pro as a Minimal nP: Toward a Unified Approach to Pro-Drop

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In this article, I examine the properties of the partial null subject languages (NSLs) when compared with the consistent and the discourse pro-drop languages and 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. The two sets of languages show a correlation between the occurrence of null arguments and the availability of a bare nominal in argument position. I suggest that the null element is a default, minimally specified nominal—the same item that arguably appears as a complement of D in pronouns. It is a proform that minimally consists of 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). nP introduces a variable that may be bound under Existential Closure, yielding the impersonal interpretation; otherwise, its denotation is type-shifted to an individual (ι) under the appropriate conditions. The crosslinguistic differences found in the interpretation of the null subject depend on the resources available in particular languages for application of ι type-shifting: the (bare NP) languages that lack such resources only have quasi-argumental and impersonal null subjects (semi pro-drop languages). Finally, I show that the idea that *pro* reduces to [$_{nP}$ *e*] can also be successfully extended to the consistent NSLs, provided it is assumed that, in this type of NSL, the head bearing agreement morphology bears a D-feature and interpretable ϕ-features.

Keywords: pro-drop, null subject languages, null NP anaphora, bare NP arguments, type-shifting, pronouns

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 (NSLs):

1. Languages with rich subject agreement morphology (henceforth, *consistent* NSLs, after Holmberg 2005), such as Italian and Greek; 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, and 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 have only impersonal and quasi-argumental null subjects (Icelandic, Faroese, a range of creoles), generally referred to as *semi* pro-drop languages.

In recent years, there has been a return to Perlmutter's (1971) insight that the implicit subject in the NSLs is a fully specified pronoun that is deleted in PF or fails to have a PF realization (Holmberg 2005, Neeleman and Szendrői 2007, Saab 2009, 2016, Roberts 2010). This view has been motivated in part by the observation that the classic Government-Binding Theory view, according to which *pro* is a minimally specified nominal whose features are supplied by Infl, is incompatible with the approach to feature theory developed in the Minimalist Program (Chomsky 1995, 2001, and subsequent work). In this framework, the ϕ-features in T are assumed to be uninterpretable, hence unvalued. This raises a problem for the idea that subject *pro* is inherently unspecified for ϕ-features. The PF deletion analysis circumvents this problem.

Concomitantly, recent theories of the nature of pronouns (Elbourne 2005) have posited a phonologically null NP as a complement of D in every pronoun (an NP affected by deletion, in the case of E-type pronouns, or a default, nearly semantically empty nominal $[_{NP} \, e]$, in the case of regular pronouns). This proposal, which goes as far back as Postal 1966, 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 $[_{NP} \, e]$. In this article, I offer an analysis of different types of subject pro-drop that reduces *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).

The article is organized as follows. In section 2, I compare consistent and partial NSLs 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 and Anagnostopoulou 1998, and Ordóñez and Treviño 1999. In section 3, I introduce Tomioka's (2000, 2003) generalization that relates discourse pro-drop to the availability of bare nominals in argument position as well as the proposal that, in the discourse pro-drop languages, *pro* reduces to null NP anaphora. In section 4, I extend Tomioka's analysis to the partial NSLs and propose an analysis of nonanaphoric (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. I propose that this item minimally consists of the categorizing head n, lacking a root (for a similar proposal, see Ruda 2017). In section 5, I examine the anaphoric null subject and show that, since this minimal n is ϕ-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 examining crosslinguistic variation regarding the observed locality effects. In section 6, I summarize the main results, and in section 7, I revisit the consistent NSLs in light of these results, showing that the idea that *pro* reduces to $[_{nP} \, e]$ can also be successfully extended to the consistent NSLs.

2 Consistent NSLs vs. Partial NSLs

2.1 Key Properties That Distinguish the Partial NSLs from the Consistent NSLs

Some languages, such as Finnish, Brazilian Portuguese, 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: (a) the null subject is optional in some contexts in which it is nearly mandatory in a consistent NSL; (b) 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
       'João said that he bought a computer.'
   b. O João disse que comprou   um computador.
       the João said that bought.3SG a   computer
       'João 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 (Chomsky's (1981) Avoid Pronoun Principle). In Brazilian Portuguese (BP), by contrast, the overt pronoun in (1a) may be coreferential 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 and Marathi (Holmberg, Nayudu, and Sheehan 2009), Russian (Lindseth 1998), and Hebrew (Borer 1989).

   Now consider an example in which a potential antecedent intervenes between the null subject and its antecedent.

(2) [O João]$_i$ disse que os moleques acham [que [—]$_i$ 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 (Modesto 2000, Rodrigues 2004) and an overt pronoun must be used.[1] This is also the case in Finnish, Marathi, and Hebrew (Holmberg 2005).

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[1] In BP, a 3rd person null subject may occur in a matrix (i) or embedded (ii) clause as long as it is bound by a very salient discourse topic.

(i) A: E   a Maria?
       and the Maria
       'What about Maria?'
     B: [—] Viajou pra   Europa.
       [—] traveled to.the Europe
       'She traveled to Europe.'
       (Ferreira 2000:19)

The partial NSLs discussed by Holmberg (2005) 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 subject in a matrix clause even though they allow a 1st or 2nd person null subject. Müller (2005) reports that similar asymmetries occur in Russian.

In all of the partial NSLs mentioned, 3rd person null subjects can also be found when the subject is interpreted as an impersonal pronoun, corresponding to English *one*, as in the BP example (3).

(3) É   assim que faz   o   doce.
    is.3SG so   that make.3SG the cake
    'This is how one makes the cake.'
    (Rodrigues 2004:72)

In (3), the 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 clearly seen when BP and EP are compared. (3) is well-formed in EP, but it has a different meaning, translated as 'This is the way he/she makes the cake'. In EP, the generic subject reading requires the presence of the clitic *se*.

(4) É   assim que **se** faz   o   doce.
    is.3SG so   that SE make.3SG the cake
    'This is how one makes the cake.'

Finnish patterns with BP (Holmberg 2005). In Russian (5) and Hebrew (6), the generic null subject is marked as plural.

(5) Zdies' rabotaiut mnogo.
    here   work.3PL a.lot
    'Here one works a lot.'
    (Nadejda Machado, pers. comm.)

(ii) A: E   o   João?
        and the João
        'What about João?'
     B: As pessoas estão achando que [—] viajou   pra Europa.
        the people are   thinking that [—] traveled to Europe
        'People think that he has gone to Europe.'
        (Ferreira 2000:19)

As Ferreira (2000), Modesto (2000), and Rodrigues (2004) argue, these cases are instances of topic deletion in the sense of Ross (1982) and should be set apart from the other instances of subject drop discussed in the text. In the case of (ii), topic deletion is assumed to be preceded by topic movement to the root.

(6) Sotim   hamon mic ba   arec.
    drink.M.PL lots   juice in.the country
    'People drink lots of juice in Israel.'
    (Ritter 1995:435)

In (5) and (6), the impersonal null subject can have an inclusive reading, in contrast to what happens in a consistent NSL, where (as in EP (7)) an impersonal 3rd person plural null subject can only be interpreted as excluding the speaker and the addressee.[2]

(7) Aqui trabalham muito.
    here work.3PL   a.lot
    'Here people work a lot.'
    'people' = people in general excluding the speaker and the addressee

2.2 Holmberg's (2005, 2010a) Proposal

In order to capture the differences between the consistent NSLs and the partial NSLs, Holmberg (2005, 2010a) proposes that one of the parameters involved in regulating the pronunciation of subject pronouns is whether finite T hosts an unvalued D-feature (labeled [*u*D]). In the consistent NSLs, T hosts [*u*D]; 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 that are labeled ϕP after Déchaine and Wiltschko 2002. The latter are specified for ϕ-features but lack D; therefore, they are incapable of referring to an individual or a group. (Most) null pronouns are ϕPs.

