

***Pro* as a Minimal NP: Towards a Unified Approach to *pro*-drop**

In recent years, there has been a return to Perlmutter's (1971) insight that the implicit subject in the Null Subject Languages is a fully specified pronoun that fails to have a PF realization. Concomitantly, recent theories of the nature of pronouns have posited a null NP as a complement of D in every pronoun. This reintroduces the need to posit [_{NP} *e*] in the grammar. Here we offer an analysis of different types of subject *pro*-drop that attempts to reduce *pro* to the same [_{NP} *e*] that occurs in pronouns or is attested in cases of null NP anaphora.

1. Introduction

Even though it has become clear over the years that a variety of factors may condition *pro*-drop both within a language and cross-linguistically, it is possible to isolate at least four typological patterns of Null Subject Language (NSL):

1. Languages with rich subject agreement morphology (henceforth *consistent* NSLs), such as Italian, Greek, among others; subjects are freely dropped under the appropriate discourse conditions.
2. Languages with agreement and referential null subjects whose distribution is restricted (*partial* NSLs), such as Hebrew, Finnish, Russian, Brazilian Portuguese.
3. Languages that lack agreement, such as Chinese, Japanese and Korean. These have been described as allowing any argument to be dropped, not just subjects. They will be labeled *discourse pro*-drop languages.
4. Languages that only have impersonal and quasi-argumental null subjects (Icelandic, Faroese, a range of creoles), generally referred to as *semi pro*-drop.

In recent years, there has been a return to Perlmutter's (1971) insight that the implicit subject in the NSLs is a fully specified pronoun that is deleted in PF or fails to

have a PF realization (Holmberg 2005, Roberts 2010, Neeleman and Szendrői 2007). This view has been motivated in part by the observation that the classic GB theory of *pro* according to which *pro* is a minimally specified nominal whose features are supplied by Infl is incompatible with the approach to feature theory developed in the Minimalist Program (Chomsky 1995, 2001 and subsequent work). In this framework, the ϕ -features in T are assumed to be uninterpretable, hence unvalued. This raises a problem for the idea that subject *pro* is inherently unspecified for ϕ -features. The PF deletion analysis circumvents this problem.

Concomitantly, recent theories of the nature of pronouns (Elbourne 2005) have posited a phonologically null NP as a complement of D in every pronoun (an NP affected by deletion, in the case of E-type pronouns, or a default, nearly semantically empty nominal [_{NP} *e*] in the case of regular pronouns). This proposal reintroduces the need to posit a null, minimally specified NP in the grammar, thus reopening the issue of whether *pro* can be reduced to an instance of [_{NP} *e*]. Here we offer an analysis of different types of subject *pro*-drop that attempts to reduce *pro* to the very same [_{NP} *e*] that occurs as complement of D in pronouns or is independently attested in cases of null NP anaphora (in the spirit of Tomioka 2003).

This paper is organized as follows. In section 2 we compare Type 1 and Type 2 languages and conclude that the former are best captured under the interpretable/pronominal Agr hypothesis (Barbosa 1995, Pollock 1997, Alexiadou and Anagnostopoulou 1998, Ordoñez and Treviño 1998, a.o.). Section 3 introduces Tomioka's (2003) generalization that relates discourse *pro*-drop with the availability of bare

nominals in argument position. Section 4 extends Tomioka's analysis to the partial NSLs. Section 5 proposes an analysis of this process that relies on the idea that the null NP is a default, minimally specified nominal, along the lines of Panagiotidis 2003 and Elbourne 2005. Section 6 concludes with the suggestion that, quite generally, *pro* = [_{NP} *e*].

2. Consistent NSLs *versus* partial NSLs

2.1 Key properties that distinguish the partial NSLs from the consistent NSLs

Some languages, such as Finnish, BP, Marathi and Hebrew, have systematic null subjects, but their pattern of distribution differs from that of the consistent NSLs of the Italian type in two ways: (i) the null subject (henceforth, NS) is optional in some contexts in which it is mandatory in a consistent NSL; (ii) the NS is excluded in many contexts in which it is possible in a consistent NSL. These two facts can be illustrated by comparing the European and Brazilian varieties of Portuguese. Consider the following examples:

(1) a. O João disse que ele comprou um computador.

the João said that he bought.3SG a computer

'John said that he bought a computer'

b. [O João] disse que [—] comprou um computador.

the João said that bought.3 SG a computer

In the European variety of Portuguese (EP), the NS option (1b) is used when the embedded subject takes the matrix subject as an antecedent. Unless it is emphatic, an embedded overt pronoun in examples such as (1a) in EP is preferably interpreted as noncoreferential with the matrix subject (the *Avoid Pronoun Principle* of Chomsky 1981).

In Brazilian Portuguese (BP), by contrast, the overt pronoun in (1a) may be coreferent with the matrix subject; in fact, both options (1a,b) are available whenever the embedded subject and the matrix subject corefer. The same observation holds for Finnish, Marathi (Holmberg, Nayudu and Sheehan 2009), Russian (Lindseth 1998) and Hebrew (Borer 1989).

Now consider an example in which there is an intervening potential antecedent standing between the NS and its antecedent:

- (2) [O João]_i disse que os meninos acham [que [—]_i é esperto]] *BP EP√
 the João said that the boys believe that is smart
 ‘João says that the children believe that he is smart’

(2) is fine in EP. In colloquial BP, however, it is reported to be ungrammatical in the sources cited and an overt pronoun must be used. Similar facts hold in Finnish, Marathi and Hebrew (Holmberg 2005). All of these languages show an asymmetry between the 3rd person and the other persons. Finnish and Hebrew (in the past and future tenses) do not allow a 3rd person NS in a matrix clause even though they allow 1st or 2nd person. Similar asymmetries have been reported to occur in Russian (Müller 2005).

In all of the partial NSLs mentioned, 3rd person NSs can also be found when the subject is interpreted as a generic pronoun, corresponding to English ‘one’, as in the BP example (3) below:

- (3) É assim que faz o doce
 is-3SG so that make.3 SG the cake
 ‘This is how one makes the cake’

In (3) the 3PSG NS in the embedded clause denotes people in general, including the speaker and the addressee. This reading of a 3PSG NS is unavailable in a consistent NSL. As already noted by Perlmutter 1971, a consistent NSL cannot use a plain NS to convey the meaning of a generic (inclusive) subject and must resort to some overt strategy. This contrast can be seen clearly when we compare BP with EP. (3) is a well formed sentence in EP, but it has a different meaning, glossed as ‘This is the way he/she makes the cake’. The generic subject reading requires the presence of the clitic *se*:

(4) É assim que *se* faz o doce.

Finnish patterns with BP (Holmberg 2005). In Hebrew and Russian, the generic NS is marked as plural:

(5) Zdies rabotaiut mnogo. *Russian*
 here work-3PL a lot
 ‘Here one works a lot.’

(6) Sotim hamon mic ba arec
 drink.m.pl lots juice in-the country
 ‘People drink lots of juice in Israel’ *Hebrew* (Ritter 1995)

Vainikka and Levy (1999:648) discuss data from Finnish that indicate that the definite 3PSG NS raises to a high position in the clause (Spec-TP, in Holmberg’s terms) whereas the generic NS must stay inside the *vP*:

(7) a. Oppilas tietää ettei tehtävää pysty ratkaisemaan.
 student knows that-not assignment can solve
 ‘The student knows that the assignment can’t be solved.’

≠ ‘The student knows that he can’t solve the assignment.’

b. Oppilas tietää ettei [[—] pysty ratkaisemaan tehtävää.]

student knows that-not can solve assignment

‘The student knows that he can’t solve the assignment.’

≠ ‘The student knows that the assignment can’t be solved.’

In Finnish, the EPP can be satisfied by other categories besides subjects. In (7a), the object checks the EPP. In this case, the only reading available for the NS is the impersonal, generic interpretation. In (7b) the EPP is checked by the NS. Here, the generic reading is not a possibility and the subject must be interpreted as a definite pronoun controlled by the higher subject.

