 John 3-GEN teacher-ACC respect-PRES
 'John respects his teacher.'
 b. Mary-um avan-e adharikk-unnu
 mary-UM 3-ACC respect-PRES
 'Mary also respects him/her.' (only strict) [*Mal.*]

This clearly suggests, as with Japanese, that omitted arguments in Hindi, Bangla and Malayalam are not simply empty pronominals (pros), as pronominal elements do not license sloppy-type interpretations.

Second, it can be noted that the verb/predicate which occurs in the (a)

and (b) pairs of sentences in Hindi, Bangla and Malayalam can be non-identical and still naturally result in interpretations of sloppy identity. Elsewhere (e.g. Goldberg 2005), it has been suggested that there is a process of 'V-stranding VP ellipsis', in which verbs raise out of VP and allow for VP ellipsis to delete the remaining contents of the VP - the direct object, indirect object, and other selected PPs which may be present in the VP - and VP ellipsis has been noted to be a process which can also give rise to interpretations of sloppy identity (as, for example, in English 'John blamed himself, and Bill did _ too.'). Supposing that the omission of VP-internal arguments in Hindi, Bangla and Malayalam were to be due to overt verb-raising out of VP and subsequent VP ellipsis, this would mean that the sloppy interpretations possible with direct and indirect objects might not necessarily be attributable to 'argument ellipsis'/AE, in which individual arguments are taken to be elided. However, Goldberg (2005), Rouveret (2011) and others argue that such a possibility can be controlled for via manipulation of the identity of the verb in pairs of sentences such as those in the (a)/(b) examples presented thus far. It is noted that VP ellipsis occurs in verb-stranding languages (e.g. Irish, Hebrew etc) only when the verb in the source sentence and the sentence with ellipsis is the same verb, and VP ellipsis is not possible when attempted with different verbs. Importantly, in Bangla, Hindi and Malayalam, as in Japanese and other languages with AE, the verb in the two parallel (a/b) sentences can indeed be different, and sloppy readings of the omitted arguments are still possible:

- (16) Ram apni patni ko pyar karta hai, par Raj _ nafrat karta hai.
 Ram self's wife-ACC love do is but Raj hate do is
 'Ram loves his wife, but Raj hates (his wife).' (sloppy ok) [*Hin.*]
- (17) a. Ram or am-gulo SobSomay bikri kore deye.
 Ram his mango-Pl always sell do give
 'Ram always sells his mangoes.'
 b. Kintu Raj _ khey phela.
 But Raj eats
 'Raj, however, eats (his mangoes).' (sloppy ok) [*Ban.*]
- (18) a. raam epozhum avante makan-e pukarttum
 Ram often his son -ACC praise-MOD
 'Ram often praises his son.'
 b. (pakshe)raaj epozhum ceetha parayum
 but Raj often scolds
 '(But) Raj often scolds (his son).' (sloppy ok) [*Mal.*]

The general conclusion that can be reached with regard to Hindi, Bangla and Malayalam is therefore that these languages do indeed exhibit the phenomenon of argument ellipsis, as revealed in the availability of sloppy interpretations of null arguments, which are not the result of some larger operation of VP ellipsis. Given such a conclusion, we are now in a position to consider the potential interactions of verbal agreement with AE in the three languages.