   Relying on the observation that null subjects, particularly 3rd person null subjects, are dependent on an antecedent in consistent NSLs too (Samek-Lodovici 1996), Holmberg (2010a) 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's (2007) work on Italian, Holmberg takes it 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 [*u*D], the A-topic values T's [*u*D], where valuation consists in copying the referential index of the A-topic onto [*u*D]. In this way, the EPP in T is automatically checked by the null A-topic. Therefore, the defective null subject ϕP remains in its First Merge position and does not raise to Spec,TP. When the subject is a lexical DP or a D pronoun, it has a valued D-feature, which values [*u*D] in T under raising to Spec,TP (the standard EPP).

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[2] There is an interpretation of (7) 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) can also mean 'You guys work a lot here'.

In this model, the reason why consistent NSLs cannot have a null 'one' is that this pronoun is a bare φP. Thus, it cannot value [uD], which remains unvalued, causing the derivation to crash. This issue does not arise in a partial NSL, given that in this type of language T does not contain [uD]. As it has no D that could have a referential index, a 3rd person φP 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 as athematic). In a language with [uD] in T, the null 3rd person φP 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 (2010a) adopts the theory of incorporation proposed by 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 φ-features and therefore looks for a category with a set of matching valued features. The subject pronoun has the required set of valued φ-features, so these values are copied onto T. As a result of Agree, T's features are a superset of φP'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. The representation is therefore subject to chain reduction with the result 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). φP itself is not pronounced, yielding 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 φP subject cannot be incorporated in T and be definite, due to the lack of [uD] under T. Holmberg (2010a) argues that, in these languages, a null pronoun may in addition have an unvalued D-feature (labeled [uDP]). 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 2010a: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 [uDP], which is necessarily controlled. Holmberg (2010a) 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 partial NSLs constitutes a major step in understanding the key properties of this type of language, particularly when compared with the consistent NSLs. However, the proposed analysis is quite complex and, in my view, not entirely satisfactory. One persistent problem is that this analysis is not very clear about how examples such as EP (7) or (8), with an impersonal null subject, are to be analyzed.

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

The EP example (8) is ambiguous. It can mean that some contextually given set of people is knocking or that there is someone knocking. The latter is the nonanaphoric, arbitrary interpretation, which invariably excludes the speaker and the addressee (Jaeggli 1986, Cinque 1988). In this case, there is no A-topic. Therefore, it is not very clear how [*u*D] in T is valued; that is, it is not clear how the EPP is checked in these examples. One possible answer 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, Holmberg (2010a:100) suggests this possibility for thetic sentences with a postverbal subject in Italian and Portuguese. However, once this possibility is allowed 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 (2010a) system, failure to value [*u*D] in T is 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) and (8) should be ungrammatical because EPP checking fails; 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 (2010a) proposal.

2.3 An Alternative Analysis

Holmberg (2005) considers and rejects an alternative analysis that a number of authors have proposed for the consistent NSLs (Barbosa 1995, Pollock 1997, Alexiadou and Anagnostopoulou 1998, Ordóñez and Treviño 1999, Manzini and Savoia 2002, Platzack 2004). Even though the particular implementations of this proposal vary, they all have one key feature in common: the functional head bearing subject agreement has a nominal specification (a D-feature), interpretable/valued ϕ-features, and probably also Case, with the result that it has the status of a pronominal affix on V raised to T. A corollary of this hypothesis is that preverbal (nonquantified/nonfocalized) subjects are clitic-left-dislocated topics (i.e., topics doubled by clitic-Agr). Alexiadou and Anagnostopoulou (1998), Ordóñez and Treviño (1999), and I (Barbosa 1995), among others, discuss a number of differences between the consistent NSLs and the non-NSLs regarding preverbal subjects that follow naturally under this hypothesis and are otherwise rather mysterious. These concern scope interactions between overt preverbal subjects and quantifiers inside the clause, asymmetries between referential and nonreferential quantified subjects regarding a number of syntactic phenomena, and restrictions on the interpretation of pronouns.

In this context, Barbosa, Duarte, and Kato (2005) argue that the differences between EP and BP regarding overt subject pronouns can be explained under the assumption that in EP they are clitic-left-dislocated topics whereas in BP they are genuine subjects that raise (or may raise) to Spec,TP. Viewed in this light, the Avoid Pronoun Principle (see (1)) simply reduces to a preference for not merging an overt pronoun as a left-dislocated topic unless it is required to signal topic switch or for emphasis/empathy. Examining 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, Barbosa, Duarte, and Kato (2005) observe that BP patterns with the non-NSLs rather than with

EP and conclude that subjects in BP may raise to Spec,TP. Consequently, there is no effect of topic switch; that is, there are no Avoid Pronoun Principle 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 and Marantz 1993), the person features 1, 2, 3 are decomposed into combinations of the more primitive features [±1], [±2] (Noyer 1992, Müller 2005), so that the feature composition of 3rd person is [−1, −2]. If this feature makeup is interpretable, then it is predicted 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 of whether the subject is interpreted as definite or indefinite, which is a clear advantage over Holmberg's account.

In sum, I 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.* As reported by Holmberg, Nayudu, and Sheehan (2009:79–80), (9) (Cantonese) and (10) (Japanese) are ambiguous between a generic and an anaphoric reading of the empty subject.

(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.'
    (Holmberg, Nayudu, and Sheehan 2009:79)

(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 this bed.'
     (Holmberg, Nayudu, and Sheehan 2009:79)

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 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 (11), 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 corefer with a topic in the discourse or with a subject beyond the next higher clause.

(11) Ta$_1$ shuo wo$_2$ yinwei [$e_{2/*1,3}$ bu xihuan Zhangsan] you diar   bu-hao-yisi.
     he$_1$ say I   to $e_{2/*1,3}$ not like   Zhangsan have slight embarrassment
     'He said I was somewhat embarrassed because *e* did not like Zhangsan.'
     (Li 2014:47)

I take these facts as an indication that the two kinds of pro-drop phenomena are related. In the next section, I 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 and 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, Malayalam, Thai, Burmese, and Indonesian, all of which are languages that lack articles. Here, I will focus on Tomioka's particular proposal as it will help prepare the ground for my own analysis.

3.1 Tomioka's (2003) Proposal

Observing that all of the languages that allow discourse pro-drop have (robust) bare NP arguments, Tomioka (2003:336) proposes the following generalization:

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

Tomioka 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 be interpreted as indefinite and as anaphoric to a pronoun-containing antecedent. He relates the semantic diversity of Japanese null arguments to the inherent semantic flexibility of full-fledged bare NPs in Japanese. As the following example shows, 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.'

Tomioka proposes that the different uses of full-fledged NPs are derived from one basic meaning, property anaphora (type $\langle e,t \rangle$), and that their semantic differences are the result of two independently needed semantic operations, Existential Closure (14) and type-shifting to an individual (15).

(14) *Existential Closure (Heim 1982): ∃-closure*
       For any $P \in D \langle e,t \rangle$
       $\exists$-closure$(P) = \exists x.P(x)$

(15) *Type-shifting of a predicate to an individual (ι) (Partee 1987): Iota*
       For any $x \in D, P \in D \langle e,t \rangle$
       $\iota(P) = \iota x.P(x) =$ the unique x such that $P(x)$

Then Tomioka proposes that Japanese *pro* is a null NP whose descriptive content is pragmatically retrieved: the same semantic tools that are used to interpret full NPs are used to interpret

pro. Tomioka suggests that what underlies discourse pro-drop is the fact that languages (almost) universally allow phonologically null NP anaphora (also known as N′- or NP-ellipsis).

