A feature-driven account of the empty object typology

Jeffrey Paul Stevens
University of Washington

The typology of the syntactic empty object has two variants: object *pro* and the variable object empty category (EC). To account for attested variation between these EC types, I propose that *pro* is the more basic type and that the variable object EC is derived from object *pro* by movement triggered by an EPP feature in the matrix Fin, creating an Op-variable A'-chain. I adopt Contreras' (1993) proposal that ungoverned Op is a [-a, +p] EC, i.e. *pro*. Thus, both of these EC types are essentially argument chains with identical properties with respect to antecedent selection: object *pro* is CH = (*pro*), while the Op-variable A'-chain is CH = (*pro*, *t*). In both cases, *pro* is free and may select any salient referent as its antecedent. The ultimate factor distinguishing these EC types is the EPP feature in the matrix Fin that attracts *pro* to [Spec, Fin].

1 Introduction

The theory of empty categories (ECs) presented by Chomsky (1981, 1982) within the early principles-and-parameters (P&P) framework has in general proved quite productive in the literature on ECs. However, the object EC has presented interesting problems for this theory. The Mandarin sentence in (1) exemplifies one such problem:

(1) Zhangsan shuo [Lisi kanjian *e* le]. (Mandarin)
Zhangsan say Lisi see ec PERF
'Zhangsan said that Lisi saw (him/her/it/them).'
(Huang 1989, p. 187)

The status of the EC in (1) on Huang's (1984, 1989) analysis depends on the co-reference judgments (CRJs) available for (1) and structurally equivalent Mandarin sentences. Huang claims the EC in (1) cannot take the matrix subject as its antecedent, and must instead take a referent salient in the discourse. This judgment contrasts with those attested for the Japanese sentence in (2):

(2) John-ga [$_{CP}$[Mary-ga *e* nagut-ta] to] it-ta. (Japanese)
John-NOM Mary-NOM ec hit-PAST COMP say-PAST
'John said that Mary hit (him/her/it/them).'
(Hasegawa 1984-1985, p. 302)

According to Hasegawa (1984-1985), the EC in (2) must seek its antecedent outside of the matrix clause, similarly to the EC in (1). However, according to Nakamura (1991), the EC in (2) and structurally equivalent sentences in Japanese is in fact capable of taking a matrix argument as its antecedent. Such conflicting judgments involving the empty object have instigated significant debate concerning the analysis of object ECs (Huang 1984, 1989; Hasegawa 1984-1985; Raposo 1986; Cole 1987; Nakamura 1991, among others).

In this paper, I propose a unified account of the empty object within a minimalist framework. The essence of my argument is that the different attested readings of the empty object are due not to different elements occurring as base-generated complements of the verb, but rather to different formal features occurring in the complementizer layer. When an embedded object EC can take a matrix argument as its antecedent, the EC is a base-generated *pro*. When this reading is not available, the base-generated *pro* has been moved to an A′-position in the complementizer layer, where it acts as an operator binding a variable which remains in the extraction site. Since variables are subject to Principle C of the Binding Theory, this accounts for the block against matrix binding of the object EC where such a reading obtains. On my analysis, such movement is driven by an uninterpretable feature in the complementizer layer.

Based on cross-linguistic variation in the attested behavior of object ECs such as that illustrated in (1) and (2), two distinct analyses of the empty object have been proposed: the *pro analysis*, in which the object EC is analyzed as a phonetically null pure pronominal (proposed for Italian by Rizzi (1986) and Japanese by Nakamura (1991), among other languages), and the *variable analysis*, in which the object EC is analyzed as a variable bound by a phonetically null operator in a clause-initial A′-position (proposed for Mandarin by Huang (1984, 1989) and European Portuguese by Raposo (1986), among other languages).

While object *pro* and the variable object EC have been argued to be mutually exclusive in certain languages, they have also been argued to co-exist (albeit in complementary environments) in certain other languages (such as Korean and Thai; cf. Cole 1987). This suggests that object *pro* and the variable object EC are not necessarily both primitive EC types, and that one may be derived from the other. In this paper, I follow this suggestion and propose that the empty object is universally and fundamentally *pro* (more precisely, the [-a(naphor), +p(ronominal)] EC type, following Chomsky's (1982) EC typology).