3.0 AE and agreement patterns in Hindi, Bangla and Malayalam

As noted in the introduction section, a proposal has been recently put forward and further developed and defended in Saito (2004), Şener and Takahashi 2009, Takahashi 2008a/b, 2011 and Takahashi (to appear) that there is a significant correlation between the presence/absence of verbal *agreement* in a language and the occurrence of AE. Specifically, it is argued that null arguments may result from individual argument ellipsis only in the absence of agreement between the verb and the argument being targeted for ellipsis. Where there is agreement between the verb/Infl and an argument DP, argument ellipsis is hypothesized not to be possible, and any omission of overt arguments must be attributed either to the occurrence of pro or to V-stranding VP ellipsis. The 'anti-agreement' hypothesis of AE licensing is an interesting attempt to account for the cross-linguistic and also language-internal distribution of AE. Just as with investigations of the phenomenon of pro-drop, where attempts have regularly been made to identify the factors which may predict and allow for the occurrence of pro in a language (e.g. Rizzi 1982, Jaeggli and Safir 1989, Huang 1984, Holmberg 2005, 2009, Neeleman and Szendrői. 2007), so too with AE there is now a natural desire to understand what particular properties of language allow for this phenomenon to occur and how the presence of AE may be predicted cross-linguistically. The anti-agreement hypothesis (henceforth AAH) leads one to expect that null argument languages with no verbal agreement such as Japanese and Korean, will indeed license AE, while those which do have agreement, such as Spanish and Italian, will not do so. Certainly with regard to this group of four languages the predictions appear to be correct. In order to test the predictive power of the AAH further, Şener and Takahashi 2009, and Takahashi (to appear) also examine Turkish, a language with mixed patterns of agreement, and argue that AE occurs only in the absence of agreement with an argument DP, hence with object arguments and with the subjects of certain clauses where the verb is uninflected for agreement. Within a single language it might thus appear that the AAH successfully accounts for when AE is licensed and when null arguments can only result

from the use of a null pronominal.

In order to examine the AAH further with languages from a different geographical area, we now look at patterns of agreement in the three South Asian languages under consideration. Hindi, Bangla and Malayalam were selected for investigation of the potential agreement-AE correlation as all three languages manifest AE, as shown above, but have different patterns of subject and object agreement, which in various instances can be manipulated to test quite extensively for links between AE and (absence of) agreement. The three languages also provide linguistic representation from the two largest language families present in South Asia, Indo-Aryan (Hindi, Bangla) and Dravidian (Malayalam).

Considering Malayalam first, in this language there is no observable agreement with either subject or object arguments. Where null/empty objects and subjects are possible, the expectation of the anti-agreement hypothesis is that AE, as revealed by patterns of possible sloppy interpretation, should be possible in both object and subject position. This expectation is indeed borne out, as seen in examples (6) and (9) in section 2. The AAH consequently receives initial support from Malayalam.

Turning now to Bangla, verbs agree with (nominative) subjects, but there is no agreement with objects. The predictions of the AAH in Bangla are therefore that AE and sloppy interpretations should be expected to occur with objects but not with subjects.

Example (19) below and the earlier example (5) show that sloppy interpretations, hence AE, are indeed possible in object position, potentially supporting the AAH.

- (19) John nije-ke ghrina kOre. Bill-o _ ghrina kOre.
 John self-ACC hate does Bill-also hate does
 'John hates himself. Bill also hates (himself).' (sloppy ok)

However, sloppy interpretations are also possible in subject positions when the verb agrees with the subject, as seen in (20) and the earlier example (10):

- (20) a. John [_{CP} nijer meye Sam-ke pOchhondo bole] bhabe.
 John self's daughter Sam-Acc likes C thinks
 'John believes that his daughter likes Sam.'
 b. Bill [_{CP} _ Steven-ke pOchhondo bole] bhabe.
 Bill Steven-Acc likes C thinks
 'Bill believes that (his daughter) likes Steven.' (sloppy ok)

This patterning with subjects clearly goes against the predictions of the

AAH, as the presence of agreement with the subject is expected to block the possibility of any argument ellipsis.