(16) John bought one book. I bought five [$_{NP}$ —].

(17)

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            DP
           /  \
          D    NP
          |    |
        five   Ø
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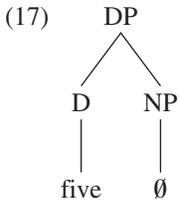
In languages that lack determiners, this operation will give rise to phonologically unrealized arguments. In languages in which DPs are necessarily projected, a remnant D will always show up, so this process will never give rise to a silent argument. Tomioka does not take a stand on whether the null NP is the result of ellipsis/deletion or rather a proform. I will return to this issue in section 4.

Tomioka's 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 Slavic.

Independent support in favor of Tomioka's general approach comes from languages with articles such as Spanish, Portuguese, and Greek. In the next section, I briefly review these facts.

3.2 Object Drop in 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: in EP, an anaphorically dependent direct object can be expressed by a gap ((18a), (19)); in Spanish, it cannot ((18b), (20)).

(18) 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.3SG [—] to.the Alexandra
         'I showed this painting to Maria and later Cristina showed it to Alexandra.'
     b. *Le   mostré   [aquel quadro] a María, y   Cristina más
         to.her show.PAST.1SG that picture to Maria and Cristina more
         tarde le   mostró   [—] a Alejandra.
         late to.her show.PAST.3SG [—] to Alexandra

(19) 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?'

(20) A: ¿Comiste   el   pastel?
        eat.PAST.2SG the cake
        'Did you eat the cake?'

     B: No, no *(lo) comi.
        no not   it eat.PAST.1SG
        'No, I didn't.'

In spite of this, Spanish has zero indefinite objects. Thus, (20) contrasts with (21).

(21) A: ¿Compraste   regalos?
        buy.PAST.2SG presents
        'Did you buy presents?'

     B: Sí, compré.
        yes buy.PAST.1SG
        'Yes, I did.'
        (Campos 1986:354n1)

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.

(22) A: ¿Compraste   algunos regalos?
        buy.PAST.2SG any   presents
        'Did you buy presents?'

     B: *Sí, compré.   / Sí, compré   algunos.
        yes buy.PAST.1SG / yes buy.PAST.1SG some
        '*Yes, I bought.' / 'Yes, I bought some.'
        (Campos 1986:354n1)

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 EP (23a–b) with their Spanish counterparts (24a–b)).

(23) a. A   Maria detesta cenouras.
        the Maria hates   carrots
        'Maria hates carrots.'

     b. Odeio   café.
        hate.1SG coffee
        'I hate coffee.'

(24) a. María detesta *(las) zanahorias.
        Maria hates   the carrots
        'Maria hates carrots.'

    b. Odio   *(el) café.
        hate.1sɢ   the coffee
        'I hate coffee.'

Raposo proposes that EP has a null definite determiner and analyzes (23a) as in (25).

(25) A Maria detesta $[_{DP}[_{D_{def}} \emptyset][_{NP}$ cenouras$]]$.

He then relates the existence of the zero definite determiner to the availability of definite object drop, so that the null object in (18a) is the result of null NP anaphora under a null D.

(26) $[$mostrou $[_{DP}[_{D_{def}} \emptyset][_{NP} \emptyset]]$ à Alexandra$]$
      (Raposo 1998:209)

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

Even though this discussion only scratches the surface of the phenomena at hand, it suffices to show that null NP-ellipsis/anaphora can give rise to silent arguments in the right contexts. I 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.

(27) a. A zero bare NP: $[_{NP} \emptyset]$
      b. A zero NP embedded under a null D: $[_{DP}[_{D} \emptyset][_{NP} \emptyset]]$

Crucially, Tomioka's hypothesis does not really commit us 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 can yield a zero argument as well.

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.

(28) Rich people are becoming richer.

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

(29) a.   The rich are becoming richer.
      b. *Rich are becoming richer.

(29a) contains a substantivized adjective. The contrast between (29a) and (29b) shows that such substantivized adjectives cannot occur bare even in the plural interpretation. I assume that these examples contain a null NP (Longobardi 1994, Borer and Roy 2006).

(30) a.   [The rich $[_{NP} \emptyset]]$ are becoming richer.
      b. *[Rich $[_{NP} \emptyset]]$ are becoming richer.

The fact that (29b) is ungrammatical is evidence that a null NP requires the presence of an overt D in English. Longobardi's (1994) explanation for this fact relies on the idea that all arguments are categorially DPs and that a null D is invariably projected in a bare plural. In addition,

Longobardi 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 (28) is as in (31).

(31) [people$_1$ [rich t_1]] are becoming richer

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

Even though I do not wish to commit myself here to the idea that all nominal arguments are DPs, I have given considerable attention to Longobardi's account of the ungrammaticality of (29b) in order to show the relevance of the contrast between (29a) and (29b) to the issue at hand. Whichever account one might choose, the fact remains that a null NP cannot occur in English in the absence of an overt article. Therefore, it should come as no surprise that English lacks productive zero arguments even though it has bare plurals in argument position. In this context, it is worth mentioning that English does have missing objects in lexically restricted environments (i.e., with particular verbs, like *eat* or *bake*). Interestingly, Ruda (2017) proposes that the zero object in these cases is a null NP licensed by little v.

3.3 Partial Pro-Drop Revisited

As mentioned above, the discourse pro-drop languages share with the partial NSLs 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. Examples (32)–(34), from BP, Russian, and Hebrew, respectively, show that an object with a definite antecedent can be dropped in all three languages.

(32) João comprou um computador e   Maria quebrou [Ø].
      João bought   a   computer   and Maria broke   [Ø]
      'João bought a computer and Maria broke it.'

(33) [A woman comes home and shows a purchase to her family]
      Vot, kupila   [Ø] po-deševke.
      here bought.1SG [Ø] PREP-cheap
      'Here, I bought [it] cheaply.'
      (Erteschik-Shir, Ibnbari, and Taube 2013:150)

(34) Dani katav et   ha-šir   ve-Miriam tirgema   [Ø].
      Dani wrote ACC the-song and-Miriam translated [Ø]
      'Dani wrote the song and Miriam translated it.'
      (Erteschik-Shir, Ibnbari, and Taube 2013:159)

As extensively discussed by Cyrino (2001) for BP as well as by Erteschik-Shir, Ibnbari, and Taube (2013) for Hebrew and Russian, the missing objects in these examples are 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 in (35).

(35) 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.'
         (Holmberg 2010b:223)

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

(36) 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.'
     (Anders Holmberg, pers. comm.)

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 as (37) shows it has bare singular and plural nouns in both subject and object positions (Schmitt and Munn 1999, Müller 2001), in contrast to EP, which only allows bare plurals in postverbal position.

(37) a. Cachorros gostam de gente.
         dogs   like.3PL of people
         'Dogs like people.'
     b. Cachorro gosta   de gente.
         dog   like.3SG of people
         'Dogs like people.'
     c. Ele comprou computadores.
         he bought   computers
         'He bought computers.'
     d. Ele comprou computador.
         he bought   computer
         'He bought a computer/computers.'
         (Schmitt and Munn 1999:343, 345)

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

(38) 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.'
          (Doron 2003:82–83)

I 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.

(39) The rich [$_{NP}$ Ø] are becoming richer.