2.2 Holmberg (2005)

In order to capture the differences between the consistent NSLs and the partial NSLs, Holmberg (2005) proposes that one of the parameters involved in regulating the pronunciation of subject pronouns is whether finite T hosts a D-feature encoding definiteness. In the consistent NSLs T hosts a D-feature, in the partial NSLs it does not. In addition, he proposes a typology of null pronouns: pronouns that are DPs and ‘weak’ or ‘deficient’ pronouns, labeled ϕ Ps after Déchaîne & Wiltschko (2002). These are specified for ϕ -features but lack D; therefore, they are incapable of co(referring) to an individual or a group. All NSs in the consistent NSLs are ϕ Ps and so are 3rd person NSs in the partial NSLs. In a language with a D feature in I, a null ϕ P that enters into an *Agree* relation with T is interpreted as definite. This is why the consistent NSLs must resort to

overt strategies to express the meaning of a generic subject pronoun. Absence of D in I, on the other hand, means that a null φ P subject is either bound by a QP or linked to a DP in a higher clause; as a last resort, it may be interpreted as generic¹. On the basis of (7a,b), Holmberg 2005 suggests that the null φ P in Finnish is accessible for binding/control by a higher DP if and only if it moves out of ν P. If it stays in spec- ν P, the generic reading is the only option². Concerning 1st and 2nd person NSs, they are fully specified DP pronouns that are deleted in the phonology. Thus, there are two kinds of NSs: one is an inherently deficient pronoun that needs to enter an *Agree* relation with T containing D to be interpreted as definite. The other is a fully specified DP that is deleted in PF. In sum, Holmberg concludes that, as far as core syntax is concerned, NSs in languages with overt agreement are like regular pronouns; their nullness is a PF matter: they are either deleted pronouns or feature matrices that fail to have a PF realization.

2.3. Discussion

Holmberg's work on the partial NSLs languages constitutes a major step in the understanding of the key properties of this type of language. Two strong empirical generalizations emerge: (i) there is a correlation between partial *pro*-drop and the existence of a plain 3rd person NS to convey the meaning of a generic (inclusive) subject; (ii) definite NSs in the partial NSLs raise to a high position whereas the generic NS occupies a low position.

In Holmberg's (2005) system, the core property that distinguishes the consistent NSLs from the partial NSLs is that T has a D-feature encoding definiteness in the former

though not in the latter. Positing this feature has consequences for the licensing of pronouns that are deleted in PF, but has no further implications for the syntax of overt subjects: in both cases, they raise to Spec-TP in order to check the EPP as happens in a non-NSL. However, we have seen that one of the aspects that distinguish these two types of NSL is that there are environments in which an overt pronoun is not allowed in a consistent NSL unless it is emphatic; in a partial NSL, by contrast, its presence is optional. Under Holmberg's analysis it is not clear how these facts follow. Overt pronouns are assumed to be DPs in the consistent NSLs as well as in the partial NSLs, so they should behave similarly in both sets of languages, contrary to fact. Thus, the endeavor to reduce NSs to pronouns that fail to have a PF realization falls short of explaining the divergent behavior of overt pronouns in the two types of NSL.

For Holmberg, the D feature in T in the consistent NSLs is inherently definite. However, a persistent problem with this analysis is that it is not very clear what happens when the subject is indefinite. Moreover, in many consistent NSLs, the 3rd person plural NS can have an indefinite reading as shown below for EP.

(8) Estão a bater à porta.

are at to-knock at-the door

'They are knocking at the door' / 'Someone is knocking at the door'

(8) is ambiguous. It may mean that some contextually given set of people is knocking or it may mean that there is someone knocking. The latter is the non-anaphoric, arbitrary interpretation, which invariably excludes the speaker and the addressee (cf. Cinque 1988 and Jaeggli 1986, a.o.). In this reading, the NS has an indefinite/existential

interpretation, a fact that is problematic under the view that T has a D feature that is inherently definite³. In sum, Holmberg's (2005) analysis has shortcomings: on the one hand, it lacks the predictive power required to account for the differences between the two types of NSL with respect to the properties of overt subject pronouns; on the other hand, it is too restrictive in that it invariably assigns a definite interpretation to a NS in a consistent NSL.

2.4 An alternative analysis

Holmberg (2005) considers and rejects an alternative analysis that has been proposed by a number of authors for the consistent NSLs (Barbosa 1995, Pollock 1997, Alexiadou and Anagnostopoulou 1998, Ordoñez and Treviño 1998, 1999, Manzini and Savoia 2002, Platzack 2004, a. o.). Even though the particular implementations of the proposal vary, all of them have one key feature in common: the functional head bearing subject agreement has a nominal specification, interpretable/valued phi-features, probably also Case, to the effect that it has the status of a pronominal affix on V raised to I. A corollary of this hypothesis is that pre-verbal (non-quantified/non-focalized) subjects are Clitic Left Dislocated topics. Barbosa (1995, 2009), Alexiadou and Anagnostopoulou (1998), Ordoñez and Treviño (1998), among others, discuss a number of differences between the consistent NSLs and the non-NSLs regarding pre-verbal subjects that follow naturally under this hypothesis and are otherwise rather mysterious. These concern scope interactions between overt pre-verbal subjects and quantifiers inside the clause, asymmetries between referential and non-referential quantified subjects regarding a

number of syntactic phenomena, and restrictions on the interpretation of pronouns.

In this context, Barbosa, Kato & Duarte (2005) argue that the differences between EP and BP regarding overt subject pronouns can be explained under the assumption that they are Clitic Left Dislocated topics in EP whereas in BP they raise (or may raise) to Spec-TP. Viewed in this light, the Avoid Pronoun Principle simply reduces to preference for not merging a pronoun as a left-dislocated topic unless it is required to signal topic switch or for emphasis/empathy. Barbosa, Kato & Duarte (2005) examine BP against the same set of phenomena where asymmetries in the behavior of overt subjects can be detected between the consistent NSLs and the non-NSLs and observe that BP patterns with the non-NSLs rather than with EP, thus concluding that subjects in BP raise to Spec-TP⁴. Consequently, there is no effect of topic switch.

One additional consequence of this hypothesis as applied to the consistent NSLs is that the occurrence of 3rd person subject agreement will always entail an interpretation that excludes the speaker and the addressee regardless of whether the empty subject is anaphoric or not. In Distributed Morphology, the person features 1, 2, 3, are to be decomposed into combinations of the more primitive features $[\pm 1]$, $[\pm 2]$, (see Noyer 1992, Müller 2005) so that the feature composition of 3rd person is $[-1, -2]$. If this feature make-up is what gets interpreted, then the prediction is that 3rd person agreement in a consistent NSL will always entail exclusion of the speaker and the addressee. This consequence is automatic under the interpretable Agr hypothesis and has no bearing on the question whether the subject is interpreted as definite, which is a clear advantage over Holmberg's account.

In sum, we conclude that the interpretable/pronominal Agr hypothesis is adequate for the consistent NSLs; partial *pro*-drop, on the other hand, is a different kind of phenomenon, not directly linked to the properties of agreement inflection. Curiously, the languages that lack agreement morphology and yet license NSs, such as Chinese, Japanese and Korean, all have plain generic NSs with an interpretation equivalent to English ‘one’ (Holmberg, Nayudu and Sheehan 2009:79).

- (9) a. Ah John waa hai Jinggwok jiu gong Jingman Cantonese
 Prt John say in England need speak English
 ‘John says that one/he needs to speak English in England.’
- b. John-wa kono beddo-de-wa yoku nemu-reru-to iu Japanese
 John-TOP this bed-in-TOP well sleep-can-COMP say
 ‘John says that one/he can sleep well in his bed’

Thus, the availability of a plain generic NS (with an inclusive reading) is a feature that the partial NSLs and the discourse *pro*-drop languages have in common. Moreover, in some of the discourse *pro*-drop languages, namely Chinese, there are locality effects on the licensing of zero subjects that are reminiscent of those observed for the partial NSLs. Thus, in the Chinese example below, taken from Modesto 2008:383, the closest subject must be the antecedent:

- (10) Zhangsan₁ yiwei Lisi₂ chengren yiqian *e**_{1/2} zuocuo shi le.
 Zhangsan think Lisi admit before do.wrong matter ASP
 ‘Zhangsan thinks Lisi admitted that he did wrong.’

We take these facts as indication that the two kinds of *pro*-drop phenomena are related. In the next section we will discuss the discourse *pro*-drop languages.

3. Discourse *pro*-drop languages: properties in common with the partial NSLs
East Asian languages lack agreement morphology; yet, argument drop is even more widespread than in languages like Italian since any argument (not just subjects) can be dropped. This is why this kind of *pro*-drop is also referred to as *radical pro*-drop.

In recent years, an increasing body of literature on Japanese has established a connection between argument ellipsis and radical *pro*-drop (Oku 1998, Kim 1999, Tomioka 2003, Saito 2004; 2007, Takahashi 2006; 2008). Here we will focus on Tomioka's particular proposal, which relates this kind of *pro*-drop to yet another parameter of variation, namely the availability of bare NP in argument position.