I further propose that, where the variable analysis obtains, this is the result of movement of the base-generated [-a, +p] EC from object position to an A′-position in the matrix complementizer layer. Since topicalization plays a role

in the variable analysis as developed in Huang 1984, Raposo 1986, and elsewhere, I refine my analysis by adopting Rizzi's (1997) Split-CP Hypothesis, which divides the CP layer into an articulated structure consisting of the functional heads Force, Top (topic), Foc (focus), and Fin (finiteness). I follow Rizzi in assuming the landing site of the moved EC to be the matrix [Spec, Fin]. I further propose that movement in this case is driven by a formal feature in the matrix Fin, and that the moved EC in [Spec, Fin] acts as an empty operator (Op) binding a variable (i.e. a [-a, -p] EC) in object position at the level of Logical Form (LF). I also adopt Contreras' (1993) proposal that ungoverned Op is a [-a, +p] EC in support of my analysis of the Op-variable construction.

I also adopt Miyagawa's (2001, 2004) development of Chomsky's (2000) suggestion that the EPP (Extended Projection Principle) feature requiring overt movement of an XP to the Spec of the EPP's containing head can be generalized from Tense to other functional heads, including C. Hence, in my analysis the movement by which the Op-variable construction is derived is driven by an EPP feature in Fin. I also follow Chomsky (2000) in assuming the 'core functional categories' to be C, T, and *v*—with the crucial distinction, following Rizzi (1997), that C is articulated where the variable analysis obtains, allowing Fin to be the specific target of movement of *pro*, with [Spec, Fin] as its landing site.

To summarize my proposal: the empty object is *pro* universally; variable-like behavior in object ECs is due to A′-movement; movement in such cases is to a complementizer position, which is [Spec, Fin] under my analysis; and such movement is driven by an EPP feature in Fin.

The organization of this paper is as follows: In section 2, I review the respective arguments within the P&P literature for the *pro* analysis and the variable analysis. In section 3, I discuss the status of the EPP feature as a trigger for movement. In section 4, I present and defend my proposal, employing data from languages with attested object ECs, including Mandarin, Japanese, Portuguese and Uzbek. In section 5, I briefly discuss potential problems for my proposal. I conclude with a summary of my proposal and the empirical facts presented in its defense.

2 The analysis of the empty object

2.1 Configurations admitting ECs

Consider again example (1), repeated here:

(1) Zhangsan shuo [Lisi kanjian *e* le].
Zhangsan say Lisi see ec PERF
'Zhangsan said that Lisi saw (him/her/it/them).'

The configuration in (1) is noteworthy in terms of potential for anaphoric construal of the object EC with the matrix subject. Some languages (such as Japanese under Nakamura's (1991) account) allow such construal in

this configuration, while others (such as Mandarin under Huang's (1984) account) appear to disallow it, requiring the object EC to be construed instead with a referent not represented within the sentence—i.e. it must be *discourse-licensed*. When languages allow anaphora between a matrix argument and an embedded EC, the EC may be analyzed as A-bound—i.e. as *pro*, the [-a, +p] EC type, subject to Principle B. When discourse licensing is the only option available for the embedded EC, then it must be analyzed as A′-bound—i.e. as a variable, with the features [-a, -p] and subject to Principle C.

The configuration in (1) is represented schematically in (3):

(3) $[_{TP}$ DP V $[_{CP}$ C $[_{TP}$ DP V ec]]]

Of crucial interest here are the co-reference judgments (CRJs) available for language-specific instantiations of (3), of which the following have been attested. In (4a), either matrix binding or discourse licensing may obtain for the EC, while in (4b), discourse licensing is the only reading admitted—hence, (4a) corresponds to the *pro* analysis, and (4b) corresponds to the variable analysis:

(4) a. $[_{TP}$ DP_i V $[_{CP}$ C $[_{TP}$ DP V $ec_{i/j}$]]]

b. $[_{TP}$ DP_i V $[_{CP}$ C $[_{TP}$ DP V $ec_{*i/j}$]]]

The CRJ in (4b) corresponds to the one claimed by Huang (1989) for (1). The Japanese sentence in (2), repeated below—which differs in configuration from (1) solely in head-direction—provides another instantiation of the configuration in (3), albeit with different head-complement order:

(2) John-ga $[_{CP}$[Mary-ga *e* nagut-ta] to] it-ta.
John-NOM Mary-NOM ec hit-PAST COMP say-PAST
'John said that Mary hit (him/her/it/them).'