In (39), the null NP, which is nonanaphoric,[3] is interpreted as generic and human. This is the interpretation obtained in the case of the nonanaphoric null subject in the partial NSLs and in the discourse pro-drop languages. I take this as an argument in favor of the idea that these are instances of the same basic category,

Note that if indeed the impersonal 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 (40) and (41) illustrate the same point in Russian and BP, respectively.

(40) Krasota   mesta   porazila   [Ø].
      beauty.NOM.SG.F place.GEN struck.PAST.SG.F [Ø]
      'The beauty of the place was striking.'
      NB: The verb is transitive (*porazit' kogo* 'to strike someone').
      (Fehrmann and Junghanns 2008:204)

(41) Esta decisão faz   [Ø] feliz.
      this decision makes [Ø] happy
      'This decision makes one/him happy.'
      (Huang 2000:84)

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[3] Henceforth, I will use the term *nonanaphoric*, originally suggested by Cabredo Hofherr (2003), to refer to the impersonal/arbitrary/generic null subject.

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) and Chesterman (1991) show that, in utterances characterized by neutral intonation (i.e., with no focal stress), a bare NP subject occurring in preverbal position is interpreted as definite/specific; a postverbal bare NP subject, by contrast, has an indefinite interpretation.

(42) 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.'
          (Ihalainen 1980:61)

According to Chesterman (1991), a bare NP subject in preverbal position is usually interpreted as referring to an entity already mentioned in the discourse. A postverbal subject, on the other hand, can be definite only if it is focused (Holmberg and Nikanne 2002).

With these observations in mind, let us now turn to null subject constructions. Interestingly, Vainikka and Levy (1999) discuss data from Finnish that indicate that the definite 3rd person null subject raises to a high position in the clause (Spec,TP, in Holmberg's (2005) terms) whereas the impersonal null subject must stay inside v/VP.

(43) 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.'
          (Vainikka and Levy 1999:648)

In Finnish, the EPP can be satisfied by other categories besides subjects. In (43a), the object checks the EPP. In this case, the only reading available for the null subject is the impersonal one. In (43b), the EPP is checked by the null subject. Here, the impersonal reading is not a possibility and the subject must be interpreted as a definite pronoun coreferential with the higher subject. Thus, these data constitute clear evidence that the impersonal (nonanaphoric) 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 is found in the case of a nonfocused full-fledged subject that is a bare nominal. Therefore, there is a rather striking parallelism between nonfocused 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, I have argued in favor of the view that the null subject in the partial NSLs as well as in the discourse pro-drop languages is a null NP, but I have not taken a stand on whether the null NP is derived by NP-ellipsis/deletion or is some kind of proform. The mere existence of a nonanaphoric null subject is an indication that not all 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 elided 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 (2010b) provides arguments that the nonanaphoric 3rd person null subject in Finnish is syntactically projected. In particular, it triggers agreement and has case. Therefore, some mechanism other than ellipsis is needed to account for this kind of null argument.

In view of the similarities between the impersonal 3rd person null subject in Finnish and English impersonal *one*, I suggest that the null proform is a minimally specified NP—in other words, 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) and Elbourne (2005). Both authors propose to unify this default item with (in their view, nearly semantically empty) *one* in English. Moreover, both 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. The latter, by contrast, are determiners that take a kind of default NP, which Elbourne labels ONE, whose meaning is 'entity' or 'individual', and which 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 suggests that this default item is generally available, its occurrence being restricted only by independently motivated factors.

Here, I 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 approach taken by Panagiotidis (2014) in his analysis of empty nouns within pronouns and by Dvořák (2015) in her treatment of the generic null object in Czech. Ruda (2017) adopts a similar analysis for missing objects in English, Polish, and Hungarian. Along the lines proposed by Lowenstamm (2008), these authors argue that grammatical gender ([*u*gender]) is marked on n so that the structure of nP is as follows:

(44)   nP
        |
        n
        |
    [*u*gender]
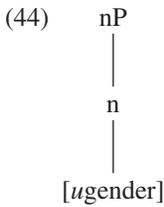
When such a rootless nP is merged under an overt D, an overt pronoun is obtained. Whenever nP is bare or when it is selected by a null Number or Classifier head, or even a null D (depending on the language and the context), the result is a null argument.[4]

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

At the end of section 3, I discussed evidence from Finnish that indicates that the impersonal interpretation obtains when the 3rd person singular null subject stays in situ, whereas the definite interpretation is available just in case the null subject raises to a high position (see (43a–b)). In this context, it is worth pointing out that the null subject in (43a) is interpreted as a weak indefinite (the sentence is paraphrased as follows: 'The student knows that it is not the case that there is anyone who can solve the assignment'). Under the hypothesis that the null subject is an nP, the correlation between the two different positions (the preverbal position or the v/VP-internal position) and the available readings would follow from the different configurations that serve as input to the semantics. When the null nP (interpreted as a property that is trivially true of any individual in the domain) stays inside v/VP, as in (43a), the variable it introduces is bound under Existential Closure (in generic sentences, Existential Closure falls under the scope of a Gen(eric) operator, yielding the "generic" interpretation). When the null nP raises to preverbal position, its meaning is type-shifted to an individual (ι). This is, in essence, the approach I will take in the sections that follow.

4.2 The Nonanaphoric Null Subject

As mentioned in section 2, there is a split among the partial NSLs 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. I will start by analyzing the case of BP and Finnish and then move on to Russian and Hebrew.

Consider the BP example (46a) and the Finnish example (46b).

(46) a. Aqui conserta   sapatos.
        here   repair.3SG shoes
        'Shoes are repaired here.'
        (Kato 1999:5)

---

[4] Ruda (2017) posits a Person node between D and Num.

b. Oppilas tietää ettei   tehtävää   pysty ratkaisemaan.
   student knows that.not assignment can   solve
   'The student knows that the assignment can't be solved.'
   (Vainikka and Levy 1999:648)

Even though the null subject is syntactically singular in these examples, 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, the nonanaphoric null subject is number-neutral. Semantic number neutrality is known to be a stable crosslinguistic property of a phenomenon known in the semantics literature as *semantic incorporation*, as extensively discussed by Van Geenhoven (1998), Dayal (2003), and Farkas and de Swart (2003). In general, semantically incorporated bare nouns are interpreted existentially and are scopally inert.

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—labeled *Unification* in Farkas and de Swart's (2003) model and *Restrict* in Chung and Ladusaw's (2003)—does not instantiate/saturate the predicate; hence, the variable introduced by the verbal predicate ends up bound by predicate-level (event-level) Existential Closure. This accounts for the obligatory narrow scope of such bare nouns.

Even though subjects are less likely to incorporate than objects, Farkas and de Swart (2003) report on instances of subject incorporation in Hungarian. Thus, in view of the properties of the 3rd person singular nonanaphoric null subject—restriction to postverbal position, number neutrality—it is plausible that it is an nP that is semantically incorporated. Following Panagiotidis (2014), I 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 by Predicate Modification is nearly semantically vacuous: the result is a predicate that is restricted to apply to human beings.

Concerning generic sentences, I adopt Chierchia's (1995) treatment of impersonal *si* in Romance. Chierchia follows the Davidsonian view that every verb introduces an event/situation variable. In generic sentences, this variable typically is bound by a Gen operator and the context supplies ways of restricting the range of the quantifier. In this vein, the BP example (46a) will be assigned the representation in (47), where the situation variable is bound by Gen and is further restricted by the locative adverbial.

(47) Gen_s [here(s)] $\exists x$[repairs shoes (s,x) $\wedge$ human(x)]

Existential Closure under the scope of Gen of the individual variable introduced by the verbal predicate yields the quasi-universal reading. (46a) will thus be interpreted as follows: take any situation that happens here; in this situation, there is someone who repairs shoes. This is indeed what the sentence means. A similar analysis carries over to Finnish (46b). In this example, the null subject is interpreted as a weak indefinite, as expected under the analysis proposed.