3.1. Tomioka 2003

Tomioka (2003) observes that all of the languages that allow discourse *pro*-drop allow (robust) bare NP arguments and proposes the following generalization:

(11) *Discourse pro-drop Generalization*

The languages that allow discourse *pro*-drop — Japanese, Chinese, Korean — allow (robust) bare NP arguments.

He notes that zero pronouns in Japanese have all the semantic functions that English pronouns have as well as other uses. Thus, besides the referential, bound variable and E-type interpretations, Japanese zero pronouns can also be interpreted as indefinite

and as pronouns with pronoun containing antecedents. Tomioka (2003) relates the semantic diversity of Japanese null arguments to the inherent semantic flexibility of full-fledged bare NPs in Japanese. As the following examples show, a bare nominal can have a wide range of interpretations in Japanese:

(12) Ken-wa ronbun-o yun-da

Ken-TOP paper-ACC read-PAST

'Ken read a paper / papers / the paper / the papers

(13) Soto-in gakusei-ga imasu. Gakusei-wa totemo hutotteimasu

outside-in student-NOM exist student-TOP very fat-is

'There is a student outside. The student is very fat.'

Tomioka proposes that the different uses of full-fledged NPs are derived from one basic meaning, property anaphora (type $\langle e, t \rangle$) and their differences are the result of two independently needed semantic operations, namely Existential Closure (cf. (14a)) and Type-shifting to an individual (cf. (14b)).

(14) a. Existential Closure (Heim 1982): \exists closure

For any $P \in D_{\langle e, t \rangle}$

\exists -closure (P) = $\exists x.P(x)$

b. Type-shifting of a predicate to an individual (1987): *Iota*

For any $x \in D$, $P \in D_{\langle e, t \rangle}$

Iota (P) = $\iota x.P(x)$ (= the unique x such that $P(x)$)

Then he goes on to propose that Japanese *pro* is a null NP whose descriptive

content is pragmatically retrieved: the same semantic tools that are used to interpret full NPs are used to interpret *pro*. Tomioka suggests that what underlies discourse *pro*-drop is the fact that languages (almost) universally allow phonologically null NP anaphora (also known as N' or NP ellipsis). In a language that lacks determiners, this operation will give rise to phonologically unrealized arguments. In languages in which DPs are necessarily projected, a remnant D will always show up so this process will never give rise to a silent argument. Tomioka doesn't take a stand as to whether the null NP is the result of ellipsis/deletion or rather a *pro*-form. We will return to this issue in section 5.

Tomioka's (2003) proposal captures the fact that the discourse *pro*-drop languages allow virtually any argument to be dropped and yields the right predictions for other bare NP argument languages such as Hindi and Thai. In fact, Boskovič (2012) argues for a generalization that is rather similar to (11) on the basis of data from Slavik. Incidentally, independent support in favor of Tomioka's general approach comes from languages with articles such as Spanish, Portuguese and Greek. In the next section we briefly review these facts.

3.2 Object drop in Greek, Spanish and Portuguese (Raposo 1998)

Raposo (1998) observes that there is a correlation between the availability of a zero object and the occurrence of bare nouns as complements in EP as well as Spanish. These languages differ with respect to the possibility of having definite zero objects: an anaphorically dependent direct object may be expressed by a gap in EP (cf. (15a; 16); in Spanish, it may not (cf. (15b;17)):

- (15) a. Mostrei aquele quadro à Maria e a Cristina *EP*
 show.PST.1SG that picture to-the Maria and the Cristina
 mais tarde mostrou [—] à Alexandra.
 more late show.PST.3 SG to-the Alexandra.

‘I showed this painting to Maria and later Cristina showed it to Alexandra.’

- b. *Le mostré [aquele quadro] a María, y Cristina

más tarde le mostró [—] a Alejandra. *Spanish*

- (16) Este casaco é bem barato. Não queres comprar [—]? *EP*
 this coat is very cheap not want-2SG to-buy

‘This coat is very cheap. Don’t you want to buy it?’

- (17) A: ¿Comiste el pastel? *Spanish*

eat.PST.2SG the cake

‘Did you eat the cake?’

- B: No, no *(lo) comi.

no, not (it) eat.PST.1SG

In spite of this, Spanish has zero indefinite objects. Thus (17) contrasts with (18):

- (18) A: ¿Compraste regalos? *Spanish (Campos 1986)*

buy.PST.2SG presents

‘Did you buy presents?’

- B: Si, compré [—].

yes buy.PST.1SG

In Spanish a zero object is possible only in a context in which the object is bare;

when an indefinite determiner introduces the direct object the determiner may not be omitted:

(19) A: Compraste alguns regalos?

buy.PST.2SG any presents

B: * Si compré __. / Sí, compré algunos __. *Spanish*; Campos 1986

Thus, there is a correlation here between the occurrence of a bare noun and argument drop.

Concerning EP, Raposo (1998) observes that bare nouns are allowed in a wider range of contexts than in the other Romance languages. In particular, they may occur as complements of individual level predicates, which select a generic reading of the object (compare (21) with its counterpart in Spanish (22)):

(21) A Maria detesta cenouras. *Portuguese* (Raposo 1998)

‘Mary hates carrots’

(22) María detesta *(las) zanahorias. *Spanish* (Raposo (1998)

‘Mary hates carrots’

Raposo proposes that EP has a null definite determiner and analyses (21) as in (23):

(23) A Maria destesta [[_{Ddef} ∅] [_{NP} cenouras]]

He then relates the existence of the zero definite determiner with the availability of definite object drop, so that the null object in (15a) above is the result of null NP anaphora under a null D:

(24) ... mostrou [[_{Ddef} ∅] [_{NP} e]] à Alexandra
showed to-the Alexandra

In a similar vein, Giannakidou and Merchant (1997) analyze indefinite object drop in Greek as an instance of NP ellipsis under a null D.

Even though this discussion only scratches the surface of the phenomena at hand, it suffices to show that null NP ellipsis/anaphora can give rise to silent arguments in the right contexts. We take these facts as evidence that Tomioka's (2003) hypothesis is on the right track. As seems obvious, the question that immediately arises is why English (or Germanic in general) lacks zero arguments given that it allows bare nouns in argument position even more freely than Romance. Our answer to this question relies on the following contrasts, noted by Longobardi (1994):

- (25) a. [The rich [\emptyset]] are becoming richer.
b. *Rich are becoming richer.

This paradigm shows that a bare plural cannot be null in English. Thus, no matter what the explanation for these facts turns out to be (see Longobardi 1994 for one alternative), it just so happens that the required configuration is not met in English in spite of the fact that it has bare plurals in argument position. Having discussed independent evidence in favor of Tomioka's (2003) approach we now return to the partial NSLs.

4. Partial *pro*-drop revisited

As mentioned above, the discourse *pro*-drop languages share with the partial *pro*-drop languages the availability of a plain impersonal/generic (inclusive) NS whose interpretation is roughly equivalent to English 'one'. Yet another property that brings

together the two sets of languages is that they can all be classified as radical *pro*-drop languages in the sense that they allow other arguments besides subjects to be dropped. The following examples illustrate definite object drop in BP, Finnish, Russian and Hebrew⁵:

(26) *BP* (Marafoni: p.130)

Olha, quanto tempo eu não vejo *a minha avó*. Eu vi [—] quando ela veio aqui.

‘Look, I haven’t seen my grandma in ages. I saw [] when she came here.’

(27) *Finnish* (Frascarelli 2007)

Kalle väittää että Pekka uhkaili [—].

Kalle claim.3SG that Pekka threaten.PST

‘Kalle claims that Pekka threatened him.’

(28) *Russian* (Erteschik-Shir and Taube)

[a woman enters home and shows a purchase to her family]

Vot, kupila [—] po-deševke.

here bought.1SG PREP. cheap

‘Here, I bought it cheaply.’

(29) *Hebrew* (Goldberg 2002)

Q: 'Eyfo ha-kacefet? A: He'evarti [—] le-Mixa'el.

where the-whipped.cream pass.PST.1SG to-Michael

‘Where (is) the whipped cream_i?’ ‘(I) passed it to Michael.’

In this context, the null NP ellipsis/anaphora hypothesis would predict that these languages should allow bare NPs in argument positions, and this prediction is confirmed:

Finnish, Marathi and Russian lack articles so they are robust bare NP argument languages. BP has articles, but it has bare singular and plural nouns in subject or object position (cf. Müller 2001, Schmidt & Munn 1999), in contrast to EP, which only allows bare plurals in post-verbal position.