Hasegawa (1984-1985), based on her claim that the CRJ for (2) is restricted to the discourse reading, advocates the variable analysis for the Japanese empty object. On the contrary, Nakamura (1991), claiming that (2) admits matrix binding of the object EC, advocates the *pro* analysis for the Japanese empty object.

The preceding has shown that an EC's position, in conjunction with that of its antecedent, is crucial to its typological analysis. The following generalization, from Huang 1984 (p. 543, paraphrasing Chomsky (1981, p. 330)), determines the status of an EC according to its configurational function:

(5) a. An EC is a pronominal iff it is free or locally bound by an element with an independent thematic role, and a non-pronominal otherwise.

b. A non-pronominal EC is an anaphor iff it is locally A-bound, and a variable if locally A′-bound.

While (5) overlaps somewhat with the Binding Theory, it also clarifies more explicitly the distinction between *pro* and variable. It follows from (5) that an object EC can never be [+a],[1] and hence can only be analyzed as either [-a, +p] (*pro*) or [-a, -p] (variable). I review the respective cases for these analyses in the next subsection.

2.2 The *pro* analysis of the empty object

The analysis of an object EC as *pro* within Chomsky's (1982) EC typology is fairly straightforward: If the EC can be bound by a syntactic argument outside of its governing category (as in the representation given below for (2), repeated below as (6)), then it is free and hence *pro*. This reading has been attested for object ECs in several languages, including Italian (Rizzi 1986) and Japanese (Nakamura 1991).

(6) John$_i$-ga [$_{CP}$[Mary-ga *pro*$_i$ nagut-ta] to] it-ta.
John-NOM Mary-NOM ec hit-PAST COMP say-PAST
'John said that Mary hit (him/her/it/them).'

The more interesting cases are when the object EC cannot take a matrix argument as its antecedent, which leads to the variable analysis. In the next subsection, I review evidence and arguments for this analysis, beginning with Huang's (1984, 1989) version based on the behavior of object ECs in Mandarin.

2.3 The variable analysis of the empty object

2.3.1 Huang's version of the variable analysis

Huang (1984, 1989) argues for the variable analysis on the basis of the interaction of Huang's Generalized Control Rule (GCR) with Principle B:

(7) Generalized Control Rule (GCR)
An empty pronominal is controlled in its control domain (if it has one).
α is the control domain for β iff it is the minimal category that satisfies both (a) and (b):
a. α is the lowest S or NP that contains (i) β, or (ii) the minimal maximal category containing β.
b. α contains a SUBJECT accessible to β.
(Huang 1989, p. 193)

---

[1] This point applies only to EC objects of transitive verbs, not DP-traces in unaccusative constructions.

The GCR requires that the most local nominal element (DP or Agr) within the control domain of a given EC must control that EC. If no control domain exists for the EC, then it may be freely construed with either a matrix argument or a salient discourse or pragmatic referent.

Huang (1984, 1989) also argues for the variable analysis on the basis of attested CRJs in Mandarin. Consider the CRJ available for (8a), whose configuration corresponds to that of (3):

(8) a. Zhangsan shuo [Lisi hen xihuan *e*]. (Mandarin)
Zhangsan say Lisi very like ec
'Zhangsan said that Lisi liked (him/her/it/them).'

b. Zhangsan shuo [*e* hen xihuan Lisi].
Zhangsan say ec very like Lisi
'Zhangsan said that (s/he/they) liked Lisi.'
(Huang 1989, p. 187)

According to Huang, the EC in (8a) may not be construed with the matrix subject and must instead be discourse-licensed—hence, (8a) corresponds to (4b). By contrast, (8b) is ambiguous between matrix binding and discourse licensing for the embedded subject EC—i.e. the EC is free and may be analyzed as *pro*. Huang hypothesizes on the basis of the attested CRJ for (8a) and structurally equivalent sentences in Mandarin that the empty object in Mandarin must be a variable—to be more precise (as argued in detail in Huang 1984), a variable bound by a topic phrase, itself also an EC in an A′-position. Since different types of A′-position have been distinguished in the literature, the precise nature of the element that binds the variable must be considered. This matter is discussed in the next subsection.