At this point, I should note that it does not necessarily follow from this analysis that BP should behave exactly like Finnish with respect to the need to fill the preverbal slot with an overt XP whenever the null subject has an impersonal interpretation. Sentence (48a) is fine in BP with the reading indicated in the translation. In Finnish, by contrast, the preverbal position must be filled by another category besides the null subject in order for the impersonal interpretation to obtain (see (46b)). I maintain that the null nP subject in (48a) stays inside the VP, as in Finnish. The difference between BP and Finnish follows from different requirements regarding the EPP. Finnish has a very strong EPP condition that requires the preverbal position to be filled. In the absence of XP-movement, an overt expletive must be inserted (Holmberg and Nikanne 2002). BP, on the other hand, lacks overt expletives, as shown in (48b).

(48) a. Eu acho que vende   cachorro quente na   praia.
        I   think that sell.3SG dog   hot   at.the beach
        'I think that hot dogs are sold at the beach.'
     b. Tem leite na   geladeira.
        has milk in.the fridge
        'There is milk in the fridge.'

Whichever way we choose to account for the status of the EPP in (48b) (see section 4.3.3 for a brief discussion of this issue), it will carry over to (48a), so the hypothesis that the null subject is semantically incorporated in this kind of example can be maintained.

Semantically incorporated bare nouns do not combine with individual-level predicates (Farkas and de Swart 2003). Therefore, the semantic 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 (49), a generic sentence containing an individual-level predicate, is unacceptable.[5]

(49) *Brasilia-ssa rakastaa sambaa.
       Brazil-in   love.3SG samba
       (Anders Holmberg, pers. comm.)

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[5] Even though (49) is not possible, (i) is fully grammatical.

(i) Jos Brasilia-ssa rakastaa sambaa . . .
    if Brazil-in   love.3SG samba
    'If you love.samba in Brazil . . . (everybody will love you).'
    (Anders Holmberg, pers. comm.)

This difference between (49) and (i) is predicted under the view that the null subject is semantically incorporated. In standard Discourse Representation Theory, the LF of (i) contains a Gen operator, the 'if'-clause determines the restriction, and the main clause constitutes the nuclear scope (Farkas and de Swart 2003). 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 labeled s).

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

In (49), 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, (49) is correctly ruled out while (i) is in.

Turning to BP, we find a dialect split: older speakers consistently reject the examples in (50), which contain individual-level predicates, while younger speakers accept them.

(50) 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

I tentatively suggest that, in the grammar of younger people, possibly due to an ongoing process of change related to bare nouns, nP does not necessarily incorporate and may shift to kind interpretation (as will be proposed below for the case of the bare plural in Hebrew), so that it may pick the kind 'people' in (50a–b). The mere fact that there is a dialect split precisely along the lines predicted under the semantic incorporation hypothesis indicates that this hypothesis is on the right track.

Moving on to the languages in which the nonanaphoric null subject is plural, we observe that impersonal null subject constructions are fine with individual-level predicates. In Hebrew (51a) and Russian (51b), the impersonal null subject may have an inclusive interpretation.

(51) a. Be-america, ohavim/meshuga'im al pica.
         in-US   love.PRES.PL/mad.PL on pizza
         'In the US, [people] love/are mad about pizza.'
     b. V Portugalii obožaiut tresku.
         in Portugal   love.3PL codfish
         'In Portugal, [people] love codfish.'

Therefore, we conclude that the plural nonanaphoric null subject is not semantically incorporated in these examples.

To get a complete understanding of the data, let us turn to full-fledged bare nouns. In Hebrew, their interpretation depends on the position they occupy. When they occur postverbally, they can have only an existential interpretation (52a) and take obligatory narrow scope (Doron 2003); in preverbal position, a kind interpretation (52b) is available.

(52) a. Lo novxim klavim.
         not bark   dogs
         'It is not the case that dogs are barking.'
         (Doron 2003:82–83)
         $\neg \exists x$ [dogs$(x) \wedge$ barking(x)]
     b. Dinoza'urim kvar   nikxedu   lifney milyon šana.
         dinosaurs   already became.extinct before million year
         'Dinosaurs were extinct a million years ago already.'
         (Doron 2003:87)

Doron (2003) argues in favor of a semantic incorporation analysis of the bare plural in (52a). As for examples such as (52b), she claims that the bare plural shifts to kind interpretation, along

the lines proposed by Chierchia (1998).[6] Here, I propose to extend Doron's (2003) analysis to the nonanaphoric 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:

(53) Yodiu   bekarov mi   zaxa ba   taxarut.
     will.announce.3M.PL soon   who won in.the contest
     'It will soon be announced who won the contest.'
     (Ritter 1995:435)

When NumP does not incorporate, as in example (51a), it may shift to kind interpretation. In that example, Gen quantifies over instances of the kind 'people in the US'. The same approach straightforwardly applies to the Russian example (51b).

In sum, the idea that the null subject is an nP—Elbourne's (2005) ONE or Panagiotidis's (2002) "empty" N—seems adequate for the case of the nonanaphoric null subject in the partial NSLs. Even though they were not discussed here, similar remarks apply, mutatis mutandis, to the nonanaphoric null subject in the discourse pro-drop languages (see (9)–(10)).

4.3 The Anaphoric Null Subject

In discussing the anaphoric null subject, I will first address the languages that lack articles: Finnish, Russian, and the discourse pro-drop languages (section 4.3.1). I will then take up Hebrew and BP (section 4.3.2).

4.3.1 Languages without Articles   Recall that, in Finnish, the definite null subject must raise to preverbal position. Holmberg (2005) assumes that the Finnish EPP position is Spec,TP. However, Holmberg and Nikanne (2002) show that this position is associated with topics given that it may be occupied by other arguments besides subjects. I hypothesize that topicality is what enables the null nP, a function of type $\langle e,t \rangle$, to be shifted to an individual (a denotation of type $\langle e \rangle$) and hence be interpreted as definite. Assuming that topics denote individuals that the sentence as a whole is "about" (Vallduví 1990, Portner and Yabushita 1998), 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, 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 preverbal position tends to be interpreted as definite/specific. Likewise, in Russian, fronting to preverbal position is a means of expressing definiteness/specificity.

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[6] 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.

(54) 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.'
        (Chvany 1973:266)

Similarly, in Mandarin, bare nominals in preverbal subject position cannot be interpreted as indefinite. They receive either a definite or a generic interpretation.

(55) 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)
        (Cheng and Sybesma 2005:260)

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 I 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) proposes that covert ι type-shifting is blocked whenever a language has an overt way of achieving the same results. Since Hebrew and BP have a definite article, covert ι type-shifting is blocked.

Cyrino and 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, I adopt their view. The definite null subject thus has the structure in (56).[7]

(56) $[_{DP}[_{D} \emptyset][_{nP} \emptyset]]$[8]

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[7] Here, I do not take stand on whether Number projects.

[8] This assumption holds only of the anaphoric null subject, as the nonanaphoric one is an nP that combines with the verbal predicate by Predicate Modification and is number-neutral, as discussed in section 4.2.

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, nonargumental (57a) and impersonal/ generic (57b) subjects may be silent; definite subjects (58), however, may not.

(57) a. Nir'e še Itamar šuv me'axer.
        seems that Itamar again is.late
        'It seems that Itamar is late again.'
     b. Tafsu   kvar et kol ha mavrixim.
        caught.3M.PL already ACC all the smugglers
        'All the smugglers have been caught.'
        (Ritter 1995:434–435)

(58) *(Ani/Ata)   roce   glida.
       I/you.M.SG want.M.SG ice.cream
      'I/You want ice cream.'
      (Ritter 1995:433)

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.