The third South Asian language under consideration here is Hindi, like Bangla also an Indo-Aryan language of northern India, but one with interestingly different agreement paradigms from those found in Bangla. In Hindi, verbs may either agree with the subject, or the object, or neither, depending on factors relating to (a) tense, and (b) case-marking. These factors can be usefully manipulated to produce clauses in which null subjects and objects occur with verbs which either do or do not show agreement with them, and then the availability of sloppy interpretations can be monitored and compared across different conditions. With regard to subjects, the generalization is that verbs regularly agree with (nominative) subjects except in clauses involving transitive verbs in a past tense, in which case the subject surfaces with ergative case, and the verb agrees with the object, unless the object is itself marked with accusative, in which case the verb occurs with default agreement, not coding properties of either subject or object. Creating parallel sentences in which the verb differs only in tense allows one to test for the possibility of sloppy interpretations (hence AE) in subject position both when the verb agrees with the subject and when it does not. This is exemplified in the pair of examples (8), repeated from section 2, and (21), in which the tense of the embedded clause verbs has been changed from present continuous to past, resulting in ergative case on the embedded clause subject and no agreement with the subject (the verb in such instances will agree with the object). The expectation of the anti-agreement hypothesis of AE is that there should be a distinct difference in the availability of sloppy interpretations in these examples. Where the verb agrees with the subject, in the earlier example (8), AE/sloppy interpretations are expected to be unavailable, whereas when the verb does not agree with the subject, in example (21), it is expected that sloppy interpretations of the null subject should become available. The actual observation is that sloppy interpretations are equally available in both examples, and occur not only when there is no subject-verb agreement (which is expected by the AAH), but also when the verb does agree with the subject. Such a patterning again clearly goes against the anti-agreement approach to the licensing of AE.

- (21) a. John-ko lagta hai uske bete-ne Italian seekha.
 John-DAT thinking is his son-ERG Italian learned
 'John believes that his son is learning Italian.'
 b. Bill-ko lagta hai _ Spanish seekha
 Bill-DAT thinking is Spanish learned
 'Bill believes that (his son) is learning Spanish.' (sloppy ok)

With regard to (null) objects and the occurrence of sloppy interpretations in Hindi, an entirely similar observation can be made. Examples (22-25) show that sloppy interpretations of null objects are regularly available, both in instances where the verb does not agree with the object – examples (22) and (23) (in which the objects 'car' and 'bicycle' are feminine), and, significantly, in cases where the verb does agree with the object – examples (24) and (25). The latter patterning again runs counter to the predictions of the AAH analysis of AE. The presence of object agreement on the verb should block the application of AE and disallow sloppy interpretations of the null objects, but such interpretations are fine.

- (22) a. Ram apni gaRi bechega. b. Raj-bhi _ bechega.
 Ram self's car sell-Fut-Masc Raj also sell-Fut-Masc
 'Ram will sell his car.' 'Raj will also sell (his car).'
- (23) a. Ram apni saikel theek karega. b. Raj-bhi _ theek karega.
 Ram self's cycle repair-Fut-Masc Raj-also repair-Fut-Masc
 'Ram will repair his bicycle.' 'Raj will too.' (sloppy ok).'
- (24) a. Ram-ne apni gaRi bechi. b. Raj-ne-bhi _ bechi.
 Ran-Erg self's car sold-Fem Raj-Erg also sold-Fem
 'Ram_k sold his_k car.' 'Raj_m also did.' (sloppy ok)
- (25) a. Ram-ne apni saikel theek ki. b. Raj-ne-bhi _ theek ki.
 Ram-Erg self's cycle repaired-Fem Raj-Erg-also repaired-Fem
 'Ram repaired his bicycle.' 'Raj also did.' (sloppy ok)

As with the null subject patterns in (8) and (21), there is consequently no difference in the availability of sloppy interpretations of objects caused by the presence/absence of agreement of the verb with the phonetically null argument.

Considering both instances of subject and object ellipsis and the occurrence of agreement, the patterns presented here in Hindi offer rather straightforward evidence against the linking of AE and the availability of sloppy interpretations of null arguments to agreement. The presence/absence of agreement on Hindi verbs appears to play no role at all in whether sloppy interpretations are available. Such interpretations are equally available with objects and subjects whether these elements trigger agreement on the verb or not.

