

## Resumo

We examine the properties of the partial NSLs when compared to the consistent and the discourse pro-drop languages and we argue that the same basic mechanism underlies pro-drop in partial as well as discourse pro-drop, namely null NP anaphora, as originally proposed in Tomioka (2003) for discourse pro-drop. In the two sets of languages there is a correlation between the occurrence of null arguments and the availability of a bare nominal in argument position. We suggest that the null element is a default, minimally specified nominal, in fact the same item that arguably appears as a complement of D in pronouns (Postal, 1966; Panagiotidis, 2002; Elbourne, 2005). It is a proform that minimally consists in the categorizing head  $n$ , lacking a root, the meaning of which is ‘entity’ (a property that is trivially true of any individual in the domain).  $n$ P introduces a variable that may be bound under Existential Closure, yielding the impersonal/generic interpretation, or else its denotation is type-shifted to an individual (*Iota*) under the appropriate conditions. In the latter case, it is an anaphor (due to  $\phi$  deficiency) and is subject to locality. The crosslinguistic differences found in the interpretation of the null subject depend on the resources available in the language for application of *Iota* type-shifting: the (bare NP) languages that lack the resources required for this operation to apply only have quasi-argument and impersonal null subjects (semi pro-drop languages). The paper concludes with a reexamination of the consistent NSLs in light of the present results. It is shown that the idea that *pro* reduces to  $[nPe]$  can also be successfully extended to the consistent NSLs as well, provided it is assumed that, in this type of NSL, the head bearing agreement morphology bears a D feature and interpretable  $\phi$ -features.

# *pro* as a Minimal $nP$ : Towards a Unified Approach to pro-drop

19 de Outubro de 2016

## 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 crosslinguistically, it is possible to isolate at least four typological patterns of Null Subject Languages (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 the insight by Perlmutter (1971) 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 & 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  $\phi$ -features in T are assumed to be uninterpretable, hence unvalued. This raises a problem for the idea that subject *pro* is inherently unspecified for  $\phi$ -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 (2000, 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 assumption that the head bearing agreement is interpretable (or pronominal) as proposed in Barbosa (1995), Pollock (1997), Alexiadou & Anagnostopoulou (1998), Ordóñez & Treviño (1999). Section 3 introduces Tomioka's (2000, 2003) generalization that relates discourse pro-drop with the availability of bare nominals in argument position. The author proposes that, in the discourse pro-drop languages, *pro* reduces to null NP-anaphora. Section 4 extends S. Tomioka's analysis to the partial

NSLs and proposes an analysis of non-anaphoric (impersonal) and anaphoric null subjects in the partial NSLs and in the discourse pro-drop languages that relies on the idea that the null NP is a default, minimally specified nominal, in fact the same item that appears as a complement of D in pronouns, as suggested in Postal (1966), Panagiotidis (2002) and Elbourne (2005). It is proposed that this item minimally consists in the categorizing head  $n$ , lacking a root. Section 5 examines the anaphoric null subject and shows that, since this minimal  $n$  is  $\phi$ -feature deficient, it behaves like a subject anaphor, and this is why it is sensitive to locality constraints. The remainder of section 5 is dedicated to the examination of crosslinguistic variation regarding the locality effects observed. It is argued that, alongside the proform option, null arguments may also arise as a result of ellipsis of a full-fledged NP, a configuration that often acts as a confound and masks the locality effects found with the proform option. Section 6 concludes with a reexamination of the consistent NSLs in light of the present result. It is shown that the idea that *pro* reduces to  $[_{nP} e]$  can also be successfully extended to the consistent NSLs.

## 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 is optional in some contexts in which it is nearly mandatory in a consistent NSL; (ii) the null subject 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.3SG a computer  
 'John said that he bought a computer.'

In the European variety of Portuguese (EP), the null subject 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 & Sheehan, 2009), Russian (Lindseth, 1998) and Hebrew (Borer, 1989).

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

- (2) [*O João*]<sub>i</sub> disse que os moleques acham [que [—]<sub>i</sub> é esperto]]  
 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 the partial NSLs — BP, Finnish, Marathi and Hebrew — 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 null subjects 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 null subjects 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’ PB (Rodrigues, 2004:72)

In (3) the 3rd person null subject in the embedded clause denotes people in general, including the speaker and the addressee. This reading of a 3rd person null subject is unavailable in a consistent NSL. As already noted by Perlmutter (1971), a consistent NSL cannot use a plain null subject 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 null subject is marked as plural:

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

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

In (5) and (6) the generic subject may have an inclusive reading in contrast to what happens in a consistent NSL, in which an impersonal 3rd person null subject can only be interpreted as excluding the speaker and the addressee<sup>1</sup>.

- (7) *Aqui trabalham muito.*  
 here work-3PL a.lot  
 ‘Here people work a lot.’ EP  
 ‘people’ = people in general excluding the speaker and the addressee

## 2.2 Holmberg (2005, 2010b)

In order to capture the differences between the consistent NSLs and the partial NSLs, Holmberg (2005, 2010b) proposes that one of the parameters involved in regulating the pronunciation of subject pronouns is whether finite T hosts an unvalued D-feature (labelled [ $uD$ ]). In the consistent NSLs T hosts [ $uD$ ], 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, labelled  $\phi$ P after Déchaîne & Wiltschko (2002). These are specified for  $\phi$ -features but lack D; therefore, they are incapable of coreferring to an individual or a group. (Most) null pronouns are  $\phi$ P.

Relying on the observation that null subjects, particularly 3rd person null subjects, are dependent on an antecedent in consistent NSLs too (Samek-Ludovici, 1996), Holmberg (2010b) assumes that the antecedent of a null subject in a consistent NSL is an Aboutness-shift topic (henceforth A-topic) base-generated in the C-domain of the clause immediately containing the null subject. Drawing on Frascarelli (2007) on Italian, A. Holmberg assumes that an A-topic is always syntactically represented in the C-domain, either overtly or covertly. Thus, the referential index of the null subject ultimately comes from the index of a spelled out DP in the preceding discourse. In a consistent NSL, this index-sharing relation between the A-topic and the null subject is mediated by T. Since T contains [ $uD$ ], the A-topic values T’s [ $uD$ ], where valuation consists in copying the referential index of the A-topic onto [ $uD$ ]. In this way, the EPP in T is automatically checked by the null A-topic. Therefore, the defective null subject  $\phi$ P remains in its first merge position and doesn’t raise to Spec-TP. When the subject is a lexical DP or a D pronoun, it has a valued D-feature, which values [ $uD$ ] in T under raising to Spec-TP (the standard EPP).

In this model, the reason why consistent NSLs cannot have a null ‘one’ is that this pronoun is a bare  $\phi$ P. Thus, it cannot value [ $uD$ ], which remains unvalued,

causing a crash in the derivation. This issue does not arise in a partial NSL given that in this type of language T doesn't contain [ $uD$ ].

As it has no D which could have a referential index, a 3rd person  $\phi P$  on its own cannot be definite. In a language without [ $uD$ ] in T, such a D-less pronoun can only be interpreted as impersonal (either as generic or athematic). In a language with [ $uD$ ] in T, the null 3rd person  $\phi P$  is interpreted as definite if it is merged under a T whose [ $uD$ ] is valued by an A-topic, and if it incorporates with T in the following manner. Holmberg adopts the theory of incorporation of Roberts (2010), who takes incorporation to be a direct effect of Agree, in the sense of Chomsky (2001). Finite T has a set of unvalued  $\phi$ -features, and therefore looks for a category with a set of matching valued features. The subject pronoun has the required set of valued  $\phi$ -features, so these values are copied onto T. As a result of Agree, T's features are a superset of  $\phi P$ 's features as T also has a D feature valued by the A-topic and a tense feature. Roberts (2010) proposes that the probe and the goal in this situation form a chain. As such, the representation is subject to chain reduction to the effect that only the highest copy is pronounced. Since T is the highest member of the subject chain, it is pronounced (as an affix on V).  $\phi P$  itself is not pronounced, so we get a null subject. As the chain contains the feature [D] (T's D-feature), which is valued by the A-topic, the result is a definite null subject construction, with the referential index of the null A-topic.

In Finnish, BP and other partial NSLs, a  $\phi P$  subject cannot be incorporated in T and be definite, due to lack of [ $uD$ ] under T. Holmberg argues that, in this set of languages, a null pronoun may in addition have unvalued D (labelled [ $uD_P$ ]). The presence of this feature will prevent incorporation, so the pronoun, if it is a subject, will raise to Spec-TP to check the EPP. In this position it can be interpreted if it is controlled by an argument in a higher clause. According to Holmberg, the fact that the relation between the null subject and the antecedent is one of control explains the locality effects imposed on the antecedent of 3rd person definite null pronouns in the partial NSLs. The nullness of such pronouns



follows from 'an extended version of chain reduction (Holmberg, 2010b:104)'.