2.3.2 The empty operator (Op)

2.3.2.1 The landing site of Op

In this paper, I assume that the landing site for the empty operator Op originating in object position is in the complementizer layer. Adopting Rizzi's (1997) Split-C Hypothesis, I further assume that the precise landing site is [Spec, Fin], the Spec of the finiteness head Fin, which itself is c-commanded by the topic head Top within the articulated C system proposed by Rizzi and illustrated in (9) (from Rizzi 1997, p. 297):[2]

(9) $[_{ForceP}$ Force $[_{TopP*}$ Top $[_{FocP}$ Foc $[_{TopP*}$ Top $[_{FinP}$ Fin TP]]]]]

[2] TopP* signifies that TopP is recursive. See Rizzi 1997 for detailed argumentation and discussion.

In this system, the [Spec, Top] which most locally c-commands FinP can host the discourse topic Ø which Op selects as its antecedent, as illustrated in (10):

(10) $[_{TopP}$ Ø Top $[_{FinP}$ Op Fin TP]]

2.3.2.2 Previous analyses of Op

Before discussing in detail the motivations for the [Spec, Fin] analysis of Op, I will first review previous analyses of Op relevant to this paper. Huang (1989, p. 187) proposes (11) as a representation for (1), with the discourse reading of the EC:

(11) [Op_i [Zhangsan shuo [Lisi kanjian e_i le]]].

In a more precise analysis, Huang (1984) argues that the operator in this construction is an empty topic phrase whose own referential content can be inferred from a referent salient in the discourse. Under this analysis, Huang gives (13) as a representation for (12), whose Phonetic Form (PF) configuration, similarly to that of (1), corresponds to that of (3):

(12) Zhangsan shuo [Lisi bu renshi *e*]. (Mandarin)
Zhangsan say Lisi NEG know ec
'Zhangsan said that Lisi did not know (him/her/it/them).'
(Huang 1984, p. 542)

(13) $[_{Top}$ e_i], [Zhangsan shuo [Lisi bu renshi e_i]].
ec Zhangsan say Lisi NEG know ec
'*[Him/her/it/them$_i$], Zhangsan said that Lisi did not know e_i.'

In the [Spec, Fin] analysis of Op proposed by Rizzi (1997), the clause-initial Op is assumed to originate in object position, from which it moves to [Spec, Fin], leaving an A′-trace as illustrated in (10) (repeated below as (14) with updated notation), and also by the English complex adjectival construction in (15).[3] In both cases the head hosting Op in its Spec is phonetically empty:

(14) $[_{FinP}$ Op_i [Zhangsan shuo [Lisi kanjian t_i le]]].

(15) $John_i$ is easy $[_{CP}$ Op_i $[_{TP}$ PRO to please t_i]].

Note that Op has a different status in these respective cases, under Government & Binding assumptions: ungoverned in (14), governed in (15).[4]

[3] In (15) and in what follows I represent the complementizer layer as a syncretic CP (where Force and Fin both occupy C) in those cases where the Topic-Focus field is not activated.
[4] See Contreras 1993 for relevant discussion.

Note also that in (15) Op_i serves to mediate antecedence between $John_i$ and t_i. I assume that the same holds for (14), with Op_i mediating between t_i and a discourse referent. I will return to discussion of this assumption in subsection 2.3.2.3.

Note the contrast between Huang's analysis of the Op-variable construction and that provided by Raposo (1986, p. 380) for the European Portuguese sentence in (16), which contains an object EC in the matrix clause:[5]

(16) A Joana viu *e* na TV ontem.
the Joana see.PAST/3sg ec on.the TV yesterday
'Joana saw (him/her/it/them) on TV yesterday.'
(Raposo 1986, p. 373)

(17) $[_{Top}\ e_i]\ [_{CP}\ Op_j\ [_{TP}$ A Joana viu t_j na TV ontem]].

In (17), Top is a separate constituent from Op, and Op in turn derives its reference from Top by adjacency and serves to mediate antecedence between Top and the object EC in Raposo's analysis.[6] This stands in contrast to Huang's analysis, in which Top is understood as the landing site of Op. In what follows, I adopt Raposo's analysis with slight modifications for compatibility with the Split-CP framework, to be illustrated in the next subsection.

2.3.2.3 Movement and referential properties of Op

Further support for the movement analysis of Op—as well as insight into the referential properties of Op—can be found by considering complex adjectival constructions (CACs) such as (15), repeated here:

(15) $John_i$ is easy $[_{CP}\ Op_i\ [_{TP}$ PRO to please t_i]].