Quite generally, then, a consideration of AE patterns in Bangla and Hindi indicates that the anti-agreement approach to the licensing of AE is disconfirmed in/by these languages. The occurrence of agreement does not

seem to be a significant factor restricting the availability of AE and sloppy interpretations, and the licensing of AE/sloppy interpretations regularly operates in a way that is independent of the presence/absence of agreement. In section 4, we now ask whether it may be possible to identify other factors not relating to agreement which may potentially predict the occurrence of AE in a language.

4.0 Predicting the cross-linguistic distribution of AE

If the anti-agreement hypothesis of AE is not a reliable cross-linguistic predictor of the occurrence of AE, given what has been observed in Hindi and Bangla, the question naturally arises as to what other factor(s) may be responsible for and license the presence of AE in a language? The AAH, as discussed in Şener and Takahashi (2009) and Takahashi (to appear), was presented as an alternative to another possible analysis of the licensing of AE – a ‘scrambling’ approach, in which the occurrence of AE is specifically attributed to the availability of scrambling in a language (see, in particular, Oku 1998). In such an approach, it is suggested that DPs arguments may be base-generated in scrambled positions (as per Bosković and Takahashi 1998), and establish interpretive links to empty argument positions (i.e. instances of AE) at LF, such LF linking allowing for the possibility of sloppy interpretations (see Oku 1998 for details). Putting the anti-agreement hypothesis to one side as a means to accurately predict which languages will exhibit AE, it can be asked whether the scrambling analysis of AE might fare better as a general predictor of AE? Adding in the present study of three South Asian languages, it has now been established that patterns of AE do occur in some way in Japanese, Turkish, Bangla, Hindi and Malayalam, and these are in fact all languages which are regularly viewed as scrambling languages, lending potential credence to a view which suggests that scrambling has a role in licensing AE. However, there is also recent confirmation that the kinds of pattern which are referred to here as argument ellipsis occur in Chinese as well (Li 2007, Aoun and Li 2008), and Vietnamese (Binh Ngo, Giang Le, p.c.), and neither of these languages is commonly characterized as a language with scrambling. The presence of scrambling in a language may therefore not be the single shared cross-linguistic factor which allows AE to occur.

Considering other possibilities, if neither verbal agreement nor scrambling is the relevant common factor, it might be that one should look for the predictor and licenser of AE within the interpretative properties of nominals in a language, rather than in other verb- and movement-related aspects of morpho-syntax. Hoji (1998), focusing on null objects in Japanese

suggests that sloppy-like interpretations of null objects in Japanese may arise in virtue of the ability of *bare nouns* in Japanese to be interpreted as either definite or indefinite NPs - hence for example a bare noun such as *kuruma* may occur meaning either indefinite ‘a car’ or definite ‘the car’:

- (26) kuruma-o katta no?
car-ACC bought Q
‘Did you buy a/the car?’

Hoji suggests that the sloppy(-like) interpretations of null objects in Japanese may arise in two possible ways. First, a null object may be given the definite interpretation that is possible with bare nouns, so that the gap in examples such as (27b) is interpreted as definite ‘the person’, and then the identity of the definite NP is determined as that of some salient discourse entity. The strict reading of (27b) results from identifying ‘the person’ as ‘John’, and the sloppy reading from taking it to be ‘Bill’:

- (27) a. John-ga zibun-o suisen-shita
John-Nom self-Acc recommended
‘John recommended himself.’
b. Bill-mo _ suisen-shita
Bill-also recommended
‘Bill also recommended *ec*.’ *ec* interpreted as a +definite N = person → *ec* identified as either (a) John = strict (b) Bill = sloppy

A second possibility suggested to be available with null objects in Japanese is for the gap to be understood as a bare noun with an indefinite interpretation. In (28), it is proposed that the noun *kuruma* ‘car’ is copied into the null object position at LF, so that (28b) is attributed the meaning ‘Bill also washed a car.’ A process of enrichment then allows for the understanding that the car may belong to some individual who may be identified as being ‘John’ (strict reading) or ‘Bill’ (sloppy reading), both ‘John’ and ‘Bill’ being salient individuals present in the discourse.