In a nutshell, there are two kinds of null subjects: 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 an [*u*DP], which is necessarily controlled. Holmberg concludes that, as far as core syntax is concerned, null subjects 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.

Holmberg's work on the partial NSLs languages constitutes a major step in the understanding of the key properties of this type of language, particularly when compared with the consistent NSLs. The analysis proposed, however, is quite complex and, in our view, it is not entirely satisfactory. One persistent problem with this analysis is that it is not very clear how examples such as (7) above or (8) below, with an indefinite null subject, are to be analysed:

- (8) *Estão a bater à porta.*  
are at knock.INF at-the door  
'There is someone knocking.' EP

The EP example (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 (Cinque, 1988; Jaeggli, 1986). In this case, there is no A-topic. Therefore, it is not very clear how [*u*D] in T is valued; i.e., it is not clear how the EPP is checked in these examples. One possible answer to this question that would be consistent with Holmberg's framework of assumptions would be to say that the EPP is checked by an implicit locative or by a null expletive. In effect, this possibility is suggested by Holmberg (2010b:100) forthetic sentences with a postverbal subject in Italian and Portuguese. However, once this possibility is allowed in for sentences with a null subject such as (7) or (8), we no longer have an account for why the null subject in (7) cannot be interpreted as inclusive 'one' (as in effect happens in its Russian counterpart (5)). In Holmberg's system, failure

of valuation of [ $uD$ ] in T was the main reason why a consistent NSL cannot have a null 'one'. Thus, we seem to be pushed into a corner: either we accept that the EPP is not checked by an implicit locative or null expletive, in which case (7-8) should be ungrammatical for failure of EPP checking; or we lose the original account for the unavailability of an inclusive 3rd person null 'one' in the consistent NSLs as opposed to the partial NSLs. Therefore, the existence of impersonal null subject constructions that must be interpreted as excluding the speaker remains a problem under Holmberg's (2010) proposal.

### 2.3 An alternative analysis

Holmberg (2005) considers and then rejects an alternative analysis that has been proposed by a number of authors for the consistent NSLs (Barbosa, 1995; Pollock, 1997; Alexiadou & Anagnostopoulou, 1998; Ordóñez & Treviño, 1999; Manzini & Savoia, 2002; Platzack, 2004). Even though the particular implementations of this proposal vary, all of them have one key feature in common: the functional head bearing subject agreement has a nominal specification (a D-feature), interpretable/valued  $\phi$ -features, probably also Case, to the effect that it has the status of a pronominal affix on V raised to T. A corollary of this hypothesis is that pre-verbal (non-quantified/non-focalized) subjects are Clitic Left Dislocated topics. Barbosa (1995), Alexiadou & Anagnostopoulou (1998), Ordóñez & Treviño (1999), 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 (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 are genuine subjects that raise (or may raise) to Spec-TP. Viewed in this light, the Avoid Pronoun Principle (cf. (1)) simply reduces to preference for not merging an overt pronoun as a left-dislocated topic unless it is required to signal topic switch or for emphasis/empathy. Barbosa & Kato (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-TP. Consequently, there is no effect of topic switch, i.e., no *Avoid Pronoun* effects.

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 (Halle & Marantz, 1993), the person features 1, 2, 3, are decomposed into combinations of the more primitive features  $[\pm 1]$ ,  $[\pm 2]$ , (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 or indefinite, 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. In effect, the languages that lack agreement morphology and yet license null subjects, such as Chinese, Japanese and Korean, all have plain generic null subjects with an interpretation equivalent to English 'one' (Holmberg, Nayudu & Sheehan, 2009):

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

Hence, the availability of a plain inclusive generic null subject 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, the indexing shows that the zero subject of the adjunct clause must be interpreted as coindexed with the subject of the immediately higher clause and cannot correfer with a topic in the discourse or to a subject beyond the next higher clause:

- (11) *ta<sub>1</sub> shuo wo<sub>2</sub> yinwei [e<sub>2/\*1,3</sub> bu xihuan Zhangsan] you diar*  
 he say Zhangsan to e<sub>2/\*1,3</sub> not like Zhangsan have slight  
*bu-hao-yisi.*  
 embarrassment  
 ‘He said I was somewhat embarrassed because *e* did not like Zhangsan.’

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 (Neeleman & Szendrői, 2007). In recent years, attempts have been made at relating radical pro-drop with yet another parameter of variation, namely the

availability of a bare NP in argument position (Tomioka, 2003; Bošković, 2012). In fact, radical pro-drop is allowed in Japanese, Chinese, Korean, Kokota, Hindi, Wichita, Malayalam, Thai, Burmese, and Indonesian, all of which are languages that lack articles. Here we will focus on S. Tomioka’s particular proposal as it will help us prepare the ground for our own analysis.

### 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:

(12) *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 anaphoric to a pronoun containing antecedent. 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:

(13) *Ken-wa ronbun-o yun-da*

Ken-TOP paper-ACC read-PAST

‘Ken read a paper / papers / the paper / the papers’

(14) *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.’

S. 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 semantic differences are the result of two independently needed semantic operations, namely Existential Closure (cf. (15)) and Type-shifting to an individual (cf. (16)).

(15) Existential Closure (Heim, 1982):  $\exists$ -closure

For any  $P \in D < e, t >$

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

(16) Type shifting of a predicate to an individual (Partee, 1987): *Iota*

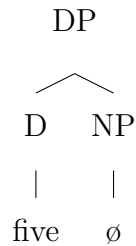
For any  $x \in D, P \in D < e, t >$

$\iota(P) = \iota x. P(x)$  = 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*. S. 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).

(17) John bought one book. I bought five [<sub>NP</sub> — ]

(18)



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 (2003) doesn't take a stand as to whether the null NP is the result of ellipsis/deletion or rather a proform. 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. Moreover, Bošković (2012) argues for a generalization that is rather similar to (12) 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. (19a), (20)); in Spanish, it may not (cf. (19b), (21)):

- (19) a. *Mostrei* *aquele quadro à* *Maria e a Cristina mais*  
 show.PAST.1SG that picture to-the Maria and the Cristina more  
*tarde mostrou* *[—] à* *Alexandra.*  
 late show.PAST.3 SG to-the Alexandra.  
 ‘I showed this painting to Maria and later Cristina showed it to Alexandra.’ EP
- b. *\*Le mostré* *[aquele quadro] a María, y Cristina más*  
 to.her show.PAST.1SG that picture to Maria and Cristina more  
*tarde le mostrou* *[—] a Alejandra.*  
 late to.her show.PAST.3 SG to Alexandra. Spanish
- (20) *Este casaco é bem barato. Não queres comprar [—]?*  
 this coat is very cheap not want-2SG to-buy  
 ‘This coat is very cheap. Don’t you want to buy it?’ EP
- (21) A: *¿Comiste el pastel?* B: *No, no \*(lo) comi.*  
 A: eat.PAST.2SG the cake B: no, not (it) eat.PAST.1SG.  
 A: ‘Did you eat the cake?’ B: ‘No, no \*(lo) comi.’ Spanish

In spite of this, Spanish has zero indefinite objects. Thus (21) contrasts with (22):

- (22) A: *¿Compraste regalos?* B: *Si, compré.*  
 A: buy.PAST.2SG presents B: yes buy.PAST.1SG

A: 'Did you buy presents?' B: 'Yes, I did '. Campos (1986)

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:

- (23) A: ¿Compraste algunos regalos? B: \*Si, compré. / Sí,  
 A: buy.PAST.2SG any presents B: yes buy.PAST.1SG / yes,  
*compré algunos.*  
 buy.PAST.1SG some  
 A: 'Did you buy presents?' B: \* 'Yes, I bought '. / 'Yes, I bought some.'

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 (24a,b) with their counterparts in Spanish (25)):

- (24) a. *A Maria detesta cenouras.*  
 the Maria hates carrots  
 'Mary hates carrots.'
- b. *Odeio café.*  
 hate.1.SG coffee  
 'I hate coffee.' Portuguese
- (25) a. *María detesta \*(las) zanahorias.*  
 Maria hates \*(the) carrots  
 'Maria hates carrots.'
- Odio \*(el) café.*  
 hate.1.SG \*(the) coffee  
 'I hate coffee.' Spanish

Raposo proposes that EP has a null definite determiner and analyses (24) as in (26):

- (26) A Maria detesta [<sub>DP</sub> [<sub>Ddef</sub>  $\emptyset$ ] [<sub>NP</sub> cenouras]]



He then relates the existence of the zero definite determiner with the availability of definite object drop, so that the null object in (19a) above is the result of null NP anaphora under a null D:

(27) [mostrou [<sub>DP</sub> [<sub>Ddef</sub>  $\emptyset$ ] [<sub>NP</sub>  $\emptyset$ ] à Alexandra]] Raposo (1998:209)

In a similar vein, Giannakidou & 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. In his terms, there are, in theory, two ways of deriving a null argument under null NP ellipsis/anaphora:

(28) A zero bare NP: [<sub>NP</sub>  $\emptyset$  ]

(29) A zero NP embedded under a null D: [<sub>NP</sub> [<sub>D</sub>  $\emptyset$  ]] [<sub>DP</sub>  $\emptyset$  ]]]

Crucially, Tomioka's hypothesis doesn't really commit ourselves to the idea that, in the absence of "rich" agreement, zero arguments are licensed just in case the language allows bare NP arguments. If D is null, null NP anaphora may yield a zero argument as well.