According to Chomsky (1995, pp. 152-153), the interpretive properties of CACs follow from the assumption that their base-generated representations are as in (18a), with Op an EC in object position. Under this analysis, Op raises to the subordinate [Spec, C], leaving a trace in the derived representation (18b):

(18) a. John is easy $[_{CP}$ PRO to please Op]

b. John is easy $[_{CP}$ Op [PRO to please *t*]]

Here consideration of the nature of variables in natural language is in order. Since natural language does not permit unrestricted quantification, natural language variables are subject to 'strong binding', whereby they must have

---

[5] See Raposo (1986) for arguments in favor of analyzing the matrix object EC as a variable.

[6] In Raposo's analysis the indices of Top and Op are brought into identity later in the derivation by the Predication rule (Williams 1980).

either a range determined by a restricted quantifier, or a value fixed by an antecedent that meets certain structural conditions. The latter applies with the empty operator. This property of natural language is formally expressed in (19):

(19) Strong Binding Condition on Variables (SBC)
A variable is strongly bound iff either (a) or (b):
a. It is locally bound by an overt operator
b. If the variable is bound by an empty operator, the empty operator must be bound by an argument.
(Chomsky 1986, p. 85)

Under these terms, while an embedded Op such as in (15) may (and typically must) take a sentence-internal argument as its antecedent, a sentence-initial Op has no choice but to take a discourse referent as its antecedent. Thus, the SBC accounts for the referential properties of Op in constructions such as (14) as well as (15), both repeated here:

(14) $[_{FinP}$ Op_i [Zhangsan shuo [Lisi kanjian t_i le]]].

(15) $John_i$ is easy $[_{CP}$ Op_i $[_{TP}$ PRO to please t_i]].

In both cases, the variable is bound by an empty operator. According to the SBC, in (15) Op is bound by the matrix argument *John*, conforming to (19b). By contrast, in (14) Op has no access to a c-commanding argument which may bind it, and thus must seek its antecedent outside of the sentence proper, i.e. from among the salient discourse (or pragmatic) referents.

Furthermore, adoption of the Split-CP Hypothesis can formally accommodate the discourse topic within the grammatical structure of the clause, thereby allowing the reanalysis of (14) as (20), where ∅ stands for the discourse referent in [Spec, Top], and Op_i mediates antecedence between $∅_i$ and t_i:

(20) $[_{TopP}$ $∅_i$ $[_{FinP}$ Op_i [Zhangsan shuo [Lisi kanjian t_i le]]]].

This closely resembles Raposo's (1986) analysis of Op, represented in (17), repeated here:

(17) $[_{Top}$ e_i] $[_{CP}$ Op_j $[_{TP}$ A Joana viu t_j na TV ontem]].

The example in (17) is represented schematically in (21) (abstracting from head-complement order):

(21) $[_{TopP}$ $∅_i$ $[_{FinP}$ Op_i $[_{TP}$ DP V $[_{CP}$ C $[_{TP}$ DP V t_i]]]].

In this subsection I have reviewed arguments and supporting data from the literature claiming that certain object ECs cannot take a matrix argument as an antecedent and therefore can only be analyzed as variables A′-bound by an

empty operator (Op). Before concluding section 2, I will discuss a crucial similarity between the *pro* and variable analyses that, as I argue in section 4, supports the analysis of the empty object typology presented in this paper.

2.4 Identification of the empty object

The respective recovery principles for the *pro* and variable analyses described above appear to be fundamentally different based on the structural relations involved: object *pro*, being free, may alternate between an A-dependency and an A′-dependency, while the variable object EC is always an A′-dependency. However, there appear to be grounds for a unified recovery principle for both types of object EC. Analyzing the variable object EC as the trace of a moved *pro* appears to unify the recovery principle for both object *pro* and the variable object EC. If both EC types are considered to be essentially chains headed by *pro*, with object *pro* being a trivial chain CH = (*pro*) and the Op-variable construction being a derived chain CH = (*pro*, *t*), one can consider both EC types to be subject to Principle B with respect to antecedent selection. I will further discuss the typological identity of *pro* and Op in section 4.