- (28) a. John-ga zibun-no-kuruma-o aratta
John-Nom self’s car-Acc washed
‘John washed his car.’
b. Bill-mo _ aratta
Bill-too _ washed
‘Bill washed *ec* too.’ *ec* interpreted as indefinite N = a car

Considering the range of languages currently established as exhibiting AE, these interestingly share the property that bare nouns can be interpreted as either definites or indefinites, while null subject languages which do not have AE do not allow bare nouns to occur with definite and indefinite interpretations, and instead require such interpretations to be facilitated by overt definite and indefinite determiners:

- (29) *AE; definite and indefinite interpretations of bare nouns possible:*
Japanese, Turkish, Chinese, Bangla, Hindi, Malayalam, Vietnamese
- (30) *No AE; definite/indefinite interpretations of nouns facilitated with overt determiners:* Spanish, Italian

Whether Hoji's particular interpretation of the connection between bare nouns and the resolution of nominal ellipsis is correct or not, it may well be that the search for a common denominator among languages with AE is indeed better directed towards the properties of nominal elements in a language rather than other aspects of morpho-syntax which relate to verbs (agreement) or properties of movement (scrambling). Other approaches which go in the same general direction as Hoji (1998) and which focus on similarities and differences between nominal elements and phrases in null argument languages are Li (2007), and Aoun and Li (2008), who attribute differences in nominal ellipsis in Chinese and Japanese to the typical size of nominal expressions (DP in Chinese, NP in Japanese), and Otaki (2012), who links AE to differences in the morphological type of nominal phrases. For Otaki, only nominals with agglutinating morphology (or no affixation at all – 'isolating' languages) permit AE, and nominals with fusional morphology are suggested not to allow AE, Otaki's analysis being an interesting development of the approach to pro-drop in Neeleman and Szendrői (2007). Considerable further cross-linguistic research will be needed to see which specific analysis of nominal morpho-syntax is best supported by patterns of AE across languages as information becomes available on a wider range of languages. However, there are initial promising signs that the ability for nominals to occur in bare forms, perhaps with both definite and indefinite interpretations, and with no necessary (fusional) inflections may well be successful predictors of the availability of AE within a language, and can account for the range of language thus far known to clearly exhibit argument ellipsis, as listed in (29).

5.0 Conclusions and further issues

This investigation has attempted to clarify whether and how AE may be

present in Hindi, Bangla and Malayalam, and then use this information to probe the potential relation between AE and agreement. In section 4 we reached the conclusion that there is in fact no necessary connection between the phenomenon of AE and the occurrence (specifically, the absence) of agreement, and AE appears to be licensed in Hindi, Bangla and Malayalam regardless of the presence/absence of agreement with the elided argument. As noted above, other nominal-related properties of languages with AE may therefore be better predictors of the occurrence of AE within a language.

Considering the particular manifestation of AE in Hindi, Bangla and Malayalam, we can now summarize what the patterns indicate about AE in these languages and also highlight two complications present in the patterning which call for further reflection and investigation. The data presented in sections 2-3 clearly suggest that null direct objects, indirect objects and selected PP arguments in Hindi, Bangla and Malayalam can all be regularly produced by argument ellipsis, understood here to be the syntactic projection of an empty argument position, interpreted via LF copying of material from a prominent/accessible antecedent present in the sentence/discourse. A similar conclusion might seem to offer itself for subject arguments in these languages, as sections 2 and 3 have shown that sloppy interpretations of null subjects are also available in the three languages. However, further examination of Hindi and Bangla carried out in the course of the present study has shown that sloppy interpretations of subjects in Bangla and Hindi are often much harder to get than sloppy interpretations of other arguments, and need to be licensed by the use of a particularly rich context supplied to speakers which is not necessary with the ellipsis of other argument elements such as objects. For example, a sloppy interpretation of the subjects in (31b), (32b), (33b) and (34b) needs to be facilitated by the context described above (31a/32a/33a/34a) provided to speakers, and without such explicit contexts, the sloppy interpretations are difficult to access:

CONTEXT GIVEN: Ram and Raj are brothers, and both have daughters in high school. Both daughters are studying foreign languages.