As seems obvious, the question that immediately arises in this context is why English (or Germanic in general) lacks zero arguments given that it allows bare nouns as arguments even more freely than Romance.

(30) Rich people are becoming richer.

Our answer to this question relies on the following contrasts, noted by Longobardi (1994):

(31) a. The rich are becoming richer.

b. \*Rich are becoming richer.

(31a) contains a substantivized adjective. The contrast between (31a) and (31b) shows that such substantivized adjectives cannot occur bare even in the plural

interpretation. We assume that these examples contain a null NP (Longobardi, 1994; Borer & Roy, 2006):

- (32) a. [the rich [<sub>NP</sub>  $\emptyset$ ]] are becoming richer  
b. \* [rich [<sub>NP</sub>  $\emptyset$ ]] are becoming richer

The fact that (32b) is ungrammatical is evidence that a null NP requires the presence of an overt D in English; or, in other words, a null NP cannot occur bare in English. Longobardi (1994) offers an explanation for this fact that relies on the idea that all arguments are categorially DP and that a null D is invariably projected in a bare plural. In addition, he proposes that articleless generics in English are made possible by raising of the lexical head noun to fill the D position in LF. In his view, the LF structure of (30) is as in (33):

- (33) [ people [rich *t*]] are becoming richer.

If no overt noun is present, as in the case of substantivized adjectives, this strategy, however, cannot be used. Since Adj to D raising is out on independent grounds (Longobardi, 1994:644), the resulting configuration is out.

Even though we do not wish to commit ourselves here to the idea that all nominal arguments are DPs, we have given considerable attention to Longobardi's account of the ungrammaticality of (32b) so as to show the relevance of the contrast between (32a) and (32b) to the issue at hand. Whichever account one might choose, the fact remains that a null NP may not occur in English in the absence of an overt article. Therefore, it should come as no surprise that English should lack zero arguments even though it has articleless nouns in argument position.

### 3.3 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) null subject whose interpretation is roughly equivalent to English 'one'. Yet another

property that brings together the two sets of languages is that they allow other arguments besides subjects to be dropped. Thus, BP, Russian and Hebrew are known for having fully productive object drop. The following examples show that an object with a definite antecedent may be dropped in all three languages:

- (34) 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 [her] when she came here.’

BP (Marafoni: p.130)

- (35) [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.’

Russian (Erteschik-Shir, 2013)

- (36) *P: 'Eyfo ha-kacefet? R: He'evarti* [—] *le-Mixa'el.*  
 P: where the-whipped.cream R: pass.PST.1SG [—] to-Michael

‘Where [is] the whipped creami ?’ ‘(I) passed [it] to Michael.’

Hebrew (Goldberg, 2002)

As extensively discussed in Cyrino (2001) for BP as well as Erteschik-Shir (2013) for Hebrew and Russian, the missing objects in these examples are instances of genuine null objects of the type described for the discourse pro-drop languages. In particular, they are not instances of VP ellipsis or ‘intransitivization’ of transitive verbs.

Finnish exhibits a different behavior. It has productive impersonal null objects, as illustrated below:

- (37) a. *Tämä päätös ei ilahduta.*  
 this decision not happy.makes  
 ‘This decision doesn’t make [one] happy.’

- b. *Lääkärit kehottavat syömään vähemmän rasvaa.*  
 doctors encourage ingest.INF less fat

'The doctors encourage [people] to ingest less fat.'

Definite, anaphoric null objects are harder to come by in Finnish written sources (Holmberg, p.c.). The following conversation, however, is reported not to sound implausible in colloquial Finnish:

- (38) *Kui sä tommoset saappat ostit? No, ku mä sain (ne) niin halvalla*  
 why you such boots bought well because I got (them) so cheap

'Why did you buy such boots? Well, because I got [them] so cheap.'

Finnish (Holmberg, pc)

Thus, even though Finnish clearly differs from the other languages under discussion, it has the null object construction to a certain extent.

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 (Müller, 2001; Schmitt & Munn, 1999), in contrast to EP, which only allows bare plurals in post-verbal position.

- (39) a. *Eu ouvi cachorro / cachorros*  
 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' BP (Schmitt & Munn, 1999)

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

- (40) 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 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/anaphora:

- (41) The rich [<sub>NP</sub>  $\emptyset$ ] are becoming richer.

In (41), the null NP, which is non-anaphoric<sup>2</sup>, is interpreted as generic and human. This is exactly the interpretation obtained in the case of the non-anaphoric null subject in the partial NSLs and in the discourse pro-drop languages. This is an argument in favor of the idea that these are instances of the same basic category,

Note that if indeed the impersonal/generic null subject in these languages is a bare NP, it should be possible to find a null argument in object position with the same impersonal interpretation. This prediction is indeed confirmed. (37) contains examples of impersonal null objects in Finnish and the following examples illustrate the same point in Russian and Brazilian Portuguese:

- (42) *Krasota mesta porazila* [ $\emptyset$ ].  
 beauty.NOM.SG.F place-GEN struck.PAST.SG.F [ $\emptyset$ ]  
 ‘The beauty of the place was striking.’

NB: The verb is transitive (*porazit* ‘to strike someone’).

Russian (Fehrmann & Junghanns (2008:204)

- (43) *Esta decisão faz feliz.*  
 this decision makes happy

'This decision makes one/him happy'

BP Chao (1987)

The second piece of evidence in favor of the hypothesis that the null argument arises as a result of NP-ellipsis/anaphora comes from a comparison between null subjects and full-fledged bare NP subjects in Finnish. 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:

- (44) 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 NP subject in preverbal position is usually interpreted as referring to an entity already mentioned in the discourse (cf. (44a,b)). If an SVO sentence occurs at the very beginning of a discourse, 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, however, there is an asymmetry between subjects and objects: whereas the latter can be new or old (cf. (45)), the former are necessarily 'new' information, hence indefinite (cf. (46)).

- (45) *Mies luki kirjan.*  
Man-NOM read book-ACC  
'A/the man read a/the book.' SVO order
- (46) *Kirjan luki mies.*  
Book-ACC read man-NOM

'The book, a man / \*the man read.'

OVS order

Two important conclusions can be drawn from these data. The first one is that, in the case of bare nominal *subjects*, the definite interpretation is available just in case the bare nominal raises to preverbal position. The second one is that subjects behave differently from objects in this regard, as an object sitting in post-verbal position is not so constrained: it may be interpreted as definite or as indefinite.

With these two observations in mind, let us now turn to null subject constructions. Interestingly, Vainikka & Levy (1999) discuss data that indicate that the definite 3rd person null subject raises to a high position in the clause (Spec-TP, in Holmberg's terms) whereas the generic null subject must stay inside *v*/VP:

- (47) a. *Oppilas tietää ettei tehtävää pysty ratkaisemaan.*  
student knows that-not assignment can solve  
'The student knows that the assignment can't be solved.'  
NOT '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.'  
NOT 'The student knows that the assignment can't be solved.'

In Finnish, the EPP can be satisfied by other categories besides subjects. In (47a), the object checks the EPP. In this case, the only reading available for the null subject is the impersonal, generic interpretation. In (47b) the EPP is checked by the null subject. Here, the generic reading is not a possibility and the subject must be interpreted as a definite pronoun co-referent with the higher subject. Thus, these data constitute clear evidence that the impersonal (non-anaphoric) 3rd person null subject stays *in situ* whereas the definite/anaphoric null subject must raise to a high position. Hence, the definite interpretation is available just in case the subject raises to preverbal position, which is exactly what find in the case of a full-fledged subject that is a bare nominal. Therefore, there is a rather striking parallelism between full fledged nominal subjects and null subjects in

Finnish. This is what is predicted under the hypothesis that the null subject is a bare NP.

## 4 The null subject as a minimal *nP*

### 4.1 Introduction

Thus far, we have argued in favor of the view that the null subject 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 proform. The mere existence of a non-anaphoric null subject 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 null subject can be an ellided form, given that it lacks an antecedent. Moreover, in many of the cases under consideration there is no overt counterpart to the impersonal null subject. On the other hand, Holmberg (2010a) provides arguments that the non-anaphoric 3rd person null subject 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 null argument.