3 The EPP feature

Chomsky (2000) has suggested that XP movement to specifiers may be accounted for by generalizing the EPP feature from Tense to other functional heads, including C. In turn, Miyagawa (2001, 2004) has developed this suggestion to account for certain cases of movement in Japanese. This approach to movement appears to suggest a unified account, based on formal features, of the empty object typology. In the next section I pursue the development of such an account, adopting Miyagawa's proposal for the EPP. First a brief note is in order about inflectional categories in the MP. Much work in the MP, following Chomsky (2000, 2001), assumes that the inventory of 'core functional categories' consists solely of C, T and *v*. I adopt this assumption in this paper, with the crucial distinction that, where the variable analysis obtains for the object EC, I also adopt Rizzi's (1997) proposal that C is articulated to include the functional heads Top and Fin within its structure, allowing Fin to be the precise target of movement of *pro* from object position, and [Spec, Fin] to be the landing site of the moved object *pro*.

4 The role of formal features in the variable analysis

4.1 Attraction by the EPP

In this section, I propose an account of the empty object typology based on the formal feature content of the matrix Fin. In my account, Fin contains an EPP feature which attracts the object EC to its Spec where the variable analysis obtains. I propose to represent the contrast in (4) (repeated below) as in (22):

(4) a. $[_{TP}\ DP_i\ V\ [_{CP}\ C\ [_{TP}\ DP\ V\ ec_{i/j}\ ]]]$

b. $[_{TP}\ DP_i\ V\ [_{CP}\ C\ [_{TP}\ DP\ V\ ec_{*i/j}\ ]]]$

(22) a. $[_{TP}\ DP_i\ V\ [_{CP}\ \ C\ [_{TP}\ DP\ V\ \textit{pro}_{i/j}]]]$

b. Op_j Fin $[_{TP}\ DP_i\ V\ [_{CP}\ t'_j\ C\ [_{TP}\ DP\ V\ t_{*i/j}]]]$

Here (22b) is derived from (22a) by feature attraction, whereby the base-generated object EC is attracted to the matrix [Spec, Fin]—an A'-position. This operation results in the prohibition on A-binding of the resulting derived object EC, which is itself an A'-trace with the feature matrix [-a, -p], subject to Principle C and deriving its ϕ-feature content from the resulting Op (= *pro*) in [Spec, Fin], which in turn takes a discourse (or pragmatic) referent as its antecedent. Under this analysis, the question arises: What motivates the EPP feature in Fin that attracts the object EC to its Spec?

In recent work, Miyagawa (2001, 2004) adopts Chomsky's (2000) suggestion that the EPP feature can be generalized from Tense to other functional heads, including C. Miyagawa argues for the existence of an EPP feature in C in Japanese, based largely on his adoption of a proposal by Hagstrom (1998) that the question particle in Japanese originates adjacent to in-situ question words and is moved to C by feature attraction. I follow Miyagawa in assuming an EPP feature in C. I further assume that, where C is articulated as a result of topicalization and/or focus, the individual heads within the C system may themselves contain an EPP feature. In the case of movement of object *pro* to the C layer, I assume, following Rizzi's (1997) assumption that Fin can host an Op in its Spec, that Fin contains the EPP feature that attracts *pro* to its Spec.

4.2 Op as pro

I have proposed that in (22b) Op has originated in the object position of the embedded CP from a stage in the derivation analogous to (22a). Can Op in (22b) be shown to be the same element as the EC in embedded object position in (22a), as stipulated above? Op in (22b) is in an ungoverned position, as Fin is not a proper governor in GB terms.[7] Contreras (1993) argues based on empirical data involving empty operator constructions that ungoverned Op may be analyzed as [-a, +p]—i.e. the same feature matrix as *pro*.[8] This suggests that an Op in ungoverned position—such as the matrix [Spec, Fin] in (22b)—may

[7] While government has been argued in the MP literature (e.g. Chomsky 1995) to be ineligible for status as a UG principle, I assume it carries force at least as a descriptive device, if not a UG principle, especially with respect to Contreras' (1993) analysis of empty operator constructions.

[8] Key among Contreras' conceptual arguments is that [-p] ECs cannot appear in ungoverned position, since they are subject to the Empty Category Principle. Since the [+a, +p] EC (i.e. PRO) is also ruled out as a potential operator, this leaves [-a, +p] as the only possible analysis of ungoverned Op.

originate as *pro* in a position c-commanded by the position of Op at Spell-Out. I follow this suggestion and adopt Contreras' [-a, +p] analysis of ungoverned Op.