(30) a. Eu ouvi cachorro/cachorros *BP*

I heard dog / dogs

‘I heard a dog/ dogs.’

b. Cachorros gostam de gente / Cachorro gosta de gente

Dogs like-3pl of people / Dog like-3sg of people

‘Dogs like people’

Hebrew has a definite article but lacks an indefinite article, and has singular as well as plural bare nouns in argument position (cf. Doron 2003).

(31) a. Noveax kelev

barks dog

‘A dog is barking.’

b. Novxim klavim

bark dogs

‘Dogs are barking.’

c. namer maziq le svivat-o

tiger harms to environment-its

‘The tiger is harmful to its environment.’

We suggest that these facts are not a mere coincidence and that they should be

interpreted as indicating that the same basic mechanism underlies partial and discourse *pro*-drop, namely null NP ellipsis/anaphora.

The first piece of evidence in favor of this idea is the affinity between the impersonal/generic reading and the reading obtained in examples with NP ellipsis:

(32) The rich [] are becoming richer.

In (32), the null NP is interpreted as generic and human, just like the non-anaphoric NS of the partial NSLs.

The second piece of evidence comes from a comparison between the interpretation of the NS and full-fledged bare NP subjects in Finnish. In section 2, it was observed that in Finnish the impersonal/generic 3rd person NS stays *in situ* whereas the definite interpretation is available just in case it raises to a high position. Now consider full-fledged bare nominals. Ihalainen (1980) as well as Chesterman 1991 show that, in utterances characterized by neutral intonation (i.e. with no focal stress), a bare NP subject occurring in preverbal position tends to be interpreted as definite/specific; a post-verbal bare NP subject, by contrast, has an indefinite interpretation, as illustrated below:

(33) a. Kirja on pöydällä.

Book is table-on

‘The book is on the table.’

b. Pöydällä on kirja.

Table-on is book

‘There is a book on the table.’

According to Chesterman 1991, a bare nominal in preverbal position is usually

interpreted as referring to an entity already mentioned in the discourse (cf. (33a,b)). If an SVO sentence occurs at the very beginning of a discourse, however, the preverbal subject can be 'new' information; i.e., it can be used to introduce a discourse topic (a “first mention” of the entity referred to). In post-verbal position, there is an asymmetry between subjects and objects: whereas the latter can be new or old (cf. (34)), the former are necessarily ‘new’ information, hence indefinite (cf. (35)).

(34) Mies luki kirjan.
 Man-NOM read book-ACC (SVO order)
 `A/the man read a/the book.'

(35) Kirjan luki mies
 Book-ACC read man-NOM (OVS order)
 `The book, a man read.'

Thus, the interpretation of a full-fledged bare nominal subject in Finnish varies according to the position it occupies and the pattern observed is similar to the one attested with zero subjects in the sense that the definite interpretation is available just in case the subject raises to preverbal position. This parallelism between zero subjects and bare common nouns is what is expected if the NS is a bare nominal.

5. The NS as a minimal NP

Thus far, we have argued in favor of the view that the NS in partial as well as discourse *pro*-drop languages is a null NP, but we haven't taken a stand as to whether the null NP is derived by NP ellipsis/deletion or is rather some kind of pro-form. The mere existence of

a non-anaphoric NS is an indication that not all instances of empty subjects can be reduced to NP ellipsis: under the assumption that NP ellipsis is deletion under identity, there is no way the impersonal NS can be an elided form, given that it lacks an antecedent. Moreover, in many of the cases under consideration there is no overt counterpart to the impersonal NS. Holmberg (2010) provides arguments that the non-anaphoric 3rd person NS in Finnish is syntactically projected. In particular, it triggers agreement and has case. Therefore, we need some mechanism other than ellipsis to account for this kind of NS. Regarding the anaphoric NS, it turns out that the languages under consideration do not exhibit a uniform behavior with respect to standard tests for argument ellipsis. This matter will be discussed in the next subsection.

5.1 Crosslinguistic variability of subject ellipsis

Kim (1999) and Oku (1998) argue that certain instances of empty subjects/objects in Japanese and Korean arise from elision of full-fledged structures (see also Saito 2004, 2007, and Takahashi 2006, 2008). This view is motivated partially by the observation that null arguments can yield sloppy interpretation, as illustrated by the following example:

(36) a. Taroo-wa [zibun-no kodomo-ga eigo-o hanasu to] omotteiru.

Taroo-TOP self-GEN child-NOM English-ACC speak that think

‘lit. Taroo thinks that self’s child speaks English.’

b. Ken-wa [*e* furansugo-o hanasu to] omotteiru.

Ken-TOP French-ACC speak that think

‘lit. Ken thinks that *e* speaks French.’

(36b) can mean that Ken thinks his own (namely, Ken's) child speaks French. This reading can be derived once it is assumed that (36b) contains the full-fledged NP *zibun-no kodomo-ga* 'self's child' in subject position, which is then deleted under identity:

(37) b. Ken-wa [~~zibun-no kodomo-ga~~ furansugo-o hanasu to] omotteiru.

Ken-TOP French-ACC speak that think

As noted by Oku (1998) the sloppy interpretation is not available in a (consistent) NSL such as Spanish. This is what is expected on the assumption that the NS is a pronominal. Thus, the availability of sloppy interpretation for null arguments has been taken as an indication of ellipsis in the literature.

Takahashi (2007, 2010) examines Chinese in light of these facts and concludes that, even though objects can be elided, subjects cannot. Consider the following:

(38) a. Zhangsan shuo ziji de haizi xihuan Xiaohong.

Zhangsan say self of child like Xiaohong

'Zhangsan said his child liked Xiaohong

b. Lisi shuo *e* xihuan Xiaoli.

Lisi say like Xiaoli

'lit. Lisi said *e* liked Xiaoli.'

While (38b) has the strict reading that Lisi said that Zhangsan's child liked Xiaoli, it does not have the sloppy interpretation that Lisi said that his own child liked Xiaoli. The absence of the sloppy interpretation implies that the null subject is not derived by ellipsis, in contrast to what happens in Japanese or Korean.

Two hypotheses have been put forward in the literature in order to account

for the cross linguistic distribution of argument ellipsis. Oku (1998) proposes that argument ellipsis is related to scrambling. Saito (2007), on the other hand, suggests it is related to the absence of agreement. In order to test these two hypotheses, Takahashi (2007, 2010) studies data from languages that behave differently from Japanese and Spanish with respect to scrambling and agreement, namely Turkish and Chinese. Turkish has scrambling and subject agreement; yet, it only allows ellipsis of internal arguments; subjects are not subject to ellipsis whenever subject agreement is present. Chinese has neither scrambling nor agreement and it also only allows ellipsis of internal arguments. Takahashi concludes that these facts are problematic for the scrambling analysis. The anti-agreement analysis fares better even though it faces one problem: it predicts, contrary to fact, that subjects as well as objects should be able to be elliptic in Chinese since it lacks agreement. Takahashi, however, argues that this problem is only apparent on the basis of the proposal independently made in the literature (Miyagawa 2009) that Chinese does have (abstract) agreement between the subject and T.

Here we will not pursue the matter any further. For our present purposes, it suffices to observe that subject ellipsis is allowed only in a subset of the languages in question. For Chinese zero subjects, at least, we need a derivation that doesn't involve ellipsis of a full-fledged nominal, that is, we need a base generated *pro*-form⁶.

In sum, there are two ways of deriving a null argument in the languages under discussion: by ellipsis of a full-fledged nominal or by base-generating an empty proform. The former option applies to objects (in Japanese, Korean, Chinese, Turkish, etc.) as well as subjects in Japanese and Korean. The proform option is independently needed in the

case the non-anaphoric NS. In addition to this, it is also required for the anaphoric NS in languages with agreement between the subject and T (Chinese included).

5.2 A default minimally specified NP

In order to determine the nature of the proform in question, we start by focusing on the impersonal NS. In view of the similarities between the impersonal 3rd person NS and English impersonal ‘one’, we suggest that the null proform is a minimally specified NP, that is, an NP that lacks a syntactically projecting restricting property. The existence of a default, semantically “empty” NP, that is generally available has been independently posited by Panagiotidis (2003) as well as Elbourne (2005). Both authors propose to unify this default item with (in their view, semantically empty) ‘one’ in English. Moreover, both of them suggest that this is precisely the category that occurs in pronouns, regarded as determiners that have an NP slot (Postal 1966). Elbourne (2005), in particular, assumes that E-type pronouns are determiners that take a regular NP as complement, which is subject to NP ellipsis. Non E-type pronouns are determiners that take a kind of default NP, which he labels ONE, the meaning of which is ‘entity’ or ‘individual’ and is translated as $[\lambda x: x \in D_e . x \in D_e]$ (a property that is trivially true of any individual in the domain). Elbourne raises the question whether this null noun ONE would be available in other places too, not just as the complement of pronouns and concurs with Panagiotidis (2003) in that the most desirable position is that this default item is generally available, with its occurrence restricted only by independently motivated factors. Here, we wish to suggest that the NS in the partial and in the discourse *pro*-drop languages is an

instantiation of this item. We do not rule out the hypothesis that [_{NP} *e*] may be further embedded under a Number or a Classifier head, or even under a null D, depending on the language and the context.