In view of the similarities between the impersonal 3rd person null subject and English impersonal 'one', we suggest that the null proform is a minimally specified NP, i.e., an NP that lacks a syntactically projecting restricting property. The existence of a default, nearly semantically empty NP that is generally available has been independently posited by Panagiotidis (2002) as well as Elbourne (2005). Both authors propose to unify this default item with (in their view, nearly 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, distinguishes E-type pronouns



from non E-type pronouns. The former are determiners that take a regular NP as complement, which is subject to NP-ellipsis. Non E-type pronouns, by contrast, 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  $[\lambda x : \in D_{\langle e \rangle} . x \in D_e]$  (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 (non E-type) pronouns and concurs with Panagiotidis (2002) 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 null subject in the partial and in the discourse pro-drop languages is an instantiation of this item, with one slight modification. If nouns start the derivation as category neutral roots that combine with a categorizing  $n$  head (Marantz, 2001), as currently assumed within the Minimalist Program, there is no need to posit an empty noun in the lexicon. It suffices to assume that this item minimally consists in the categorizing head  $n$ : it corresponds to an  $n$  that doesn’t merge with a root. In effect, this is the move taken in Panagiotidis (2014), in his analysis of empty nouns within pronouns, as well as in Dvořák (2015), in her treatment of the generic null object in Czech. Along the lines of Lowenstamm (2008), these authors argue that grammatical Gender ( $u$ Gender) is marked on  $n$  so that the structure of  $nP$  is as follows:

$$(48) \quad \begin{array}{c} nP \\ | \\ n \\ | \\ u\text{Gender} \end{array}$$

When such a rootless  $nP$  is merged under an overt D, we get an overt pronoun. Whenever  $nP$  is bare or when it is selected by a null Number or Classifier head, or even a null D (depending on the language and the context), we get a null argument:

- (49) a.  $[_{NumP} [_{Num} \emptyset ] [_{nP} \emptyset ]]$   
 b.  $[_{DP} [_{D} \emptyset ] [_{nP} \emptyset ]]$   
 c.  $[_{DP} [_{D} \emptyset ] [_{NumP} [_{Num} \emptyset ] [_{nP} \emptyset ]]]$

In the introduction to this section, we discussed evidence from Finnish that indicates that the impersonal/generic 3rd person null subject stays *in situ* whereas the definite interpretation is available just in case the null subject raises to a high position. Under the hypothesis that the null subject is an *nP*, the correlation between the two different positions (the pre-verbal position or the *v/VP* internal position) and the available readings would follow from the different configurations that serve as input to semantics: when the null *nP* (interpreted as a property that is trivially true of any individual in the domain) stays inside *v/VP*, the variable it introduces is bound under Existential Closure, yielding the impersonal interpretation (see below for details); when it raises to preverbal position, its meaning is type-shifted to an individual (*Iota*). This is, in essence, the approach we will take in the sections that follow.

## 4.2 The non-anaphoric null subject

As mentioned in Section 2, there is a split among the partial null subject languages with respect to verbal number morphology in impersonal null subject constructions. BP and Finnish show singular verbal agreement whereas Russian and Hebrew show plural agreement. Holmberg (2010a) provides evidence from Finnish that the agreement in question is not default verbal agreement but is rather triggered by the generic null subject itself. Crucially, in the cases in which the non-anaphoric null subject 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 null subject is number neutral. For BP, number neutrality actually fits in well with our proposal that the null subject is a bare nominal, as there is consensus in the lite-

rature that full-fledged bare singular nouns are number neutral (Schmitt & 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, at least in the case of Finnish.

Semantic number neutrality is known to be a stable crosslinguistic property of a phenomenon known in the semantic literature as *semantic incorporation*, as extensively discussed in van Geenhoven (1998), Dayal (2003), Farkas & de Swart (2003) (see also Chung & Ladusaw (2003)). 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 (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. 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 — labelled *Unification* in Farkas and Swart’s (2003) model; or *Restrict* in Chung and Ladusaw’s (2003) framework — doesn’t instantiate/saturate the predicate, hence the variable introduced by the verbal predicate 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 & de Swart (2003) report on instances of subject incorporation in Hungarian. Thus, in view of the properties of the 3rd person non-anaphoric null subject in Finnish — restriction to post-verbal position; number neutrality — it is plausible that the *nP* in post-verbal position is semantically incorporated in Finnish as well as BP.

Following Panagiotidis (2014) we assume that *nP* has a Gender feature assigned by default. Also assigned by default are syntactic number (singular) and

the semantic feature [+human]. Since *nP* lacks descriptive content, 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, Existential Closure of the individual variable introduced by the verbal predicate falls under the scope of a *Gen*(eric operator). (50a) below will be assigned the representation in (50b). In this representation, I adopt the Davidsonian view that every verb introduces an event/situation variable. In this case, the situation variable gets bound by *Gen* and is further restricted by the locative adverbial. (50b) will thus be interpreted roughly as follows: take any situation that happens here; in this situation, there is shoe-repairing going on.

- (50) a. *Aqui conserta sapato*  
 here repair-3SG shoe  
 ‘One repairs shoes here’ *Kato1999*
- b.  $Gen_s[*aqui(s)*] \exists x[*conserta sapato(s, x) \wedge human(x)*]$

Incorporated bare nouns do not combine with individual-level predicates (Farkas & de Swart, 2003). Therefore, the incorporation hypothesis predicts that the non-anaphoric null subject should be incompatible with individual-level predicates. Interestingly, this prediction is borne out. Let us start by considering the case of Finnish. Example (51) below, a generic sentence containing an individual-level predicate, is out (Anders Holmberg, p.c.)<sup>3</sup>:

- (51) \**Brasilia-ssa rakastaa samba.*  
 Brazil-in love.3SG Samba

Turning to BP, we observe that there is a dialect split: older speakers consistently reject the examples below, which contain individual-level predicates. They feel the need to insert an overt subject or to use the plural.

- (52) a. \**No Brasil adora samba.*  
 in-the Brazil love-3SG samba
- b. \**Aos cinquenta anos sabe em quem confiar.*  
 at-the fifty years know-3SG on who trust.INF

Younger speakers accept (51a,b). The mere fact that there is a dialect split precisely along the lines predicted under the incorporation hypothesis indicates that this hypothesis is on the right track. I tentatively suggest that, in the grammar of younger people, possibly due to an ongoing process of change related to bare nouns, *nP* doesn't necessarily incorporate and the bare singular may shift to kind interpretation (as will be proposed below for the case of the bare plural in Hebrew), so that it picks the kind 'people' in (52a,b).

Moving on to the languages in which the non-anaphoric null subject is plural, Hebrew and Russian, we observe that impersonal nul-subject constructions are fine with individual-level predicates. In the examples below, the impersonal null subject may have an inclusive interpretation:

- (53) *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.'

- (54) *V Portugalii obozhaiut tresku.*  
 in Portugal love.3PL codfish  
 'In Portugal, [people] love codfish'

Therefore, we conclude that the plural non-anaphoric null subject 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. (55a)) and take obligatory narrow scope (Doron (2003)); in pre-verbal position, a generic interpretation is available (cf. (55b)):

- (55) a. *lo novxim klavim*  
 not bark dogs  
 'It is not the case that dogs are barking  
 $\neg\exists x [ \text{dogs}(x) \wedge \text{barking}(x) ]$
- 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 (55a). As for examples such as (55b), she claims that the bare plural shifts to kind interpretation, along the lines of Chierchia (1998)<sup>4</sup>.

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

- (56) *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 kind interpretation, namely the kind 'people' in an example such as (53) above. In this example, *Gen* quantifies over instances of the kind 'people in the US'. The same approach straightforwardly applies to the Russian examples.

In sum, the idea that the null subject is an *nP* — Elbourne's (2005) ONE, or Panagiotidis's (2003) "empty" N — seems adequate for the case of the non-anaphoric null subject in the partial NSLs. Even though they were not discussed here, similar remarks apply, *mutatis mutandis*, to the non-anaphoric null subject in the discourse pro-drop languages (cf. (9-10)).

### 4.3 The anaphoric null subject

In the discussion that follows, we will start by discussing the languages that lack articles: Finnish, Russian and the discourse pro-drop languages. In a separate section, we discuss Hebrew and BP.