I assume in turn that ungoverned Op has the same properties in terms of binding and content recovery as *pro*—i.e. it is free and may take a discourse topic as its antecedent. This appears consistent with the SBC as discussed in subsection 2.3.2.3, which suggests that a [-a, +p] EC in either embedded [Spec, C] (such as in (15)) or matrix [Spec, Fin] (such as in (14)) may exhibit both the antecedent-selecting properties of *pro* and the variable-binding properties of Op. According to Contreras (1993, p. 24), standard (non-arbitrary) PRO, standard *pro* and ungoverned Op—all [+p] ECs—can all be discourse-licensed. I follow this generalization and assume that, in general, a [+p] EC may take any salient referent as an antecedent, whether the [+p] EC occurs in an A-position (as *pro*) or in [Spec, C/Fin] (as Op). However, after a [+p] EC is attracted to the matrix [Spec, Fin] (as in (22b)), the EC can only take a discourse referent as its antecedent, having no access to any c-commanding argument. Again, this property of natural language as expressed by the SBC accounts for the contrast generalized in (4) and formalized in (22). As stated in subsection 2.3.2.3, adoption of the Split-CP Hypothesis allows the discourse topic to be represented in the grammar, as in (21), repeated here:

(21) $[_{\text{TopP}}\ \varnothing_i\ [_{\text{FinP}}\ \text{Op}_i\ [_{\text{TP}}\ \text{DP V}\ [_{\text{CP}}\ \text{C}\ [_{\text{TP}}\ \text{DP V}\ t_i]]]]]$.

5 Potential problems

Before concluding, in this section I will briefly address a few problems for my account which are subject to further research.

5.1 The problem of language-internal CRJ variation

In this subsection, I discuss the possibility that the EPP feature in Fin may be optional within a language. As discussed in section 2, according to Nakamura (1991), the obligatory discourse licensing for the embedded object EC attested by Huang for Mandarin, and by Raposo for European Portuguese, does not obtain in Japanese—apparently contradicting Hasegawa (1984-1985). Consider again sentence (2) (repeated in (23) with relevant indexing added), which is structurally similar to (7a) (also repeated below) except for head-direction. While Hasegawa claims that obligatory discourse licensing is attested for (2), according to Nakamura, (2) allows matrix binding of the object EC:

(23) John$_i$-ga [$_{\text{CP}}$ [Bill-ga e_i nagut-ta] to] it-ta
John-NOM Bill-NOM ec hit-PAST COMP say-PAST
'John$_i$ said that Bill hit him$_i$.'

(7) a. Zhangsan shuo [Lisi hen xihuan *e*].
Zhangsan say Lisi very like ec
'Zhangsan said that Lisi liked (him/her/it/them).'

Based on this attested CRJ, conforming to (9a) (abstracting from order), Nakamura argues for the *pro* analysis for Japanese.

Such CRJs are significant in that, if accurately attested, they provide evidence for a licensed object *pro* with no overtly-realized Agr or clitic to provide identification of the EC. Crucially for present purposes, if both Hasegawa's and Nakamura's respective claims regarding the CRJs that obtain for (2) are empirically correct, this presents an interesting problem for any account of the empty object typology—namely, the possibility that object *pro* and the variable object EC can appear in the same language, even in the same environment, varying according to the speaker/hearer.

This suggests the possibility that the EPP feature in Fin proposed in this paper may be optional within a language, which would account for the variation in CRJs discussed here with respect to (2) and structurally equivalent sentences. Investigation of possible independent motivations for language-internal optionality of the EPP is unfortunately beyond the scope of this paper, and therefore I leave such investigation for further research.

5.2 The problem of selection by the EPP feature

There is one final question which needs to be addressed to further develop the account of the empty object typology I have proposed in this paper: Why does the EPP in Fin select the embedded object *pro*, and not the embedded overt subject, for attraction to [Spec, Fin]? The answer to this question may involve a closer look at how the feature content of *pro* may interact with the feature content in the complementizer layer, possibly in terms of the probe-goal framework of recent work within the MP (e.g. Chomsky 2001). Here I will tentatively suggest that, whereas the EPP in T attracts the VP-internal subject, the EPP in Fin is somehow blocked from attracting a DP which has already been attracted by another EPP within its scope, and therefore may only attract the most local syntactic object DP to its specifier. The EPP in Fin may also be interacting with another feature in Fin, possibly related to discourse properties. These questions are also beyond the scope of this paper, and I leave their investigation also to further research.