In section 2, we discussed evidence from Finnish that the impersonal 3rd person NS stays *in situ* whereas the definite interpretation is available just in case the NS raises to a high position. Under the hypothesis that the NS is a minimally specified nominal, the correlation between the two different positions (the pre-verbal position or the VP internal position) and the available readings would follow from the different configurations that serve as input to semantics: when the null NP (a property) stays inside the *vP*, the variable it introduces is bound under Existential Closure yielding the impersonal interpretation (see below for details); when it raises to preverbal position, type-shifting to an individual (*iota*) applies. This is, in essence, the approach we will take in the following sections.

5.2.1 The non-anaphoric NS

As mentioned in Section 2, there is a split among the partial NS languages with respect to verbal number morphology in impersonal NS constructions. BP and Finnish show singular verbal agreement whereas Russian and Hebrew show plural agreement. Holmberg (2010) provides evidence from Finnish that the agreement in question is not default verbal agreement but is rather triggered by the generic NS itself. For this reason, I assume that, in the absence of an antecedent, syntactic number is specified by default, its value being language dependent. As happens with arbitrary PRO, the non-anaphoric NS

is restricted to apply to human entities. I also assume that this specification is assigned by default.

Crucially, in the cases in which the non-anaphoric NS is syntactically singular, it is not semantically singular, given that it may be used to refer to a plural entity. This means that, when not morphologically marked as plural (namely in BP and Finnish), the non-anaphoric NS is number neutral. For BP, number neutrality actually fits in well with our proposal that the NS is a bare nominal, as there is consensus in the literature that full-fledged bare singular nouns are number neutral (cf. Schmidt and Munn 1999). However, in Finnish, a bare singular cannot be number neutral (Holmberg, p.c.). Therefore, I conclude that number neutrality should be accounted for in an alternative way.

Semantic number neutrality is a stable crosslinguistic property of a phenomenon known in the semantic literature as *semantic incorporation*, as extensively discussed in Van Geenhoven 1996, Dayal 2003, Farkas and Swart 2003, a.o. Incorporation has attracted the attention of semanticists due to its relation to scope and the semantics of bare nouns. In general, semantically incorporated bare nouns are interpreted existentially and are scopally inert. Incorporation in the semantic sense is not restricted to morphosyntactically incorporated nouns; it may apply to NP projections containing a complement (cf. Massam 2001) or to NPs that trigger object agreement, as in Hindi (Dayal 2003).

There are different approaches to semantic incorporation, but all of them share the basic insight that semantically incorporated nouns do not contribute an entity to the interpretation of the sentence. One common approach is to treat them as predicate

modifiers (see Farkas and Swart 2003 for an overview). They denote properties that combine with the verbal predicate so that the relevant variable of the predicate is restricted by the property in question. This operation doesn't saturate the predicate, hence the variable ends up bound by predicate (event) level Existential Closure. This accounts for obligatory narrow scope of incorporated bare nouns.

Even though subjects are less likely to incorporate than objects, Farkas and Swart (2003) report on instances of subject incorporation in Hungarian. Thus, in view of the properties of the 3PSG non-anaphoric NS in Finnish — restriction to post-verbal position; number neutrality — it is plausible that the minimal NP occurring in post-verbal position is semantically incorporated in Finnish as well as BP. Since the NP lacks a restriction, the effect of combining it with the verbal predicate is nearly semantically vacuous: what we get is a predicate that is restricted to apply to human beings.

Concerning generic sentences, I essentially assume Chierchia's (1995) treatment of impersonal *si* in Romance. Chierchia adopts the Davidsonian view that every verb introduces an event/situation variable, which typically gets bound by the Gen-operator. The context will supply ways of restricting the range of the quantifier. Existential Closure under the scope of Gen of the individual variable introduced by the verbal predicate yields the quasi-universal reading. Thus, (39) below will be interpreted roughly as follows: take any situation of the appropriate type such that it happens here; in this situation, there is shoe-repairing going on.

(39) *Aqui conserta sapato* (Kato, 1999)
here repair-3SG shoe

‘One repairs shoes here’

As discussed in Farkas and Swart 2003, incorporated bare nouns do not combine with individual-level predicates. Therefore, the incorporation hypothesis predicts that the non-anaphoric NS should be incompatible with individual-level predicates. Interestingly, this prediction is borne out. Let us start by considering the case of Finnish. Example (40) below, a generic sentence containing an individual-level predicate, is out (Anders Holmberg, p.c.):

(40) **Brasilia-ssa rakastaa samba*.

Brazil-in love.3SG Samba

Even though (40) is not possible, (41) below is fully grammatical:

(41) *Jos Brasiliassa rakastaa Samba* ...

if Brazil-in love.3SG Samba

'If you love Samba in Brazil (everybody will love you)'

This difference between (40) and (41) is predicted under the view that the NS is semantically incorporated. In standard DRT, the LF of (41) contains a Gen-operator, the *if*-clause determines the restriction and the main clause the Nuclear Scope. Therefore, both the verbal predicate and the incorporated noun ONE end up in the restriction of Gen and the relevant variable is bound by Gen:

(42) $\text{Gen}_{x,s} [\text{human}(x) \wedge \text{love}(s, x, \text{samba}) \wedge \text{in}(s, \text{Brazil})] [\dots]$

In (40), by contrast, the verbal predicate ends up in the Nuclear Scope. Since ONE is incorporated, it scopes with the verb. Thus, there is no way it can be interpreted in the restriction of Gen, as required in the case of the individual-level predicate ‘love’.

Turning to BP, all of the speakers that I have consulted consistently reject the examples below, which contain individual-level predicates⁷. They feel the need to insert an overt subject or to use the plural.

(43) a. *No Brasil [—] adora samba.

in-the Brazil love-3SG samba

‘In Brazil people love samba’

b. *Aos cinquenta anos [—] sabe em quem confiar.

at-the fifty years know-3SG on who to- trust

‘At fifty one knows who to trust’

Moving on to the languages in which the non-anaphoric NS is plural, Hebrew and Russian, we observe that impersonal subject constructions are fine with individual-level predicates.

(44) be-america, ohavim / meshuga'im al pica.

in-US, love.PRESENT.PL/ mad. PL on pizza

‘In the US, (people) love / are mad about pizza.’

(45) V Portugalii obozhaiut tresku.

in Portugal love.3PL cod

‘In Portugal, people love cod’

Therefore, we conclude that the plural non-anaphoric NS is not incorporated in these examples. In order to get a full understanding of the data, we turn to full-fledged bare nouns. In Hebrew, their interpretation depends on the position they occupy. When they occur post-verbally, they can only get an existential interpretation (cf. (46a)) and

take obligatory narrow scope (cf. Doron 2003); in pre-verbal position, a generic interpretation is available (cf. (46b)):

(46) a. lo novxim klavim

not bark dogs

'It is not the case that dogs are barking

$\neg !x [\text{dogs } (x) \text{ " barking } (x)]$

b. sparim 'al zihum 'avir nimkeru be-šana še-abra

books about pollution air sold.past last year

'Books about air-pollution used to sell last year'

Doron (2003) argues in favor of a semantic incorporation analysis of the bare plural in (46a). As for examples such as (46b), she claims that the bare plural shifts to kind interpretation, along the lines of Chierchia 1998. According to Chierchia (1998), English bare plurals basically denote plural properties, but when they are used as arguments, they are shifted by a covert nominalization operator, which derives kinds. In generic sentences, what gets accommodated in the restriction of the Gen are variables over instances of the kind.

Here I propose to extend Doron's (2003) analysis to the non-anaphoric plural NS. I assume that the minimal N projects up to NumP. NumP may incorporate, in which case the relevant variable is bound under Existential Closure, as in the following example:

(47) yodiu bekarov mi zaxa ba taxarut

will-announce.3M.PL soon who won in-the contest

‘It will soon be announced who won the context’ (Ritter 1995:435)

When NumP doesn’t incorporate, it may shift to a kind interpretation, namely the kind ‘people’. Thus, in examples such as (44) above, Gen quantifies over instances of the kind ‘people in the US’. The same approach straightforwardly applies in Russian as well.