(59) Ona vybegala i   ne lajala,   poskol'ku [e] byla   sderžannoj   sobakoj.
     she run.out.IMP and not bark.IMP because   was.IMP well.behaved dog
     'She would run out but not bark since [she] was a well-behaved dog.'
     (McShane 2009:120)

This contrast between Russian and Hebrew shows that the person agreement requirement is a parameterized option. I 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).

(60) Ha-sefer *(ha-)adom ne'elam.
     the-book the-red   disappeared
     'The red book disappeared.'
     (Danon 2010:146)

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

Ritter (1995) claims that verbal agreement in the 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 specified only for definiteness, not for person. In light of these facts, I 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].[9] 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 my perspective, this is why person agreement is not incompatible with an indefinite subject, be it overt or null.[10]

Interestingly, the restricted pattern of null subjects observed in present tense in Hebrew is not unique. It is found in a range of creole languages, which have been classified as *semi pro-drop*. In light of the present discussion, it is now possible to regard languages with this highly restricted pattern of pro-drop as ones that lack the resources required for ι type-shifting to apply. I 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.

(61) *(El) ta   trabadja duro.
        he ASP works   hard
      'He works hard.'
      (Baptista 1995:10)

Yet CVC has quasi-argumental (62) and impersonal (63) null subjects.

(62) Sta faze   frio.
      is   making cold
      'It is cold.'
      (Baptista 1995:9)

(63) Na   veron,   ta   korda sedu.
      in.the summer ASP wake early
      'In the summer one wakes up early.'

Similar facts obtain in Papiamentu (Muysken and Law 2001). Interestingly, both creoles allow bare nominals in argument position. Moreover, they do have definite determiners alongside bare nouns. I hypothesize that these creole languages lack the resources required for ι type-shifting to apply to the null nP. Therefore, an overt definite determiner must be used for the individual interpretation. In this case, we find an overt pronominal subject, as desired.

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[9] This is yet another case of asymmetry between subjects and objects: definite null objects do not need any special marking.
[10] We must assume that the 3rd person features on verbal agreement (±1, ±2) are not interpretable, as interpretability would entail an exclusive interpretation for the nonanaphoric null subject in the 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, I assume that the person and number features on T are not interpretable in all the persons of the paradigm (contra Ritter 1995).

Icelandic is yet another semi pro-drop language. Sigurðsson and 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 in (64).

(64) Nú   má   [—] fara að dansa.
     now may [—] go   to dance
     'One may begin to dance now.'
     (Sigurðsson and Egerland 2009:169)

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 does not offer an immediate account of pure null expletives (it makes little sense to posit a non-θ-role-bearing null nP).[11] However, the idea that pure expletive *pro* exists has been challenged (Wurmbrand 2006, Biberauer 2010). 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 (57a). Wurmbrand (2006) argues against the idea that the standard EPP holds in Icelandic and German. For reasons of space, I will not review her arguments here. I will, however, assume that in the languages examined here—with the exception of Finnish—the EPP does not force the presence of a dummy nominal in Spec,TP and that only θ-role-bearing nominals (including quasi arguments) can be realized as rootless nPs.

4.3.4 Summary   In sum, I propose that a rootless n is at the heart of a definite null subject both in the discourse pro-drop languages and in the partial NSLs. This default n receives an individual interpretation either by undergoing covert ι type-shifting (in 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 ι type-shifting to apply. In view of the fact that the shifted null nominal lacks inherent ϕ-features, it gets its ϕ-features from an antecedent. In the next section, I 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, I argue that the definite null subject has the behavior of a (local) subject anaphor. In section 5.1, I motivate my proposal on the basis of data from the partial NSLs. In section 5.2, I extend my proposal to the discourse pro-drop languages.

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[11] I thank Anthony Kroch for drawing my attention to this issue.

5.1 Locality Effects in the Partial NSLs

As mentioned in section 2, the partial NSLs show an asymmetry between 1st/2nd person and 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.

Even though the partial NSLs differ from one another with respect to the environments in which a 3rd person null subject is licensed, all of them impose locality conditions on the choice of the antecedent. Here, I illustrate this restriction with BP (65a) and Finnish (65b), but similar examples can be constructed in Hebrew and Marathi (Holmberg, Nayudu, and Sheehan 2009). Chinese displays somewhat similar locality effects, but, for ease of exposition, I will postpone discussion of the discourse pro-drop languages to section 5.2.

(65) a. O Feco$_1$ disse que a   Dani$_2$ acha   que $e_{*1/2}$ ganhou na loto.
       the Feco said that the Dani thinks that $e_{*1/2}$ won   the lottery
       'Feco said that Dani thinks that she won the lottery.'
    b. Jukka$_1$ sanoi että Liisa$_2$ ajattelee että $e_{*1/2}$ oli voittanut arpajaisissa.
       Jukka said   that Liisa thinks   that $e_{*1/2}$ had won   lottery
       'Jukka said that Liisa thinks that she won the lottery.'
       (Modesto 2008:382–383)

Rodrigues (2004) and Nunes (2009) have attempted to subsume the relation between the antecedent and the null subject under obligatory control. However, Modesto (2007), Holmberg, Nayudu, and Sheehan (2009), and Shlonsky (2009) have provided arguments against this idea. First, it is possible to construct minimal pairs in which the covert subject of a finite clause is assigned a different interpretation from the covert subject of an infinitival clause (see the references cited). Second, 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 NSLs under discussion do not show uniform behavior with respect to the environments in which they license a null subject. 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 (65) are also found with certain subject reflexive anaphors, as is the case of the Chinese local anaphor *ta ziji* in subject position. As Cole, Hermon, and Huang (2001) report, even though Chinese lacks ECM (exceptional case marking), 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 (66a), can appear as the subject of a complement clause (66b).

(66) a. Zhangsan$_1$ juede Lisi$_2$ hui shanghai ta   ziji$_{*1/2}$.
       Zhangsan think Lisi will hurt   him self
       'Zhangsan$_1$ thinks that Lisi$_2$ will hurt himself$_{*1/2}$.'
       (Haddad 2007:367)

b. Xiaoming$_1$ xiangxin ta   ziji$_1$ neng kaoguo.
   Xiaoming believe him self   can   pass.the.exam
   'Xiaoming believes that he himself can pass the exam.'
   (Sung 1990:73)

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.

(67) Xiaoming$_1$ shuo Zhangsan$_2$ xiangxin ta   ziji$_{*1/2}$ neng kaoguo.
     Xiaoming say Zhangsan believe him self   can pass.the.exam
     'Xiaoming$_1$ says that Zhangsan$_2$ believes that he$_{*1/2}$ can pass the exam.'

The indexing in (67) is expected if the locality domain for the subject is the immediately higher clause. In fact, Huang and Liu (2001) propose that the traditional notion of governing category, defined in terms of the minimal domain containing a governor for the anaphor and an accessible SUBJECT, adequately captures the binding domain for the subject syntactic anaphor. In (66b) and (67), the governing category for the reflexive is the next clause up.

The fact that 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 by Pollard and Sag (1992) and Reinhart and Reuland (1993), 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 illustrate this phenomenon:

(68) 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.
        (Reinhart and Reuland 1993:669, 670; b. via Ross 1970)

In English, 1st and 2nd person exempt anaphors do not need linguistic antecedents whereas 3rd person exempt anaphors require one.