6 Conclusion

This paper has investigated the typology of the empty object, which has two distinct variants: object *pro* and the variable object EC. In order to account for attested cross-linguistic (and language-internal) variation between these two EC types, I have proposed here that *pro* is the more basic object EC type, reflecting the lexical and thematic structure of the associated predicate; and that the variable object EC is derived from object *pro* by movement driven by an EPP feature in the matrix complementizer Fin. If my analysis is correct, one can consider both of these two EC types to be, in essence, chains exhibiting identical properties with respect to antecedent selection: object *pro* is a trivial chain CH = (*pro*), while the Op-variable chain derived from *pro* is CH = (*pro*, *t*). In both

cases, *pro* is free and may select any salient referent as its antecedent, be it sentence-internal or discourse-salient. When *pro* (= Op) is in the matrix [Spec, Fin], it can only select a discourse or pragmatic referent as its antecedent (represented in my analysis as [Spec, Top]), which accounts for the obligatory discourse licensing observed in data such as (1) and (2). In the analysis proposed in this paper, the ultimate factor distinguishing these two EC types—and therefore the single parameter that determines the empty object typology—is the presence of the EPP feature in the matrix complementizer Fin that attracts *pro* to [Spec, Fin] to achieve convergence.

References

Chomsky, N. (1981). *Lectures on government and binding.* Dordrecht: Foris.

Chomsky, N. (1982). *Some concepts and consequences of the theory of Government and Binding.* Cambridge, Mass.: MIT Press.

Chomsky, N. (1986). *Knowledge of language: Its nature, origin and use.* New York: Praeger.

Chomsky, N. (1995). *The Minimalist Program.* Cambridge, Mass.: MIT Press.

Chomsky, N. (2000). Minimalist inquiries: The framework. In R. Martin, D. Michaels, & J. Uriagereka, (Eds.), *Step by step: Essays on minimalist syntax in honor of Howard Lasnik* (pp. 89-155). Cambridge, Mass.: MIT Press.

Chomsky, N. (2001). Derivation by phase. In M. Kenstowicz, (Ed.), *Ken Hale: A life in language* (pp. 1-49). Cambridge, Mass.: MIT Press.

Cole, P. (1987). Null objects in Universal Grammar. *Linguistic Inquiry*, 18, 597-612.

Contreras, H. (1993). On null operator structures. *Natural Language and Linguistic Theory*, 11, 1-30.

Hasegawa, N. (1984-1985). On the so-called 'zero pronouns' in Japanese. *The Linguistic Review*, 4, 289-341.

Hagstrom, P. (1998). Decomposing questions. Ph.D. dissertation, MIT.

Huang, C.-T. J. (1984). On the distribution and reference of empty pronouns. *Linguistic Inquiry*, 15, 531-574.

Huang, C.-T. J. (1989). Pro-drop in Chinese: A generalized control theory. In O. Jaeggli & K. J. Safir (Eds.), *The null subject parameter* (pp. 185-214). Dordrecht: Kluwer.

Miyagawa, S. (2001). The EPP, scrambling, and *wh*-in-situ. In M. Kenstowicz (ed.), *Ken Hale: A life in language* (pp. 293-338). Cambridge, Mass.: MIT Press.

Miyagawa, S. (2004). On the EPP. In N. Richards & M. McGinnis (eds.), *Proceedings of the EPP/Phase Workshop*, MIT working paper in linguistics.

Nakamura, M. (1991). Japanese as a *pro* language. *The Linguistic Review*, 6, 281-296.

Raposo, E. (1986). On the null object in European Portuguese. In O. Jaeggli &

C. Silva-Corvalan (eds.), *Studies in Romance linguistics* (pp. 373-390). Dordrecht: Foris.
Rizzi, L. (1986). Null objects in Italian and the theory of *pro*. *Linguistic Inquiry*, 17, 501-557.
Rizzi, L. (1997). The fine structure of the left periphery. In L. Haegeman, (Ed.), *Elements of grammar* (pp. 281-337). Dordrecht: Kluwer.
Williams, E. (1980). On predication. *Linguistic Inquiry*, 11, 203-238.

Jeff Stevens
jps@u.washington.edu