In sum, the idea that the NS in these languages is a minimally specified NP — Elbourne’s (2005) ONE, or Panagiotidis’s (2003) empty N — seems adequate for the case of the non-anaphoric NS in the languages under consideration.

5.2.2 The definite NS

In our examination of the definite NS we will first concentrate on the languages that lack articles. Recall that, in Finnish, the definite NS must raise to pre-verbal position. Holmberg (2005) assumes that the Finnish EPP position is Spec-TP. However, Holmberg and Nikanne (2002) show that this position is associated with topics given that it may be occupied by other arguments besides subjects. Our hypothesis is that topicality is what enables the null NP, a function of type $\langle e, t \rangle$, to be shifted to an individual (a denotation of type $\langle e \rangle$) and hence be interpreted as definite. Assuming that topics denote individuals that the sentence as a whole is ‘about’ (Vallduví 1990, Portner and Yabushita 1998, a. o.), it is not surprising that there should be a relation between topicality and type-shifting to an individual.

Focusing on the languages that lack articles, we observe that there is indeed a correlation between topicality and definiteness. As mentioned above, in Finnish, utterances characterized by neutral intonation (i.e. with no focal stress), a bare NP subject

occurring in pre-verbal position tends to be interpreted as definite/specific. Likewise, in Russian, fronting to preverbal position is a means of expressing definiteness/specificity:

(48) a. Na stole stojala lampa.

On desk stood lamp

‘There was a lamp on the desk.’

b. Lampa stojala na stole

‘The lamp was on the desk.’

c. Na stole lampa stojala

‘The lamp was on the desk.’

Similarly, in Mandarin, bare nominals in preverbal subject position cannot be interpreted as indefinite. They either get a definite or a generic interpretation (examples from Cheng and Sybesma 2005):

(49) a. gou yao guo malu

dog want cross road

‘The dog/the dogs want/s to cross the road’ NOT: ‘A dog/dogs want/s to cross the road’

b. gou jintian tebie tinghua

dog today very obedient

‘The dog/dogs was/were very obedient today’ (NOT indefinite)

Thus, the analysis seems adequate for articleless languages⁸. Next we turn to the languages that have articles.

5.2.2.1 Hebrew and BP

In Hebrew, a definite NS can only be licensed in the Past and Future tenses, which are marked for person agreement. Present tense verbs are participles bearing number and gender agreement only. In this tense, non-argumental (50) and impersonal/generic (51) subjects may be silent; definite NSs, however, are out (52):

(50) nir'e Se itamar suv me'axer 1995

seems that Itamar again is late

'It seems that Itamar is late again.'

(51) Tafsu kvar et kol ha mavrixim

caught.3MPL already ACC all the smugglers

'All the smugglers have been caught.'

(52) a. *(ani/ata) roce glida

I/you (M.SG) want.M.SG ice cream

'I/you want ice-cream.'

In this respect, Hebrew differs from Russian. Past tense verbs in Russian are also participles that are only marked for number and gender. Yet, definite subject drop is possible in the past tense (McShane 2009:120):

(53) Ona vybegala i ne lajala, poskol'ku [] byla sderz(annoj sobakoj.

'She would run out but not bark since [she] was a well behaved dog.'

This contrast between Russian and Hebrew shows that the person agreement requirement is a parameterized option. We contend that the answer to this puzzle is related to the fact that Hebrew, unlike Russian, explicitly marks definiteness: nouns in

Hebrew are inflected for definiteness by the prefix (*h*)*a*. Chierchia (1998) proposed that covert type-shifting is blocked whenever the language has an overt way of achieving the same results. Since Hebrew marks definiteness, covert iota type-shifting is blocked, so full-fledged bare nouns can only shift to kinds and cannot refer to contextually salient individuals.

Deciding whether full-fledged (non-incorporated) bare nouns in Hebrew are DPs (with D null) is obviously far beyond the scope of the present paper, so I will leave the issue open in the present account. Ritter (1995) claims that verbal agreement in Past and Future tenses in Hebrew belongs to the category D. In fact, she claims that 1st and 2nd person D-agreement is specified for person whereas 3rd person D-agreement is only specified for definiteness, not Person⁹. On the other hand, it has been claimed that definiteness (cf. Danon 2010) is a formal, syntactic feature in Hebrew, given that the language has definiteness spreading. Therefore, I suggest that, in Hebrew, type-shifting of null ONE to an individual is achieved just in case T bears person agreement. In other words, person agreement is a means of overtly marking definiteness on the null nominal. In the absence of this feature, non-incorporated ONE can only shift to kind interpretation when marked as plural.

Now consider BP, another language with articles. As expected, a full-fledged bare noun cannot be interpreted as a contextually salient definite. Since there is no evidence internal to BP that [def] is a syntactic feature, I will adopt a different approach. BP differs from Hebrew in that it passes all of Li and Thompson's (1976) diagnostics for being classified a Topic Prominent language (see section 5.2.4). On the basis of this

observation, Modesto (2008), in a comparative study of BP and Finnish, suggests that the definite/anaphoric NS in BP moves to topic position. Here I adopt his analysis and I propose that the availability of covert iota type-shifting is due to topicality. In the case of a full-fledged nominal in topic position, the Blocking Principle requires the presence of the definite article for the individual interpretation.

5.2.2.2 Semi *pro*-drop languages

The restricted pattern of NSs observed in Hebrew present tense is not unique. It is found in a range of creole languages, such as Cape Verdean Creole (CVC), as illustrated below:

(54) a. *(El) ta trabadja duro. Baptista (1995)

he asp works hard

b. Sta faze frio

is making cold

c. Na veron, ta korda sedu.

in-the summer Asp wake early

‘In the Summer one wakes up early’

CVC only has quasi-argumental (cf. (54b)) and impersonal NSs (cf. (54c)).

Similar facts hold in Papiamentu (Muysken and Law 2001). Interestingly, both creoles allow bare nominals in argument position. Moreover, they do have definite determiners alongside bare nouns. Since these creoles lack agreement morphology and are not Topic Prominent in any sense, our hypothesis is that they lack the resources required for iota to apply. Therefore, the minimal NP can only shift to an individual interpretation iff it is

selected by an overt D. In this case, we get an overt pronominal subject, as desired.

Icelandic is yet another semi *pro*-drop language. Sigurdsson (2009) observes that, in addition to dropping quasi-argumental subjects, Icelandic has impersonal NSs that are syntactically active, as in the Impersonal Modal construction illustrated below:

(55) Nú má [—] fara að dansa.

now may go to dance

‘One may begin to dance now’

Even though the availability of an impersonal NS in Icelandic is confined to specific constructions, its very existence indicates a pattern in common with CVC. Curiously, Icelandic has no indefinite article and displays bare singular nouns with indefinite interpretation. This suggests that an account along the lines developed for CVC might be suitably extended to Icelandic.

One issue raised by this approach is that it doesn’t offer an immediate account of pure null expletives (it makes little sense to posit a non-theta bearing null NP). However, in recent years, the idea that pure expletive *pro* exists has been challenged (Biberauer 2010, Wurmbrandt 2006). In fact, the sole motivation for positing such an entity is theory internal: assuming that the EPP is universal, it follows that Spec-TP must be filled by a covert nominal in examples such as (50) above. Wurmbrandt (2006) argues against the idea that the standard EPP holds in Icelandic and German. For lack of space, I won’t be able to review her arguments here. I will, however, assume that in the languages examined here — with the exception of Finnish — the EPP doesn’t force the presence of

a dummy nominal in Spec-TP and that only theta-bearing nominals (including quasi-arguments) can be null.

In sum, we propose that the definite NS in Chinese and in the partial NSLs under consideration is a minimally specified nominal that gets an individual interpretation either by undergoing covert iota type-shifting or by entering an Agree relation with T bearing a [def] feature (Hebrew). The semi *pro*-drop languages (CVC, Icelandic) lack the resources required for iota to apply. In view of the fact that the shifted null nominal lacks inherent ϕ -features, it gets its ϕ -features from an antecedent. In the next section, we will argue that the definite NS indeed has the typical behavior of a subject anaphor.

5.2.3. The anaphorically anchored NS *qua* subject anaphor

As mentioned in Section 2, the partial NSLs show an asymmetry between the first/second persons and the third person. Typically, the former have a freer distribution: they may occur in matrix as well as embedded contexts and they do not require a linguistic antecedent. A 3rdP NS, by contrast, requires a linguistically specified antecedent. This requirement can be clearly illustrated when we look at pronoun obviation contexts in Hebrew and Russian. Consider the following examples:

(56) a. *Russian* (McShane 2009)

Lina_i xočet, čtoby ona_{j/*i} vyigrala.