(69) a. *Mary tried to attract a man like himself.
        (Büring 2005:225)
     b. It angered him that she . . . tried to attract a man like himself.
        (Zribi-Hertz 1989, via Reinhart and Reuland 1993:670)

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 (65a–b), or it can be exempt, in which case it does not 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 should not allow split antecedents and that it should permit only a sloppy reading under VP-ellipsis. Ferreira (2000), Modesto (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 to be degraded in Finnish as well as Hebrew (Borer 1989, Vainikka and Levy 1999). On the other hand, according to Holmberg, Nayudu, and 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.

(70) Noga bikra   et   Shimon al ma'amaro ha-shovinisti kshe [—] nas'u
     Noga criticized.F ACC Shimon on his-article the-chauvinist when [—] went-PL
     li-yrushalayim.
     to-Jerusalem
     'Noga criticized Shimon on his chauvinistic article when they went to Jerusalem.'
     (Gutman 2004:469)

These apparently contradictory judgments can potentially be accounted for if the null subject is an anaphor that can be exempt. As Pollard and Sag (1992) note, exempt 3rd person reflexives in English may take split antecedents.

(71) John told Mary that there were some pictures of themselves inside.
     (Lebeaux 1984:346)

Likewise, Cole, Hermon, and Huang (2006) note that, in English examples containing an exempt reflexive, VP-ellipsis allows either a strict or a sloppy interpretation.

(72) Rupert$_1$ was not unduly worried about Peter's opinion of himself$_1$; nor was Fred$_2$.
     (Cole, Hermon, and Huang 2006:30)

The elliptical clause of (72) can be understood to mean either (73a) or (73b).

(73) 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 contradictory evidence that can be found in the literature regarding the definite null subject in the partial NSLs can be due to the latter's 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 (a) anaphoric binding is blocked in the syntax and (b) they satisfy certain logophoric conditions. When the reflexive is locally bound, it behaves as a bound variable, does not allow split antecedents, and admits only a sloppy reading in contexts of VP-ellipsis. When it undergoes "conversion," it may take split antecedents and allow strict and sloppy interpretations.

I contend that the anaphoric nature of the null subject follows from the fact that it is a (type-shifted) nP that lacks ϕ-features (hence, it is ϕ-defective, just like anaphors) and merely denotes an individual in the domain. This hypothesis works pretty well for the partial NSLs. As I will show 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 interpreting the null subject as a pronoun of laziness. I now turn to this issue.[12]

5.2 Crosslinguistic Variability within the Discourse Pro-Drop Languages

The hypothesis that the anaphoric null subject in the partial NSLs is a subject anaphor, coupled with the parallel that I have been drawing between the partial NSLs and the discourse pro-drop languages, predicts that we should find locality effects in the discourse pro-drop languages as well. And indeed such locality effects are found in Chinese. As Li (2014) discusses, the empty object, not the empty subject, can be coindexed with an NP across island boundaries and across the subject of the higher clause.

(74) Zhe-ge laoshi$_i$ hen hao, wo mei kandao-guo [[e_j bu xihuan [e_i de] xuesheng$_j$].
     this-CL teacher very good I not see-ASP e not like e DE student
     a. 'This teacher$_i$ is very good. I have not seen students$_j$ who e_j do not like (him$_i$).'
     b. *'This teacher$_i$ is very good. I have not seen students$_j$ who (he$_i$) doesn't like e_j.'
     (Li 2014:45)

The indexing in (75) shows that the zero subject of the lower 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.[13]

(75) Ta$_1$ shuo Zhangsan$_2$ dui [$e_{2/*1,*3}$ mei kanjian wo] meiyou zeren.
     he say Zhangsan to $e_{2/*1,*3}$ not see   me not.have responsibility
     'He said Zhangsan did not have responsibility for (the fact that) e didn't see me.'
     (Li 2014:47)

These locality effects can be straightforwardly explained under the hypothesis that the anaphoric null subject is a subject anaphor, hence subject to locality.

However, this observation does not extend to other discourse pro-drop languages, such as Japanese and Korean, where the relation between the null subject and its antecedent is not constrained by locality (Li 2014). This constitutes a prima facie problem for the thesis defended here.

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[12] If, as suggested, 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. My answer to this question is partly based on a suggestion by Sigurðsson (2011), who proposes that a silent argument must raise to the left periphery so as to have its features valued by a discourse topic. Sigurðsson assumes that C hosts "speaker," "hearer," and topic features (labeled *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 Sigurðsson's theory is well beyond the scope of the present article, I adopt the view that the definite null object raises to the left periphery of its own clause, where it gets its features from a discourse topic. I leave a more detailed study of this issue for future work.

[13] Here, I use examples in which the subject is contained inside an island so as to make sure that we are not dealing with topic movement.

However, I will argue that this problem is only apparent and that the lack of locality effects found in Japanese is due to the existence of an additional strategy for interpreting the null NP, which, by hypothesis, is unavailable in subject position in Chinese.

Empty subjects in Japanese differ from those in Chinese in a number of ways. Besides the absence of locality effects, the first distinguishing feature concerns the availability of sloppy interpretation. Oku (1998) and Kim (1999) show that null subjects in Japanese can yield sloppy interpretation, as the following examples illustrate:[14]

(76) 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.'
        (Takahashi 2014:93)

(76b) can mean that Ken thinks his own child speaks French.

Takahashi (2007) examines Chinese in light of these facts and concludes that, even though zero objects give rise to sloppy readings, zero subjects do not. Consider the following examples:

(77) a. Zhangsan$_1$ [yinwei wo jiao-guo ta$_1$de erzi] hen gaoxing; Lisi$_2$ [yinwei wo mei
        Zhangsan   because I   teach-ASP his son very happy Lisi because I   not
        jiao-guo (ta$_2$de erzi)] hen bu gaoxing.
        teach-ASP (his   son)   very not happy
        'Zhangsan$_1$ is happy because I taught his$_1$ son; Lisi$_2$ is not happy because I didn't teach his$_2$ son.'
     b. Zhangsan$_1$ [yinwei   ziji$_1$de/ta$_1$de erzi jiao-guo shuxue] hen gaoxing; Lisi$_2$
        Zhangsan   because self's/his   son teach-ASP math   very happy Lisi
        [yinwei [Ø]$_2$ jiao-guo yuyanxue] hen deyi.
         because [Ø] teach-ASP linguistics very proud
        'Zhangsan$_1$ is happy because self$_1$'s/his$_1$ son taught math; Lisi$_2$ is happy because [Ø]$_2$ taught linguistics.'
        (Li 2014:48)

The empty object in (77a) can be interpreted as referring to Lisi's son. The empty subject in (77b), by contrast, can only be interpreted as coindexed with the matrix subject. According to Li (2014:45), (77b) has the reading 'Zhangsan$_1$ is happy because self$_1$'s/his$_1$ son taught math; Lisi is proud because Lisi taught linguistics', not 'Zhangsan$_1$ is happy because self$_1$'s/his$_1$ son taught math; Lisi$_2$ is proud because self$_2$'s/his$_2$ son taught linguistics'.

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[14] Similar examples can be found in Korean (Takahashi 2007).

The availability of the covariant interpretation in (76b) and (77a) has been taken as an indication that these are instances of (argument) ellipsis (Oku 1998, Kim 1999, Saito 2004, 2007, Takahashi 2006, 2008). Tomioka (2014), however, argues against this view. In particular, he shows that the availability of sloppy interpretation is not a reliable test for ellipsis. In fact, it is possible to find the covariant interpretation with overt pronouns (so-called pronouns of laziness, after Karttunen 1976). Consider the following English sentence:

(78) John gave his hat to me, but Bill gave it to Sarah.