- (31) a. Ram sochta hai uski beti Italian paRh rahi hai.
Ram think is his daughter Italian studying is
'Ram thinks his daughter is studying Italian.' [Hin.]
- b. Raj sochta hai _ French paRh rahi hai
Raj think is _ French studying is
'Raj thinks (his daughter) is studying French.' (sloppy ok)

- (32) a. Ram bhabe [je or meye Italian poRcche].
 Ram thinks C his daughter Italian studying.is
 'Ram_k thinks his_k daughter is studying Italian.'
 b. Raj bhabe [je _ French poRcche]
 Raj thinking is French studying-is
 'Raj thinks (his daughter) is studying French.' (sloppy ok) [*Ban.*]

CONTEXT GIVEN: Raj and Pratap come to meet Ram's daughter and Ram's brother's daughter for purposes of matrimony. Ram's daughter and Ram's brother's daughter both select one prospective groom. Ram and Ram's brother observe the interactions.

- (33) a. Ram sochta hai [uski beti-ko Raj pasand hai].
 Ram think is his daughter-Dat raj liking is
 'Ram_k thinks his_k daughter likes Raj.' [*Hin.*]
 b. Ram-ka bhai sochta hai [_ Pratap pasand hai].
 Ram-Gen brother think is Pratap liking is
 'Ram's brother thinks (his daughter) likes Pratap.' (sloppy ok)
- (34) a. Ram bhabe [je or meye-er Raj-ke bhalo lage].
 Ram thinks C his daughter-Gen Raj-Acc liking is
 'Ram thinks his daughter likes Raj.' [*Ban.*]
 b. Ram-er bhai bhabe [je _ Pratap-ke bhalo lage].
 Ram-Gen brother thinks C Pratap-Acc liking is
 'Ram's brother_m thinks (his_m daughter) likes Pratap.' (sloppy ok)

We believe that the correct way of interpreting this rich-context licensing effect and the difference in easy availability of sloppy interpretations with subjects and objects is to suggest that null subjects in Bangla and Hindi are in fact regularly pros/null pronominals and do not arise as a result of AE, unlike in Japanese and Malayalam where no rich context licensing requirement seems to occur with omitted subjects. The apparent occurrence of 'sloppy' interpretations of subjects in Hindi and Bangla may be a direct result of the rich contextual background provided to speakers which adds potential discourse referents for pro subjects, and the *appearance* of sloppy interpretations, what can be termed 'pseudo-sloppy' readings. For example, in the context provided for (33) and (34), both 'Ram's daughter' and Raj's daughter' are explicitly mentioned and added to the background context, allowing for the null subject in (33b/34b) to select 'Raj's daughter' as antecedent without any process of AE actually occurring – instead a pro subject simply refers back to one of the referents which is present and salient in the discourse.

Such assumptions will also account for the unavailability of another type of AE-mediated 'sloppy' interpretation of subjects which has been discussed by Takahashi (2008b) – the 'quantificational' reading of null subjects which are interpreted in a pair-wise fashion with overt QPs in preceding sentences. Takahashi shows that in pairs of sentence such as (35) below, the null subject in (35b) can be interpreted as referring either to the same set of three wizards as in (35a) (the 'strict' reading), or to a different set of three wizards (a 'sloppy'-type reading). The latter reading is assumed to require AE.