Lina-nom_i want.3SG.PRES that she won.SUBJ.3SG.FEM.PAST

b. *Hebrew* (Shlonsky 2009)

Rina_i racta še hi_{j/*i} tizke ba-pras.

Rina wanted that she 3F.win.FUT.SG in-the-prize

In (56) the subject of the embedded clause must be disjoint in reference from the matrix subject. Curiously, in this context, the subject cannot be null, as reported in McShane 2009 and Shlonsky 2009. These facts indicate that the zero subject lacks the content required for independent reference.

Even though the languages in question differ from one another with respect to the environments in which a NS is licensed, all of them impose locality conditions on the choice of the antecedent. Here we illustrate this restriction with Finnish and BP, but similar examples can be constructed in Hebrew and Marathi (Holmberg, Nayudu and Sheehan 2009).

(57) a. O Feco₁ disse que a Dani₂ acha que $e_{*1/2}$ ganhou na loto.

the Feco said that the Dani thinks that won the lottery

‘Feco said that Dani thinks that she won the lottery.’

b. Jukka₁ sanoi että Liisa₂ ajattelee että $e_{*1/2}$ oli voittanut arpajaisissa.

Jukka said that Liisa thinks that had won lottery

‘Jukka said that Liisa thinks that she won the lottery.’

Some authors have attempted to subsume the relation between the antecedent and the NS under obligatory control. However, Modesto (2008), Holmberg, Nayudu and Sheehan (2009) and Shlonsky (2009) have provided arguments against this idea. First, it is possible to construct minimal pairs in which the covert subject of a finite clause is assigned a different interpretation from the covert subject of an infinitival clause (see the references cited). Secondly, it is possible to construct examples displaying lack of c-

command between the antecedent and the NS (Gutnam 2004). To complicate matters, the partial *pro*-drop languages under discussion do not show a uniform behavior with respect to the environments in which they license a NS. Thus, while Finnish and Hebrew allow the NS to occur inside a relative clause, BP apparently does not.

In what follows, I argue that this intricate array of facts can be made sense of under the assumption that the definite NS in these languages is a subject anaphor. The first relevant observation is that the locality effects found in (57a,b) are also observed with certain subject reflexive anaphors. As reported in Cole, Hermon and Huang 2001, even though Chinese lacks ECM, subjects of complement clauses behave as though they are in the same binding domain as the matrix clause. Thus, the complex anaphor *ta ziji* 'himself', which normally requires a local antecedent (cf. (58)), can appear as the subject of a complement clause (cf. (59)):

(58) Zhangsan_i juede Lisi_k hui shanghai ta-ziji_{*i/k}. Haddad 2007
 Zhangsan think Lisi will hurt him-self
 'Zhangsan_i thinks that Lisi_k will hurt himself_{*i/k}.'

(59) Xiaoming xiangxin ta ziji neng kaoguo. Sung 1990
 Xiaoming believe himself can pass the exam
 'Xiaoming believes that he himself can pass the exam.'

While *ta ziji* is well formed when it is the subject of the clause immediately below its antecedent, it is ill-formed when it is embedded more deeply

(60) Xiaoming_i shuo Zhangsan_j xiangxin ta ziji_{*i/j} neng kaoguo. Sung 1990
 Xiaoming say Zhangsan believe himself can pass the exam

'Xiaomingi says that Zhangsan_j believes that he*_{ij} can pass the exam.'

The contrast between (59) and (60) is expected if the locality domain for the subject is the immediately higher clause. In fact, Huang and Liu (2001) propose that the traditional notion of Governing Category, defined in terms of the minimal domain containing a governor for the anaphor and an accessible subject, adequately captures the binding domain for the subject syntactic anaphor. In (59) the Governing Category for the reflexive is the next clause up. The fact the 3rdP NS in the partial NSLs exhibits a similar pattern suggests that it too is a bound anaphor as predicted under the hypothesis that it is a minimally specified nominal.

As discussed in Reinhart & Reuland (1993) and Pollard and Sag (1992), when reflexives are in noncomplementary distribution with nonreflexives, they may be 'exempt' in the sense that they do not need to be locally bound. The following examples (Büring 2005:225) illustrate this phenomenon:

- (61) a. There were five tourists in the room apart from me/myself.
b. Physicists like you/yourself are a godsend.
c. Max boasted that the queen invited Lucie and himself/him for a drink.

In English, first and second person exempt anaphors do not need linguistic antecedents whereas third person exempt anaphors require one. Büring (2005) provides the following examples:

- (62) a. * Mary tried to attract a man like himself.
b. It angered him that she ... tried to attract a man like himself.

Above, we saw that the partial NSLs display a person asymmetry: first and second

person NSs do not need a linguistic antecedent whereas 3P NSs require one. This fact fits in well with the hypothesis that the NS in these languages is an anaphor that can be exempt. It can be locally bound, as in (57a,b) above, or it can be exempt, in which case it doesn't require a linguistic antecedent if it refers to the speaker or hearer.

The hypothesis that the 3P NS in these languages is a bound anaphor predicts that it shouldn't allow split antecedents and that it should only permit a sloppy reading under VP ellipsis. Modesto (2000), Ferreira (2000) and Rodrigues (2004) argue that this is indeed the case in BP, but the facts concerning Finnish and Hebrew yield mixed results. Examples with split antecedents are reported as degraded in Finnish as well as Hebrew by different authors (Vainikka and Levy 1999, Borer 1989). On the other hand, according to Holmberg, Nayudu and Sheehan 2009, both sloppy and strict readings are available under VP ellipsis in Finnish. Moreover, Gutnam (2004) provides one example in Hebrew in which the 3P NS has a split antecedent:

- (63) Noga bikra et Shimon al ma'amaro ha-shovinisti kshe
 Noga criticized-F ACC Shimon on his-article the-chauvinist when
 [—] nas'u li-yrushalayim
 went-PL to-Jerusalem
 'Noga criticized Shimon on his chauvinistic article when they went to Jerusalem.'

These apparently contradicting judgements can potentially be accounted for if the NS is an anaphor that can be exempt. As noted by Pollard and Sag (1992) exempt third person reflexives in English may take split antecedents. The following example is taken from Lebeaux 1984: 346.

(64) John told Mary that there were some pictures of themselves inside.

Likewise, Cole, Hermon & Huang (2001, footnote 8) note that, in English examples containing an exempt reflexive, VP ellipsis allows either a strict or a sloppy interpretation:

(65) Rupert_i was not unduly worried about Peter's opinion of himself_i; nor was Fred_j.

The elliptical clause of (65) can be understood to mean either (66a) or (66b):

(66) a. Nor was Fred unduly worried about Peter's opinion of Rupert (strict reading).

b. Nor was Fred unduly worried about Peter's opinion of Fred (sloppy reading).

Thus, the apparently contradicting evidence that can be found in the literature regarding the definite NS in the partial NSLs can be due to its ambivalent nature as a referentially dependent element: a locally bound variable or an exempt anaphor. Reuland views the latter case as an instance of 'logophoric conversion' whereby a reflexive is converted into a pronominal under particular syntactic and pragmatic conditions. Local reflexives undergo "conversion" to pronominals when 1) anaphoric binding is blocked in the syntax and 2) they satisfy certain logophoric conditions. When the reflexive is locally bound, it behaves as a bound variable, doesn't allow split antecedents and only admits a sloppy reading in contexts of VP ellipsis. When it undergoes "conversion" it may take split antecedents and allow strict and sloppy interpretations. The anaphoric nature of the NS follows from the fact that it is an NP that lacks ϕ -features and merely denotes an individual in the domain.

5.2.4 Further cross-linguistic differences

Topic Prominence (cf. Huang 1984, Modesto 2008). In the first place, both BP and Chinese have Gapless topic constructions, i.e., topic-comment structures in which the comment is a sentence that is fully saturated, as illustrated below:

(70) neichang huo, xingkui xinofangdui lai de zao Huang 1984
 that fire fortunalely fire-brigade come COMP early
 ‘That fire, fortunately the fire brigade came early.’

(71) Esse negócio o prazo acaba. Pontes 1987
 that business the deadline ends
 ‘As for that deal, the deadline is ending.’

As mentioned in Huang 1984, there is no obvious way of deriving sentences such as these in terms of movement of the topic to the left-periphery. Since topic phrases are often suppressed after the first occurrence of the topic, Huang (1984) relates the gapless topic construction to the possibility of allowing independent sentences to be introduced by a ‘zero topic’ to form a topic chain. Yet another property related to Topic Prominence is the fact that a subject anaphor may be bound in discourse. The following Korean example, quoted in Gill 1999, illustrates this:

(72) A: Mary_i-ka ku pati-e kass-ni anim tarun salam-i taysin kass-ni?
 Mary-NOM the party-to went-Q or other person-NOM instead go-Q
 ‘Is it Mary_i who went to the party or somebody else instead?’