### 4.3.1 Languages that lack articles

Recall that, in Finnish, the definite null subject must raise to pre-verbal position. Holmberg (2005) assumes that the Finnish EPP position is Spec-TP. However, Holmberg & 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 & Yabushita, 1998), 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 in the case of full-fledged bare nominal subjects. As mentioned above, in Finnish, in 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:

- (57) a. *Na stole stojala lampa.*  
on desk stood lamp  
‘There was a lamp on the desk.’
- b. *Lampa stojala na stole*  
lamp stood on desk  
‘The lamp was on the/a desk.’
- c. *Na stole lampa stojala.*  
on desk lamp stood  
‘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 & Sybesma (2005)):

- (58) 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, it seems quite plausible that topicality is related to the availability of type-shifting of the denotation of the subject *nP* from a property to an individual, so we will pursue this hypothesis here.

### 4.3.2 Languages with articles: Hebrew and BP

As mentioned, Hebrew and BP have a definite article. Chierchia (1998) proposed that covert *Iota* type-shifting is blocked whenever the language has an overt way of achieving the same results. Since Hebrew and BP have a definite article, covert *Iota* type-shifting is blocked, so full-fledged bare nouns can only shift to kinds and cannot refer to contextually salient individuals.

Cyrino & Espinal (2015) argue that bare nominals in BP can be interpreted as entity-type expressions, in which case they are DPs headed by a null D. Here we adopt their view. We assume BP has a null D, which combines with *nP* to yield an entity-type expression. The definite null subject has thus the structure in (59)<sup>5</sup>:

$$(59) \quad [_{DP} [_{D} \emptyset] [_{nP} \emptyset]]$$

This assumption holds only of the anaphoric null subject as the non-anaphoric one is an *nP* that combines with the verbal predicate by Predicate Modification and is number neutral, as discussed in the previous section.

Since bare nouns in BP and Hebrew have many properties in common (Doron, 2003), I extend this approach to Hebrew as well. In Hebrew a definite null subject 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 (60a) and impersonal/generic (60b) subjects may be silent; definite subjects, however, may not (61):

- (60) a. *nir'e Se itamar suv me'axer*  
 seems that Itamar again is.late  
 'It seems that Itamar is late again.'
- b. *Tafsu kvar et kol ha mavrixim*  
 caught.3MPL already ACC all the smugglers  
 'All the smugglers have been caught.'
- (61) *\*(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, where past tense verbs are also participles that are only marked for number and gender; yet, definite subject drop is possible in the past tense (McShane, 2009:120):

- (62) *Ona vybegala i ne lajala, poskol'ku [—] byla sderz(anno)j 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*. Moreover, it has been claimed that definiteness is a formal, syntactic feature in Hebrew, given that the language has definiteness spreading (Danon, 2010):

- (63) *ha-sefer \*(ha-)adom ne'elam.*  
 o-livro o-vermelho desapareceu  
 'O livro vermelho desapareceu.'

In the example above, the definiteness marker must appear not only on the noun, but also on the adjective.

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 person. In light of these facts, we suggest that, in Hebrew, person agreement is a means of marking definiteness [def] on *n*. By hypothesis, a definite null subject must be marked for definiteness and this is achieved by entering an Agree relation with T containing [def]<sup>6</sup>. Since definiteness is a formal feature in Hebrew, it is not necessarily interpretable (when it appears on an adjective, it is clearly not interpretable). In our perspective, this is why person agreement is not incompatible with an indefinite subject, be it overt or null<sup>7</sup>.

Interestingly, the restricted pattern of null subjects observed in Hebrew present tense is not unique. It is found in a range of creole languages, which have been classified as 'semi-pro-drop'. In light of our present discussion, it is now possible to regard this highly restricted pattern of pro-drop as cases that lack the resources required for *Iota* type-shifting to apply. We discuss this type of language in the next section.

### 4.3.3 Semi pro-drop languages

In Cape Verdean Creole (CVC) a pronominal subject may not be dropped:

- (64) *\*(El) ta trabadja duro.*  
 he asp works hard

Yet, CVC has quasi-argumental (cf. (65)) and impersonal null subjects (cf.(66))

- (65) *Sta faze frio*  
 is making cold

- (66) *Na veron, ta korda sedu.*  
 in-the summer Asp wake early

'In the Summer one wakes up early' CVC (Baptista 1995)

Similar facts obtain in Papiamentu (Muysken & Law, 2001). Interestingly, both creoles allow bare nominals in argument position. Moreover, they do have definite determiners alongside bare nouns. Our hypothesis is that these creole languages lack the resources required for *Iota* type-shifting to apply. Therefore,

an overt definite determiner must be used for the individual interpretation. In this case, we get an overt pronominal subject, as desired.

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

- (67) *Nú má [—] fara að dansa.*  
now may [—] go to dance  
'One may begin to dance now'

Even though the availability of an impersonal null subject 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 (65) 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 realized as rootless *nP*).

#### 4.3.4 Summary

In sum, we propose that at the heart of a definite null subject in the discourse pro-drop languages and in the partial NSLs is a rootless  $n$  which gets an individual interpretation either by undergoing covert *Iota* type-shifting (articleless languages) or by combining with a null D (BP, Hebrew). The semi pro-drop languages (CVC, Icelandic) are languages that lack the resources required for *Iota* type-shifting to apply. In view of the fact that the shifted null nominal lacks inherent  $\phi$ -features, it gets its  $\phi$ -features from an antecedent. In the next section, we will argue that the definite null subject in all of these languages indeed has the typical behavior of a subject anaphor.

## 5 The anaphorically anchored null subject as a (local) subject anaphor

In this section, we argue that the definite null subject has the behavior of a (local) subject anaphor. In section 5.1, we motivate our proposal on the basis of data from the partial null subject languages. In section 5.2 we extend our proposal to the discourse pro-drop languages, where the facts are obscured by the existence of a potential confound: the possibility of argument ellipsis on top of the  $nP$  proform option.

### 5.1 Locality effects in the partial NSLs

As mentioned in Section 2, the partial NSLs show an asymmetry between the 1st/2nd person and the 3rd person null subjects. 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 3rd person null subject, 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:

- (68) *Lina<sub>i</sub> xočet, čtoby ona<sub>j/\*i</sub> vyigrala.*  
 Lina-nomi want.3SG.PRES that she won.SUBJ.3SG.FEM.PAST  
 Russian (McShane, 2009)

- (69) *Rina<sub>i</sub> racta še hi<sub>j/\*i</sub> tizke ba-pras.*  
 Rina wanted that she 3F.win.FUT.SG in-the-prize  
 Hebrew (Shlonsky, 2009)

In (68-69) 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), in contrast to what happens in a consistent NSL, where it can be null:

- (70) *A Maria quer que ganhe o prêmio.*  
 the Maria wants that win the prize  
 ‘Maria wants for him/her/me to win the prize.’

The impossibility of dropping the subject in (68-69) is thus an indication that the zero subject lacks the content required for independent reference.

Even though the partial null subject languages differ from one another with respect to the environments in which a null subject 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 & Sheehan, 2009). As we will see in section 5.2, Chinese also displays somewhat similar locality effects, but, for ease of exposition, we will postpone discussion of the discourse pro-drop languages to the next section.

- (71) a. *O Feco<sub>1</sub> disse que a Dani<sub>2</sub> acha que e<sub>\*1/2</sub> ganhou na loto.*  
 the Feco said that the Dani thinks that e<sub>\*1/2</sub> won the lottery  
 ‘Feco said that Dani thinks that she won the lottery.’
- b. *Jukka<sub>1</sub> sanoi että Liisa<sub>2</sub> ajattelee että e<sub>\*1/2</sub> oli voittanut arpajaisissa.*  
 Jukka said that Liisa thinks that e<sub>\*1/2</sub> had won lottery  
 ‘Jukka said that Liisa thinks that she won the lottery.’

Nunes (2009) and Rodrigues (2004) have attempted to subsume the relation between the antecedent and the null subject under obligatory control. However, Modesto (2007), Holmberg, Nayudu & 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 null subject (Gutman, 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 null subject. Thus, while Finnish and Hebrew allow the null subject 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 null subject in these languages is a subject anaphor. The first relevant observation is that the locality effects found in (71a,b) are also observed with certain subject reflexive anaphors, as is the case of the Chinese local anaphor *ta ziji* in subject position. As reported in Cole et al. (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. (72a)), can appear as the subject of a complement clause (cf. (72b)):

- (72) a. *Zhangsan<sub>i</sub> juede Lisi<sub>k</sub> hui shanghai ta ziji<sub>\*i/k</sub>.*  
 Zhangsan think Lisi will hurt him self  
 'Zhangsan<sub>i</sub> thinks that Lisi<sub>k</sub> will hurt himself<sub>\*i/k</sub>.' Haddad (2007)
- b. *Xiaoming<sub>i</sub> xiangxin ta ziji<sub>i</sub> neng kaoguo.*  
 Xiaoming believe him self can pass.the.exam  
 'Xiaoming believes that he himself can pass the exam.' Sung (1990)

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:

- (73) *Xiaoming<sub>i</sub> shuo Zhangsan<sub>j</sub> xiangxin ta ziji<sub>\*i/j</sub> neng kaoguo.*  
 Xiaoming say Zhangsan believe him self can pass.the.exam  
 'Xiaoming<sub>i</sub> says that Zhangsan<sub>j</sub> believes that he<sub>\*i/j</sub> can pass the exam.'  
 Sung (1990)

The contrast between (72b) and (73) is expected if the locality domain for the subject is the immediately higher clause. In fact, Huang & 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 (72b) the Governing Category for the reflexive is the next clause up.