- (35) a. sannin-no mahootukai-ga Taroo-ni ai-ni kita
 three-GEN wizard-NOM Taroo-DAT see-to came
 'Three wizards came to see Taroo.'
 b. _ Hanako-ni-mo ai-ni kita.
 Hanako-DAT-also see-to came
 'lit. ' _ came to see Hanako too.'

Significantly, such sloppy-type readings of null subjects in Hindi and Bangla paired with QPs in preceding sentence are not possible, as illustrated in (36) and (37), and the null subjects can only be interpreted as referring to the same set of three priests/professors mentioned in (36a/37a).

- (36) a. tin-jon SonnyaSi John-er sathe dEkha korte elo.
 three-Cl priests John-Gen with meet do-Inf came
 'Three priests came to see John.'
 b. _ Bill-er sathe-o _ dEkha korte elo
 Bill-Gen with also meet do-Inf came
 '(They) came to see Bill too.' (strict only) [*Ban.*]
- (37) a. bhasha vigyan ke teen pradhypak Mary-ko bahut pasand karte hai.
 linguistics dept.-Gen 3 professor Mary-Acc very like does is
 'Three professors from the Ling. Department like Mary.'
 b. _ Sue-ko-bhi pasand karte hai
 Sue-Acc-also like does is
 '(They) like Sue too.' (strict only) [*Hin.*]

Such a restriction on the interpretation of null subjects in Hindi and Bangla is naturally explained if null subjects in these languages indeed are only null pronominals (pros) which pick up the reference of some individual/set of individuals already mentioned in the discourse/context. In this regard, null subjects in Hindi and Bangla show a clear and important contrast with null objects which do allow for 'sloppy-type' readings when paired with

quantificational phrases in preceding sentences, as would be expected if null objects may arise via argument ellipsis.

We therefore assume that languages may show an uneven internal distribution of AE, and whereas languages such as Japanese would appear to license AE with all argument positions, in Hindi and Bangla AE may fully regularly occur only with non-subject arguments (direct objects, indirect objects etc). Such language-internal variation in the potential availability of AE needs to be taken into account in the development of any general analysis of AE, and it will be important to try to understand and derive why AE is unavailable in certain languages in certain positions.

A second, interesting complication which can be noted here concerns a positional asymmetry in the licensing of sloppy interpretations with null subjects in Bangla. In the discussion immediately above, where it was noted that sloppy interpretations are frequently difficult to get without heavy contextual licensing in Bangla, the examples all contained null subjects in embedded clauses which occur following the verb which selects the complement clause. In such configurations, significant contextual priming is indeed necessary to license sloppy interpretations with null subjects. A second position of finite complement clauses is however possible in Bangla, and subordinate clauses may also occur (less frequently) in pre-verbal position. The two possible positions for finite embedded clauses are schematized in (38). Hindi, it can be noted, only permits the post-verbal positioning of finite clauses, pattern (38a):

- (38) a. [CP₁ Subject Verb [CP₂]]
 b. [CP₁ Subject [CP₂] Verb]

It is a matter of some debate how the two positions of complement clauses may be related to each other, and which should be assumed to be the base position of the clause (see Bayer 1996, Simpson and Bhattacharya 2003, and Bhatt and Dayal 2007 for related discussion). What is important to point out here is the fact that the positioning of the complement clause has an interesting effect on the interpretive possibilities open to null subjects in such clauses. While null subjects in post-verbal CP complements (pattern 38a) require heavy contextual licensing in order to have sloppy readings, when pattern (38b) occurs and the complement clause is pre-verbal, sloppy interpretations are much easier to obtain without contextual priming, and seem to be as readily accessible as in languages such as Japanese. Example (10) in section 2 occurred with the pre-verbal order (38b), allowing easy sloppy interpretation of the null subject, and (39) below also has the complement CP in pre-verbal position, resulting in a naturally accessible

sloppy reading of the null subject. Such an interpretation would not be so easily available without special context if the CP were to be placed after the embedding verb, as in (40):