B: Ani caki_j-ka kasse

No self_j-NOM went

No self_i went

Gill (1999) argues that in contexts such as these the anaphor is locally bound by a zero topic. In fact, a subject anaphor can be bound by an overt topic, as illustrated in (73):

(73) John_i-un caki_i-ka ka-ss-ta *Korean* (Gill 1999)

John-top self-NOM go-PAST-DSE

‘As for John_i, self_i-NOM went’

Thus, the answer in (72) is represented as in (74):

(74) Ani [e_i]_{TOP} caki_i-ka kasse

Continuing to draw a parallelism between subject anaphors and the NS, the BP example above would be analyzed in terms of local binding of the minimally specified nominal by a zero topic.

Recall that, for the specific case of BP, we have argued that the NS raises to topic position and this is how it may be interpreted as an individual. Therefore, we must assume that there are (at least) two topic positions in the language. The topmost one hosts the zero topic and the lower one hosts [_{NP} e]. We refer to Modesto (2008) for arguments in favor of the view that there are two topic positions to the left of T in BP. For the case of the long distance construal, [_{NP} e] raises to a left-peripheral position of the matrix from where it is bound by the zero (base-generated) topic.

5. Summary and conclusions

We have examined the properties of the partial NSLs when compared with the consistent and the discourse *pro*-drop languages and we have suggested that the same

basic mechanism underlies *pro*-drop in partial as well as discourse and semi *pro*-drop, namely null NP anaphora. This allows us to consider two basic processes yielding a silent argument:

- a) The functional head bearing agreement is pronominal in the sense that it has a nominal specification and interpretable ϕ -features: this is the case of consistent (Type 1) *pro*-drop.
- b) In languages that have (robust) bare nominals in argument position, the silent argument is the result of null NP anaphora; the differences in the interpretation of the NS depend on the resources available in the language for application of the semantic operation of type-shifting to an individual: the languages that lack the resources required for *iota* to apply only have quasi-argument and impersonal null subjects (semi *pro*-drop).

It is worth pointing out that this hypothesis doesn't entail that if a language has robust bare NP arguments it will necessarily display the range of properties associated with discourse or partial *pro*-drop. Polish and Czech lack articles and, unlike Russian, they exhibit the properties associated with consistent *pro*-drop. Franks (1990) observes that this difference is related to properties of subject-verb agreement morphology: while the West and South Slavic languages (Polish, Czech, Serbo-Croatian) show person agreement in all tenses and in copular constructions, in Russian, person agreement is absent in the past tense and in present tense copular constructions, where 'be' is absent.

If indeed Polish and Czech are consistent NSLs, they should differ from Russian with respect to the properties singled out in section 1. In effect, this is what happens.

First, an embedded overt pronoun signals switch-reference in Polish (cf. McShane 2009) as well as Czech (Lindseth 1998:48). In Russian no such effect is found (see Lindseth 1998 and McShane 2009). Secondly, as reported in Sigurdsson & Egerland (2009), Polish and Czech require impersonal generic subjects to be overtly marked (by a reflexive or other means). In Russian, non-overtly marked impersonal (generic) null subjects are an option.

These facts indicate that the languages that have robust bare NP in argument position may be consistent NSLs depending on the properties of verbal agreement inflection. In our perspective, the bundle of ϕ -features in T in Polish and Czech is interpretable, hence pronominal. The two properties mentioned above follow from this in the manner described above for EP. Our hypothesis here is that, by virtue of allowing robust bare NP in argument position, Slavic has another means of deriving argument drop, namely null NP anaphora. This yields subject drop in Russian as well as object drop across the Slavic family.

The reduction of different kinds of *pro*-drop to two basic mechanisms raises the question whether *pro* is universally a null NP (as already suggested in Borer and Roy 2007), in which case clause (a) above could be partially reduced to (b). One longstanding problem with the pronominal-Agr hypothesis has been the status of the argument, first merge, subject position, in examples such as (75):

- (75) a. Telefonaram [Portuguese]
 called.3PL
 b. [[T [telefonaram] [vP [*ec*] ...]]

Positing an *ec* in (75b) is required in a theory that assumes that theta-roles are assigned configurationally (Chomsky 1995). Now suppose that the *ec* in question is our minimally specified NP, and that what characterizes the consistent NSLs is that T merges with a D head bearing interpretable ϕ -features, as specifically proposed in Panagiotidis (2003), among others. When D binds the variable introduced by the null NP subject, we get the pronominal interpretation characteristic of subject *pro* in a consistent NSL. Variable binding by D is insured by the principle of Full Interpretation (the null NP is not of the right type to combine with the VP unless the variable it introduces is bound by D). However, as discussed in section 5.2.1, there is yet another alternative: the null NP may semantically incorporate with the verbal predicate. We suggest that this option is indeed realized in the arbitrary 3P PL NS construction discussed in section 2.2 (cf. (8) above). In this case, the variable introduced by the null NP is bound under Existential Closure and the arbitrary reading obtains. D checks the EPP and is deleted in PF by the same mechanism that deletes overt expletives in English. Thus, the unification between (a) and (b) seems feasible. This allows us to reduce *pro* to the same category that has been independently posited to occur as a complement of D in pronouns or independently attested in cases of null NP ellipsis/anaphora.

As acknowledged by Tomioka (2003) this hypothesis faces challenges. In particular, it requires a detailed examination of the distribution of bare nouns in a given language in relation to the conditions on the licensing of NP ellipsis as well as *pro*-drop, a task that goes well beyond the scope of the present paper, but which we believe is worth pursuing.

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¹ Holmberg, Nayudu and Sheehan (2009) and Holmberg and Sheehan (2010) offer a somewhat different account of the same facts, but the objections presented in section 2.2 also apply.

² In fact, Holmberg (2010) proposes an incorporation analysis for the generic NS.

³ Holmberg claims that the arbitrary 3PL NS of the consistent NSLs is equivalent to antecedentless 3PL pronouns in the non-NSLs, as illustrated below for French (examples from Hofherr 2003).

(i) Ils ont trouvé une moto dans la cour.

‘A motorbike has been found in the courtyard.’

Non-anaphoric 3PL pronouns have a variety of readings in common with 3PL NSs and all of them exclude the speaker and the addressee (cf. Hofherr 2003). These pronouns, however, are not entirely equivalent to 3PL plural NSs. In particular, they cannot be used in contexts such as (8) in the text, where the

event described is anchored to a particular point in time. Hofherr 2003 labels this kind of reading *specific existential* and mentions the following example:

(ii) Ils nous ataquent.

*Someone is attacking us.'

ok 'They are attacking us.'

they=anaphoric

This observation indicates that it is not possible to assimilate the indefinite/existential reading of the non-anaphoric 3 PL NS in (7) to the available readings of the non-anaphoric 3 PL overt pronoun.

⁴ This doesn't mean that a pre-verbal subject cannot also be a topic in BP (see Pires 2007 on the different structural positions occupied by pre-verbal subjects in BP).

⁵ On Russian null objects see Fehrman & Junghanns 2008; on Hebrew, see Goldberg 2002.

⁶ Unfortunately, it is not possible to test Finnish, BP or Hebrew in this regard in view of the fact that these languages exhibit stricter locality constraints on the antecedent of the 3rd person NS. Notwithstanding this, if Takahashi's findings are on the right track, these languages should behave like Chinese, given that they do have subject agreement morphology.

⁷ According to Eugénia Duarte and Conceição Paiva (p.c.), younger speakers accept (43). The mere fact that there is a dialect split precisely along the lines predicted under the incorporation hypothesis suggests that this hypothesis is on the right track. I suggest that, in the grammar of younger people, possibly due to an ongoing process of change related to bare nouns, ONE doesn't necessarily incorporate and the bare singular may shift to kind interpretation, as proposed for the case of the bare plural in Hebrew.

⁸ In Cantonese, a bare noun cannot be interpreted as definite; the definite interpretation requires the presence of a classifier (Cheng and Sybesma 2005). For this dialect, the analysis proposed for Brazilian Portuguese in Section 5.2.2.1 appears to be more adequate.

⁹ In a similar vein, Shlonsky (2009) argues that 1st and 2nd person agreement morphemes in Hebrew are incorporated subject clitics; 3rd person agreement has an unspecified person slot. Both authors converge on the idea that person agreement in Hebrew marks definiteness.