The fact the 3rd person null subject 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 & 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:

- (74) 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, 1st and 2nd person exempt anaphors do not need linguistic antecedents whereas 3rd person exempt anaphors require one. Büring (2005) provides the following examples:

- (75) 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: 1st and 2nd person null subjects do not need a linguistic antecedent whereas 3rd person null subjects require one. This fact fits in well with the hypothesis that the null

subject in these languages is an anaphor that can be exempt. It can be locally bound, as in (71a,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 3rd person null subject 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 & Levy, 1999; Borer, 1989). On the other hand, according to Holmberg, Nayudu & Sheehan (2009), both sloppy and strict readings are available under VP ellipsis in Finnish. Moreover, Gutman (2004) provides one example in Hebrew in which the 3rd person null subject has a split antecedent:

- (76) *Noga bikra et Shimon al ma'amaro ha-shovinishi 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 null subject is an anaphor that can be exempt. As noted by Pollard & Sag (1992) exempt 3rd person reflexives in English may take split antecedents. The following example is taken from Lebeaux (1984:346):

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

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

- (78) Rupert<sub>i</sub> was not unduly worried about Peter's opinion of himself<sub>i</sub>; nor was Fred<sub>j</sub>.



The elliptical clause of (78) can be understood to mean either (79a) or (79b):

- (79) 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 null subject in the partial NSLs can be due to its ambivalent nature as a referentially dependent element: a locally bound anaphor or an exempt anaphor. Reuland (2001) 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.

We contend that the anaphoric nature of the null subject follows from the fact that it is a (type-shifted) *nP* that lacks  $\phi$ -features (hence it is  $\phi$ -defective, just like anaphors) and merely denotes an individual in the domain.

This hypothesis works pretty well for the partial NSLs. As we will see in the following section, it is possible to argue that it also extends to the discourse pro-drop languages, even though the facts are obscured by the existence of yet another potential confound: the possibility of argument (or NP)-ellipsis. This issue will be addressed in the following section.

Before we close this section, a word is in order regarding null objects. If, as we suggest, an *nP* proform is at the root of silent arguments regardless of their status as subjects or objects, then the question arises of how a definite null object is interpreted if it is a referentially dependent item. Our answer to this

question is partly based on Sigurdsson (2011), who proposes that a silent argument must raise to the left-periphery so as to have its features valued by a discourse topic. Sigurdsson (2011) assumes that C hosts 'speaker', 'hearer' and topic features (labelled 'C/Edge-features'). A silent argument must match at least one of these features in its local C-domain. Since feature matching is subject to locality, a silent argument must raise to the left-periphery so as to be in a local configuration with the relevant C/Edge-feature. Even though a detailed evaluation of the full implications of Sigurdsson's theory is well beyond the scope of the present paper, we adopt the view that the definite null object raises to the left-periphery of its own clause, wherefrom it gets its features from a discourse topic. We leave a more detailed study of this issue for future work.

## 5.2 Crosslinguistic variability within the discourse pro-drop languages

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 by the observation that null arguments can yield sloppy interpretation, as illustrated by the following examples:

- (80) 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 e French-ACC speak that think  
 'lit. Ken thinks that e speaks French.'

(80b) can mean that Ken thinks his own (namely, Ken's) child speaks French. This reading can be derived once it is assumed that (80b) contains the ellided full-fledged NP *zibun-no kodomo-ga* 'self's child' in subject position at LF:

- (81) *Ken-wa* [~~*{zibun-no kodomo-ga}*~~ *furansugo-o hanasu to*] *omotteiru*.  
 Ken-TOP [~~*{zibun-no kodomo-ga}*~~ French-ACC speak that] think  
 ‘Taroo thinks that [—] (=his son) speaks French’

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 null subject in this kind of language is a pronominal category. Thus, the availability of sloppy interpretation for null arguments has been taken as an indication of ellipsis in the literature<sup>8</sup>.

Takahashi (2007) examines Chinese in light of these facts and concludes that, even though objects can be elided, subjects cannot. Consider the following examples from Audrey Li (2014:45)

- (82) a. *Zhangsan<sub>i</sub> [yinwei wo jiao-guo taide erzi] hen gaoxing; Lisi<sub>j</sub>*  
*Zhangsan* because I teach-ASP his son very happy *Lisi*  
*[yinwei wo mei jiao-guo (tajde<sub>j</sub> erzi)] hen bu gaoxing*  
 because I not teach-ASP (his son) very not happy  
 ‘Zhangsan<sub>i</sub> is happy because I taught his son: Lisi is not happy because I didn’t teach his<sub>j/i</sub> son)’.
- b. *Zhangsan<sub>i</sub> [yinwei ziji<sub>i</sub> de erzi jiao-guo shuxue] hen gaoxing;*  
*Zhangsan* because his own son teach-ASP maths very happy;  
*Lisi<sub>j</sub> [yinwei [∅]<sub>j</sub> jiao-guo yuyanxue] hen deyi.*  
*Lisi* [because [—]<sub>j</sub> teach-ASP linguistics] very proud  
 ‘Zhangsan<sub>i</sub> is happy because his<sub>i</sub> own son taught maths; Lisi<sub>j</sub> is happy because [—]<sub>j</sub> taught linguistics’.

The empty object in (82a) can be interpreted as referring back to Zhangsan’s son or to Lisi’s son. The empty subject in (82b), by contrast, can only be interpreted as coindexed with the matrix subject. According to Audrey Li (2014:45), (82b) has the reading of ‘Zhangsan<sub>i</sub> is happy because self’s<sub>i</sub>/his<sub>i</sub> son has taught math; Lisi is proud because Lisi has taught linguistics.’, not ‘Zhangsan<sub>i</sub> is happy because self<sub>i</sub>’s/his<sub>i</sub> son has taught math; Lisi<sub>j</sub> is proud because self<sub>j</sub>’s/his<sub>j</sub> son has taught linguistics.’ The absence of the sloppy interpretation implies that the null subject is not derived by ellipsis, in contrast to what happens in the case of an object

(82a) and also in contrast with the Japanese example (80b).

Different hypotheses have been put forward in the literature in order to account for the crosslinguistic distribution of argument ellipsis. Oku (1998) proposes that argument ellipsis is related to scrambling, but Takahashi (2007) discusses data that are problematic for this analysis. Saito (2007) suggests that argument ellipsis is related to the absence of agreement. Sato (2012), however, shows that Japanese lacks syntactic agreement and yet it has the same subject-object asymmetry with regard to argument ellipsis. He argues that the subject-object asymmetry detected is rather related to the particular status of the preverbal subject position as a topic position in Chinese as well as in Japanese. In fact, this particular aspect sets these two languages apart from Japanese (or Korean). In Chinese and Japanese, a preverbal subject cannot have an indefinite/nonspecific interpretation. In Japanese as well as Korean, by contrast, it can. Consider the following Japanese example quoted by Sato (2012):

- (83) *Seerusuman-ga Mary-no uchi-ni kita*  
salesman-NOM Mary-POSS house-to came  
'A salesman / the salesman / the salesmen / salesmen came to Mary's house.'  
Oku (1998:166)

In (83) the subject can be variously interpreted as indicated in the gloss<sup>9</sup>.

In Chinese, there is a contrast between subjects and objects with respect to the availability of indefinite readings for null arguments. Indefinite subjects cannot be dropped (84), but indefinite objects can (85).

- (84) *ta kandao yi-ge keren dian-le longxia; wo kandao \*(yie-ge keren)*  
he see one-CL guest order-LE lobster; I see one-CL guest  
*dian-le you*  
order-LE fish  
'He saw a guest ordered lobster; I saw \*(a guest) ordered fish.'
- (85) *ta song yi-ge nanhai yie-ben shu, wo song yi-ge nuhai (yi-ben shu).*  
he give one-CL boy one-CL book I give one-CL girl one-CL  
book

'He gave a boy a book; I gave a girl (a book)'

This subject-object asymmetry is due to the fact that the preverbal subject position is a topic position in Chinese. Sato (2012) proposes to extend this approach to the subject-object asymmetry found in Chinese with respect to the sloppy readings (cf. 82)) In order to appreciate Sato's argument, let us consider the following possible continuation for the Japanese example (83):

- (86) [—] *John-no uchi-ni-mo kita.*  
[—] John-poss house-to-also came  
'it. [—] came to John's house too.' Oku (1998:166)

When the utterance of (86) follows (83), one possible interpretation of (86) is that the salesman who visited John's house is a different salesman from the one who visited Mary's house. In order for this reading to obtain, the bare nominal *seerusuma* must, by the time the structure is interpreted, occupy the subject position *in its indefinite use*.