- (39) a. Ram [n_{ijer} meye gaan pOchhondo kOre bole] bhabe.
 Ram self's daughter music liking does C thinks
 'Ram thinks his daughter likes music.'
 b. Raj [_ khela pOchhondo kOre bole] bhabe.
 Raj sports liking does C thinks
 'Raj thinks (his daughter) likes sport.' (pre-V CP, sloppy possible)
- (40) a. Ram bhabe [je or meye gaan pOchhondo kOre].
 Ram thinks C his daughter music liking does C
 'Ram thinks his daughter likes music.'
 b. Raj bhabe [je _ khela pOchhondo kOre].
 Raj thinks C sports liking does C
 'Raj thinks (his daughter) likes sport.'
 Sloppy interpretation in (40b) not easy, though possible with heavy contextual priming.

At this point, it is not fully clear why the pre-verbal positioning of the clause has such effects in Bangla. However, one feature of the pre- vs. post-verbal positioning of the embedded CP in Bangla that can be highlighted as potentially relevant is the observation that the pronominal possessor in the source sentence can be local subject-oriented *nijer* in pre-V CPs, but not in post-V CPs, where the possessor has to be realized as *tar/or* etc, a non-subject-oriented form. One possible hypothesis of the linear effect is accordingly the following. Subject-oriented *nijer* may be suggested to have the special property that it allows itself to be copied at LF into an argument ellipsis site without any accompanying indices which bind its reference to that of the main clause subject in the first sentence (10a, 39a), so that sloppy readings can arise when the ellipsis is referentially resolved. Concerning the non-subject-oriented elements *tar/or*, it can be suggested that these elements may perhaps only be copied at LF together with the referential indices they have established in antecedent sentences, blocking any sloppy interpretation resulting from argument ellipsis, and only allowing for a pseudo-sloppy interpretation mediated via the use of pro and heavy contextual licensing.

A final point which can be noted here as potentially significant from a more cross-linguistic perspective is that the AE-licensing alternation discussed above in Bangla may reflect a broader pattern that can be observed in languages exhibiting AE. Increasingly it appears to be the case that differences are being observed in the extent to which AE may be

available *within* certain languages, and languages which are currently known to allow for AE fall into two groups – those that license AE with subjects as well as other argument types, and those that only permit AE with non-subject arguments. The former group includes Japanese, Korean, Turkish, Malayalam, and Bangla when CP complements are pre-verbal. The latter group is thus comprised of Chinese, Hindi, Bangla when CPs are post-verbal, and also Vietnamese (from preliminary investigation). What simply distinguishes these two groups further is the position of the embedded complement clause which contains the subject target for AE. In the former group it consistently precedes the embedding verb, as shown in (41a), where the AE-targeted subject is underlined. In the latter group, the embedded complement clause follows the embedding verb, as schematized in (41b).

- (41) a. [_{CP1} Subject₁ [_{CP2} AE-Subject₂] Verb] *Japanese, Malayalam, Turkish...*
 b. [_{CP1} Subject₁ Verb [_{CP2} AE-Subject₂]] *Chinese, Hindi, Vietnamese...*

The generalization emerging from these patterns is therefore that subject AE regularly appears to be possible in languages in which the embedded clause containing the subject is pre-verbal (no contextual priming necessary), and is commonly unavailable in languages where complement clauses follow their selecting verbs (in which case contextual priming is necessary for 'pseudo-sloppy readings' to occur, arising from the use of *pro* not AE). It will be interesting to see if this emerging generalization continues to hold across other languages with AE, and how such linear distance effects can be explained – either in terms of linear distance between the ellipsis site in the embedded clause and the antecedent in the main clause, or as the result of differences in the anaphoric/pronominal elements which may occur in pre- and post-verbal CPs, as discussed in Bangla.

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