(78) has a reading in which *it* can refer to Bill's hat.

Cooper (1979) analyzes (definite) pronouns of laziness as definite descriptions, whose descriptive content is a contextually salient property (in (78), the property of being x's hat). Tomioka (2003) extends this approach to the analysis of the covariant interpretation of Japanese *pro*. Recall that Tomioka argues that Japanese *pro* is a null NP (of type $\langle e,t \rangle$). Under this view, the pronoun-of-laziness interpretation is just property anaphora of type $\langle e,t \rangle$; that is, it is the result of the ι type-shifting operation applied to a contextually salient property. In the Japanese example (76b), the contextually salient property is being x's child, where the variable x corresponds to the reflexive *zibun.*

Coming back to the difference between Japanese and Chinese regarding the availability of the covariant interpretation in subject position, different hypotheses have been put forward to account for it. Oku (1998) proposes that the availability of sloppy interpretation is related to scrambling, but Takahashi (2007) discusses data that are problematic for this analysis. Saito (2007) suggests that it is related to the absence of agreement. Sato (2012), however, shows that Javanese lacks syntactic agreement and yet has the same subject/object asymmetry as Chinese. He claims that this subject/object asymmetry is related to the particular status of the preverbal subject position as a topic position in Chinese as well as in Javanese. In fact, this particular aspect sets these two languages apart from Japanese (and Korean). In Chinese and Javanese, a preverbal subject cannot have an indefinite/nonspecific interpretation. In Japanese and Korean, by contrast, it can. Consider the following Japanese example:

(79) Seerusuman-ga Mary-no   uchi-ni   kita.
      salesman-NOM Mary-GEN house-to came
      'A salesman/The salesman/The salesmen/Salesmen came to Mary's house.'
      (Oku 1998:166)

In (79), the subject can be various interpreted as indicated in the translation.[15] 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 (80), but indefinite objects can (81).

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[15] 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).

(80) Ta kandao yi-ge   keren dian-le   longxia; wo kandao *(yi-ge   keren) dian-le   yu.
      he see   one-CL guest order-LE lobster I   see   one-CL guest order-LE fish
      'He saw a guest ordered lobster; I saw *(a guest) ordered fish.'
      (Li 2014:48)

(81) Ta song yi-ge   nanhai yi-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).'
      (Li 2014:45)

This subject/object asymmetry is due to the fact that the preverbal subject position is necessarily a topic position in Chinese (see section 4.3.1).

   Sato (2012) proposes to relate this property to the subject/object asymmetry found in Chinese with respect to the sloppy readings (77). In order to appreciate Sato's argument, let us consider the following possible continuation for the Japanese example (79):

(82) [——] John-no   uchi-ni-mo   kita.
      [——] John-GEN house-to-also came
      Lit. '[——] came to John's house too.'
      (Oku 1998:166)

When (82) is uttered after (79), one possible interpretation of (82) is that the salesman who visited John's house is different from the salesman who visited Mary's house. 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 (82) can only be interpreted as standing for the same salesman who came to Mary's house. 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 (82) and the sloppy interpretation (76b)—are related: both instantiate a pronoun of laziness (an indefinite one (82) and a definite one (76b)). In both cases, the core of the meaning is a contextually salient property (*seerusuman-ga* 'salesman' in (82) and *zibun-no kodomo-ga* 'self's son' in (76b)).

   Here, I wish to propose that property anaphora, of type $\langle e,t \rangle$, the core of the pronoun-of-laziness interpretation, is not available in topic position, probably because a topic must refer to a discourse-salient entity. In the absence of the pronoun-of-laziness interpretation, the null nominal can only be interpreted as coreferential with its antecedent. Being ɸ-deficient, it is subject to the same locality restrictions as subject anaphors, as discussed in section 5.1. This is what happens in Chinese. In Japanese, by contrast, the null subject is not necessarily a topic, so the pronoun-of-laziness interpretation is available. On the assumption that pronouns of laziness are not subject to locality, the lack of locality effects found in Japanese would follow. The subject/object asymmetry observed in Chinese also follows, as it is only subjects that are necessarily topics.

   In a nutshell, my hypothesis is that there are two available options: (a) the bare null nominal denotes an individual variable, in which case it behaves as a subject anaphor; (b) the null nominal

is interpreted as a pronoun of laziness (by property anaphora). When the latter option is unavailable—that is, whenever the null argument is a topic—locality effects obtain. Hence, the claim that the definite, anaphoric null subject is a subject anaphor and therefore subject to locality is not undermined by the Japanese facts.

To sum up, the idea that the pronoun-of-laziness option 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 have been 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 the proposed account can be extended to this language as well. Concerning BP, there appears to be a dialect split (see Saab 2016 for discussion).

6 Summary of Proposals

Thus far, I have examined the properties of the partial NSLs when compared with the consistent and the discourse pro-drop languages, and I have suggested that the same basic mechanism underlies pro-drop in partial as well as discourse and semi-pro-drop languages: 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 φ-features: this is the case of the consistent NSLs.
2. In languages that have (robust) bare nominals in argument position, a silent argument may be derived by means of an nP proform. This nP introduces a variable that may be bound under Existential Closure, yielding an impersonal interpretation; alternatively, its denotation may be lifted, either by undergoing covert ι type-shifting or by combining with a null D. The differences among languages in the interpretation of the null subject depend on the resources available in a given language for applying the semantic operation of type-shifting to an individual (ι): the languages that lack the resources required for this operation to apply only have quasi-argumental and impersonal null subjects (semi pro-drop).[16]

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[16] These hypotheses do not 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 not present.

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). Second, as reported in Sigurðsson and Egerland 2009, Polish and Czech require impersonal generic subjects with

7 Toward a Unified Theory of *pro*

The reduction of different kinds of pro-drop to the two basic mechanisms listed in section 6 raises the question whether *pro* is universally a null NP (as already suggested in Borer and Roy 2006). In this case, mechanism 1 above could be partly reduced to mechanism 2. To answer this question, let us return to the consistent NSLs.

One long-standing problem with the pronominal-Agr hypothesis has been the status of the argument, First Merge, subject position, in examples such as (83) from EP.

(83) Já   telefonei.
     already called.1sG
     'I already called.'

Positing an empty category (*ec*) inside the vP in (83) is required in a theory that assumes that θ-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 I assume that the set of φ-features in T is interpretable in this kind of language, what we have in T is a D with interpretable φ-features ([Diφ]).

(84) $[_{TP}[_T v_i - T \langle D_k \phi \rangle][_{vP} nP [_{v'} t_i \ldots]]]$

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 combining 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 (the operation Restrict in Chung and Ladusaw's (2003) model or Unification in Farkas and de Swart's (2003)). In this case, the meaning of the vP in (83) is the following complex property (where *e* stands for a Davidsonian event variable):

(85) $\lambda y \exists e[\text{call}(e,y) \wedge \text{entity}(y)]$

This property is then applied to the index contributed by D in T, yielding a truth value. The derivation proceeds compositionally, as desired. Thus, it is possible to reduce *pro* to nP even in a consistent NSL, so the unification between cases 1 and 2 above is feasible. This allows us to reduce *pro* to nP quite generally.

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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 NPs in argument position may be consistent NSLs depending on the properties of verbal agreement inflection. In the present perspective, the bundle of φ-features in T in Polish and Czech is interpretable, hence pronominal. The two properties mentioned above follow from this in the manner described above for EP. I hypothesize that, by virtue of allowing robust bare NPs 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 (possibly in different guises; see Ruda 2017) across the Slavic family.

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 article, but that I believe is worth pursuing.

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