Now consider a language like Chinese, where a preverbal subject may not be interpreted as indefinite. Because the subject is a topic in Chinese and a topic must refer to an entity established in discourse, the subject gap in the Chinese counterpart to (86) can only be interpreted as standing for the same guest that ordered lobster, not a different guest.

According to Sato (2012), this restriction is also responsible for the unavailability of the sloppy interpretation. In effect, as shown in Tomioka (2003), the two readings in question — the indefinite interpretation (86) and the sloppy interpretation (80b) — are related: both instantiate a pronoun of laziness (an indefinite one (86) and a definite one (80b)). In both cases, the core of their meanings is a contextually salient property (*Seerusuman-ga* 'salesman', in (86) , or *zibun-no kodomo-ga* 'self's son' in (80b)).

We assume that the pronoun of laziness reading is obtained by ellipsis of the whole NP, i.e., by ellipsis of an *n* that is merged with a root and may be further modified. Thus, the ellided NP may include a possessive phrase, as in the case of

*zibun-no kodomo-ga* 'self's son'. In addition, we propose, following Sato (2012), that the pronoun of laziness interpretation is unavailable in the case of nominals occupying the topic position. Finally, we adopt the fairly uncontroversial view that null arguments in Chinese as well as Japanese may be derived in one of two ways: (i) by argument ellipsis (or NP-ellipsis in our current terms); (ii) by means of a null proform (in our terms, an *nP*, i.e., a *n* that doesn't merge with a root). By hypothesis, the former option is barred from the preverbal subject position in Chinese due to its topic status<sup>10</sup>. In other positions, however, such as object position, NP-ellipsis is a possibility, so both the sloppy interpretation and the indefinite reading are available.

In this context, it is worth mentioning that the sloppy interpretation is available for (non-agreeing) null objects quite generally. Thus, it can be found in EP, a consistent NSL with null objects:

- (87) *A Maria apresentou os seus pais à professora e o*  
 the Maria introduced the her parents to.the teacher.FEM and the  
*Pedro apresentou [—] ao professor.*  
 Pedro introduced to.the teacher.MASC  
 'Maria introduced her parents to the female teacher and Pedro introduced  
 to the male teacher.'

Example (87) can mean that Mary introduced her parents to the female teacher and Pedro introduced his parents to the male teacher. This reading is unavailable in the case of subjects, as expected in view of the fact that EP is a consistent NSL (recall that we assume that preverbal subjects are left dislocated topics in the consistent NSLs):

- (88) *A Maria disse que a mãe dela sabe francês e o Pedro*  
 the Maria said that her mother knows French and the Pedro said  
*disse que [—] sabe inglês.*  
 knows English  
 'Maria said her mother knows French and Pedro said [he] knows English.'  
 NOT: 'Maria said her mother knows French and Pedro said [his mother]  
 knows English.'

Yet another subject-object asymmetry that is found in Chinese and is conspicuously absent from Japanese concerns locality effects. While missing objects are insensitive to islands, missing subjects are not. The empty object, not the empty subject, can be coindexed with an NP across island boundaries and across the subject of the higher clause:

- (89) *zhe-ge laoshi hen hao, wo mei kandao-gui* *[[e<sub>1</sub> bu xihuan [e<sub>1</sub> de] xuesheng]*  
 this-CL teacher very good I not see-ASP e<sub>1</sub> not like e<sub>1</sub> DE  
 student  
 a. 'This teacher<sub>2</sub> is very good. I have not seen students<sub>1</sub> who e<sub>1</sub> do not like (him<sub>2</sub>).'  
 b. \*'This teacher<sub>2</sub> is very good. I have not seen students<sub>1</sub> who (he<sub>2</sub>) doesn't like e<sub>1</sub>.'
- (90) *Zhangsan hen heshan. wo zhao-bu-dao yi-ge* *[[e bu xihuan e de] ren]*  
 Zhangsan very friendly I seek-not-find one-CL e not like e DE  
 person  
 a. 'Zhangsan<sub>1</sub> is very friendly; I cannot find a person<sub>2</sub> that e<sub>2</sub> does not like (him<sub>1</sub>).'  
 b. \*'Zhangsan<sub>1</sub> is very friendly; I cannot find a person<sub>2</sub> that (he<sub>1</sub>) does not like e<sub>2</sub>.'

According to Audrey Li (2014:47), missing objects in Chinese are quite liberal in their choice of antecedents, which can be an A or A' element and no locality condition is observed.

- (91) *Wo faxian xiaotou<sub>1</sub> [yinwei jingcha zhao-bu-dao [e<sub>2</sub> yuanyi kanguan e<sub>1</sub> / e<sub>3</sub> de ren<sub>2</sub>]] deyidi zou le*  
 I discover thief because policeman seek-not-find e<sub>2</sub> willing supervise e<sub>1</sub> / e<sub>3</sub> DE person proudly leave LE  
 'I discovered that the thief<sub>1</sub> left proudly because the policemen were not able to find people who were willing to supervise (him<sub>1,3</sub>).'

The missing object may be interpreted as referring to a topic in discourse, represented by index 3, in (91). The indexing in the examples below shows that

the zero subject of the adjunct clause must be interpreted as coindexed with the subject of the immediately higher clause and cannot corefer with a topic in the discourse or a subject beyond the next higher clause<sup>11</sup>:

- (92) *ta<sub>1</sub> shuo wo<sub>2</sub> yinwei [e<sub>2/\*1,\*3</sub> bu xihuan Zhangsan] you diar*  
 he say I to e<sub>2/\*1,\*3</sub> not like Zhangsan have slight  
*bu-hao-yisi.*  
 embarrassment  
 'He said I was somewhat embarrassed because *e* did not like Zhangsan.'
- (93) *ta<sub>1</sub> shuo Zhangsan<sub>2</sub> dui [e<sub>2/\*1,\*3</sub> mei kanjian wo] meiyou zeren.*  
 he say Zhangsan to [e<sub>2/\*1,\*3</sub> not see me not.have responsibility  
 'He said Zhangsan did not have responsibilities for (the fact that) *e* didn't  
 see me.'

We content that this subject-object asymmetry is due to the fact that argument ellipsis is unavailable from the preverbal subject position. Ellipsis is not sensitive to islands constraints. Assuming that missing objects may arise in one of two ways — by argument (= NP) ellipsis or by means of our minimal *nP* —, their insensitivity to islands follows (as argument ellipsis is indifferent to islands). In the case of subjects, our hypothesis is that argument ellipsis is barred due to the topic status of the preverbal position. Therefore, the only option left for realization of the zero subject is by insertion of our default bare proform *nP*. In the previous section, we argued that, since *nP* is  $\phi$ -feature defective, it behaves like a (local) subject anaphor; in particular, it needs to be bound by the closest c-commanding (potential) antecedent. This explains the locality effects observed.

In sum, the idea that argument (= NP) ellipsis is unavailable from topic position together with the assumption that preverbal subjects are topics in Chinese has the potential to capture a number of differences between Chinese and Japanese regarding missing arguments. As far as I was able to determine, Russian and Finnish pattern with Chinese regarding the unavailability of the sloppy interpretation for null subject gaps so the analysis can straightforwardly apply to these languages as well. As mentioned, the EPP position in Finnish is filled by topics,



so the analysis is not problematic. In the case of Russian, we have also seen that fronting to preverbal position is a means of expressing definiteness, so our account can be extended to this language as well<sup>12</sup>.

## 6 Further cross-linguistic differences

In this section we address two related features that set BP apart from Finnish or Hebrew and bring BP closer to Chinese. The first one is that a 3rd person null subject may occur in a matrix clause (in contrast to Hebrew or Finnish):

- (94) *A: Cadê o João? B: [—] Acabou de sair.*  
 A: where the João B: [—] finished of leave.INFN  
 A: 'Where is João?' B: 'He has just left.'

The second feature is that a 3rd person null subject may be bound by a salient discourse topic (overt or null) across a subject (Ferreira, 2000):

- (95) *A: E o João? B: As pessoas estão achando que [—] viajou pra*  
 A: and the João B: the people are thinking that [—] travelled to  
*Europa.*  
 Europe  
 A: 'What about João?' B: 'People think that he has gone to Europe'
- (96) *A: Zhangsan kanjian Lisi le ma? B: wo xiang [—] kanjian [—] le.*  
 A: Zhangsan see Lisi ASP Q B: I think [—] see [—] PERF  
 A: 'Did Zhangsan see Lisi?' B: 'I think he saw him'

Examples such as (95-96) can arguably be derived by movement of the zero subject to the matrix topic position (Huang, 1984; Modesto, 2000; Audrey Li, 2007). Thus, the question that immediately arises is why these two options are not available in languages such as Hebrew or Finnish.

The answer to this question may lie in the set of properties associated with Topic Prominence (Li & Tompson, 1976; Huang, 1984; Pontes, 1987; 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:

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

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

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:

(99) *A: Mary<sub>i</sub>-ka ku pati-e kass-ni anim tarun salam-i taysin*  
 A: Mary-NOM the party-to went-Q or other person-NOM instead  
*kass-ni? B: Ani caki<sub>i</sub>-ka kasse*  
 go-Q B: No self-NOM went  
 ‘A: Is it Mary<sub>i</sub> who went to the party or somebody else instead? B: No self<sub>i</sub> 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 the following Korean example:

(100) *John<sub>i</sub>-un caki<sub>i</sub>-ka ka-ss-ta*  
 John-top self-NOM go-PAST-DSE  
 ‘As for John<sub>i</sub>, self<sub>i</sub>-NOM went’ Korean (Gill, 1999)

Thus, the answer in (100) is represented as in (101):

(101) Ani [*e<sub>i</sub>*]<sub>TOP</sub> caki<sub>i</sub>-ka kasse

Continuing to draw a parallelism between subject anaphors and the null subject, the BP example (94) above would be analyzed in terms of local binding of the minimally specified nominal by a zero topic. For the case of the long distance construal (95-96), [ $nP$   $e$ ] raises to a left-peripheral position of the matrix wherefrom it is bound by the zero (base-generated) topic.<sup>13</sup>.

## 7 Summary and conclusions

We have examined the properties of the partial NSLs when compared to 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/ $nP$  anaphora. This allows us to consider two basic processes yielding a silent argument:

1. The functional head bearing agreement is pronominal in the sense that it has a nominal specification and interpretable  $\phi$ -features: this is the case of the consistent (Type 1) NSLs.
2. In languages that have (robust) bare nominals in argument position, a silent argument may be derived in one of two ways:
  - By ellipsis of an NP (argument ellipsis). This option is not subject to island restrictions. It is barred for subjects in Chinese, Finnish, Russian and Hebrew.
  - By means of an  $nP$  proform. This  $nP$  introduces a variable that may be bound under Existential Closure, yielding the impersonal / arbitrary / generic interpretation. When the denotation of  $nP$  is lifted to an individual (either by undergoing covert type-shifting or by combining with a null D), it is an anaphor and subject to locality. The differences in the interpretation of the null subject 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 type-shifting 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 the consistent NSLs. Franks (1995) 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 (McShane, 2009) as well as Czech (Lindseth, 1998:48). In Russian no such effect is found (Lindseth, 1998; McShane, 2009). Secondly, as reported in Sigurdsson & Egerland (2009), Polish and Czech require impersonal generic subjects with an inclusive interpretation to be overtly marked (by a reflexive or other means). In Russian, non-overtly marked generic inclusive 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  $\phi$ -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 & Roy (2006)), in which case clause (1) above could be partly reduced to (2). One longstanding problem with the pronominal-Agr hypothesis has been the status of the argument, first merge, subject position, in examples such as (102):

- (102) *Já telefonei.*  
 already called.1SG  
 'I already called.'

Positing an *ec* inside the *vP* in (102) 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 bears a D feature, as proposed by Holmberg (2005). By hypothesis, D contributes an index, and since we are assuming that the set of  $\phi$ -features in T is interpretable in this kind of language, what we have in T is a D with interpretable  $\phi$ -features ([Di $\phi$ ):

- (103) [<sub>TP</sub> [<sub>T</sub> *v<sub>i</sub>*-T [Di $\phi$ ] ] [ <sub>vP</sub> *nP* [<sub>v'</sub> *t<sub>i</sub>* ... ] ]]

Because the null *nP* denotes a property (of type  $\langle e, t \rangle$ ), it is not of the right semantic type to combine with the *vP* (also of type  $\langle e, t \rangle$ ) by Function Application. However, as discussed in section 4, there is the option of semantically incorporating the denotation of *nP* (i.e., the property of being an entity in the domain) with the meaning of the verbal predicate, by Predicate Modification<sup>14</sup>. In this case, the meaning of the *vP* in (102) is the following complex property:

- (104)  $\lambda y \exists e [call(e, y) \wedge entity(y)]$

This property is then applied to the individual (free) variable contributed by D in T, yielding a truth-value. Thus, it is possible to reduce *pro* to *nP* even in a consistent NSL, so the unification between cases 1 and 2 above seems feasible. This allows us to reduce *pro* to *nP* quite generally.

As acknowledged by Tomioka (2003) himself, 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 nominal 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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## Notes

<sup>1</sup>There is an interpretation of the example in the text that includes the addressee, but is not relevant to the present discussion. In EP the third person plural is a suppletive form for 2nd plural, so (7) may also mean 'You guys work a lot here'. This interpretation doesn't concern us here.

<sup>2</sup>Henceforth we will use the label 'non-anaphoric' to refer to the impersonal/arbitrary/generic null subject, a term originally suggested by Hofherr (2003).

<sup>3</sup>Even though (51) is not possible, (1) below is fully grammatical:

- (1) *Jos Brasiliassa rakastaa Samba...*  
if Brazil-in love.3SG Samba  
'If you love Samba in Brazil ... (everybody will love you)'

This difference between (51) and (1) is predicted under the view that the null subject is semantically incorporated. In standard Discourse Representation theory, the LF of (1) contains a *Gen*-operator, the *if*-clause determines the restriction and the main clause constitutes the Nuclear Scope (Farkas & de Swart, 2003). Therefore, in this case, both the verbal predicate and the incorporated "empty" *n* end up in the restriction of *Gen*, and the relevant variable is bound by *Gen* (I assume that the verbal predicate introduces a situation variable, here labelled *s*):

- (2)  $Gen_{x, s} [\text{human}(x) \wedge \text{love}(s, x, \text{samba}) \wedge \text{in}(s, \text{Brazil})] [ \dots ]$

In (51), by contrast, the verbal predicate ends up in the Nuclear Scope. Since *nP* is incorporated, it scopes with the verb. Thus, there is no way it can be interpreted in the restriction of *Gen*. Assuming that an individual-level predicate such as *love* requires its argument to be interpreted in the restriction of *Gen*, (51) is correctly ruled out while (1) is in.

<sup>4</sup>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 *Gen* are variables over instances of the kind.

<sup>5</sup>Here we do not take a stand as to whether Number projects and leave the issue open

<sup>6</sup>This is yet another case of asymmetry between subjects and objects: definite null objects do not need any special marking.

<sup>7</sup>We must assume that the 3rd person features on verbal agreement ( $\pm 1, \pm 2$ ) are not interpretable, as interpretability would entail an exclusive interpretation for the non-anaphoric null subject in past and future tenses, contrary to fact; this is not an issue on the condition that Ritter (1995) is right in claiming that 3rd person D-agreement is not specified for person. Here we assume that the person and number features on T are not interpretable in all the persons of the paradigm (contra Ritter (1995)).

<sup>8</sup>Oku (1998) proposes that the full-fledged NP is copied at LF rather than deleted at PF. Tomioka (2014), on the other hand, argues against this view and proposes instead that the relevant interpretation can be derived on the assumption that the null subject is an NP whose descriptive content is pragmatically retrieved. This issue, however, is beyond the scope of the present paper. For our purposes, what matters is that we are dealing with an NP that has descriptive content (as opposed to the proform *n*).

<sup>9</sup>Japanese has a special topic marker, the particle *wa*. As expected, a *wa*-marked subject cannot be interpreted as indefinite; in this case, only the specific/definite interpretation is available (as in Chinese).

<sup>10</sup>Here we do not aim to provide an explanation for why this is so.

<sup>11</sup>Here we use examples in which the subject is contained inside an island so as to make sure that we are not dealing with Topic movement (see section 6).

<sup>12</sup>Sato & Karimi (2016) discuss evidence from Persian that supports Takahashi's theory that the unavailability of the sloppy interpretation is related to the presence of subject agreement. He concludes that topic status and agreement are factors that contribute to the unavailability of argument ellipsis. Since the partial NSLs under discussion have subject agreement, they are predicted not to allow subject argument ellipsis.

<sup>13</sup>We must assume that there are (at least) two topic positions to the left of T in these languages. The topmost one hosts the zero topic and the lower one hosts [ $n_P$  *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.

<sup>14</sup>In Chung and Ladusaw's (2003) model, this is the operation *Restrict*.