ON BOUND PRONOUN-LIKE INDEFINITES IN ENGLISH: AN EXTENSION OF THE THEORY OF INTER-N-BAR ANAPHORA

KOICHI NISHIDA

Tohoku University

It is argued that possessive indefinites in sentences like *John enjoys a student’s life* share common properties with bound pronouns in sentences like *Every man loves his wife*. The properties of indefinites of this kind are explained by the theory of inter-N-bar anaphora, proposed by Tsurusaki (1985) and developed by Hirose (1997). They are shown to have the status of N-bar constituents rather than full noun phrases (NPs), to describe the representative part of the subject referent, and to take a null determiner whose features are bound by a partitive operator involved in specific types of verb phrases. A new typology is given on the basis of the distinction between indefinite NPs and what are called “N-bar indefinites.”*

**Keywords:** inter-N-bar anaphora, representative parts, partitive operator, N-bar indefinites, part-focus context

1. Introduction

In this article, I discuss sentences having indefinites in possessive position, like those in (1), and their relevance to whole-part relations and to what Tsurusaki (1985) and Hirose (1997) call “inter-N-bar anaphora”:

(1) a. John enjoys a student’s life.
    
    b. John followed a brave man’s way into the battle field.

* Portions of this article were previously published in a *JELS* paper of mine (Nishida (2004)) in a different orientation, but they were completely reworked to create a new account. The examples whose sources are not mentioned are attested ones from the Internet and constructed ones, both of which were judged by native speakers. I am indebted to Peter Connell, Todd Enslen, Steven Hatfield, Vincent Scura, Tully Thibeau and Anne Thomas, who acted as informants and gave me helpful comments. I am grateful to three anonymous reviewers, Yukio Hirose and Akira Kikuchi for their advice and constructive criticisms that made me rethink almost everything in the previous version of this article. I am solely responsible for the remaining inadequacies. This research was supported in part by a Grant-in-Aid for Young Scientists (B) 21720134 from the Japan Society of Promotion of Science.
These indefinites are understood to describe the subject referents. As a first approximation, they have a close relation to bound pronouns in view of the fact that they occur where bound pronouns typically occur, as in the possessive position of a one's way-construction like (1b) (cf. Jackendoff (1997: 546)). I argue that the way they describe the subject parallels the way bound pronouns are anaphoric to the subject, as in John followed his way into the battlefield. It is shown that inter-N-bar anaphora is involved to determine the antecedent of the bound pronoun, and that the same mechanism is extended to determine what the possessive indefinites describe in sentences like the above examples. Specifically, I argue that possessive indefinites of this kind share with bound pronouns the N-bar status with a null determiner, and this is responsible for why they are taken to be descriptive of the subject. On these grounds, I call them “possessive descriptive indefinites” (PDIs).

It should be made clear at the outset that although this study is concerned with syntactic analysis of binding relations and that of nominal expressions of a specific kind, it adopts a very simplified version of sentence structures, to be found in Baker (1995) and McCawley (1998), for example. Instead of going into the details of sentence structures, I clarify the grammatical environments for PDIs in light of their relevance to partitivity. Partitivity has also been studied in formal semantics, but here, without engaging in formalization, I discuss what is not included in formal approaches, showing how partitivity is related to indefinites with reference to their interaction with intrasentential anaphora and discourse anaphora.

As de Hoop (2002) points out, there are many aspects which reflect partitivity in language, with quantity and aspect being two dominant reflections. Here we mainly deal with the partitivity based on time spans, which is, in some sense, a hybrid of the partitivity that is based on the quantity expressed by nominals and the partitivity that is based on the aspect expressed by verbs. As we will see in Section 5, there is also a type of partitivity which is based on discourse organization. This article is intended to show how each type of partitivity is relevant to the distribution and interpretation of indefinites.1

1 To illustrate one example of partitivity discussed in formal semantics, Filip (1999: 58, 172) argues, following Krifka (1992: 47), that the partitive operator PART can be obtained by combining the existential quantifier with λ-operators and the mereological part relation “≤,” as in (i). It relates an individual x to its proper part x̌, and can be used to represent a whole-part relation involved, for example, in John has a big nose, as in (ii).
This article is organized as follows. Section 2 gives basic facts about PDIs, focusing on their ties with physical parts and non-physical parts like time spans. Section 3 reviews previous studies on partitive quantification and inter-N-bar anaphora. Section 4 applies the theory of inter-N-bar anaphora to the descriptive relations involving PDIs. Section 5 proposes a new typology of indefinites on the basis of the distinction of indefinite NPs and what I call “N-bar indefinites.” Section 6 concludes this article.

2. Basic Facts about Possessive Descriptive Indefinites

In this section, I provide basic facts about PDIs, without going into detailed explanation. Since the differences in meaning between of-possessives and -’s possessives do not matter in our arguments here, I deal with both, taking the two to be positional variants.\(^2\)

First, the possessives in question are always indefinite. In (2), only with a can the possessive be taken to be descriptive of the subject:

\[(2)\] At 54, he still tingles with \{a/*a certain/*the/*his\} boy’s passion about new ideas.

As is clear from the unacceptability of a certain, the indefiniteness of PDIs is different in nature from that of indefinite NPs having existential quantificational force.

Second, as shown in the contrast of the discourse continuations in (3), PDIs do not introduce a discourse referent, which is different from ordinary indefinite NPs:

\[(i)\] \[\text{PART} = \lambda P \lambda x' \exists x[P(x) \land x' \leq x]\]
\[(ii)\] \[\lambda x' \exists x[P(x) \land x' \leq x]](\text{John})(\text{big nose})(\text{HAVE})

In this article, I do not use the PART operator as such, because the operator is designed for physical whole-part relations. They are different in kind from what I deal with in terms of whole-part relations which include as representative parts of a whole, property, time span or appearance, for example. Since these concepts, too, involve the mereological part relation, they can be formally decomposed and represented in similar, but more complex, ways. This may be worth pursuing, but, for now, is a task which falls outside the scope of this study.

\(^2\) There are few previous studies on indefinites of this kind. These indefinites are partially discussed in Rosenbach (2006: 95), who says that in (i), for example, the indefinite possessive is used for the purpose of comparison, and that the person in (i) does not “literally have a puppy’s eyelashes, but eyelashes that look like those of a puppy.”

\[(i)\] He had a puppy’s lush eyelashes, a head that invited stroking.

Rosenbach comments on such indefinite possessives in terms of metaphor, but does not address the questions about these indefinites that I address here.
(3) a. Mary gave me an elderly woman’s smile. *The elderly woman seemed sick.
    b. I looked at an elderly woman’s smile. The elderly woman seemed sick.

In (3b), an elderly woman in the first sentence introduces a discourse referent with which the elderly woman in the second sentence is coreferential, but such a coreferential relation does not obtain in (3a). This shows that PDIs are non-referential and descriptive in nature.

To make the same point in a different way, PDIs make answers to the questions introduced by what kind of or what rather than whose, as in (4):

(4) Q: {*Whose/?What/What kind of} status does Bill enjoy?
    A: He enjoys the status of a graduate student.

Unlike whose, which asks a question about an individual possessor, what kind of or what asks a question whose answer is satisfied by an instance, which is offered by Bill’s status in (4).

Third, unlike predicate nominals, PDIs need not express the real properties of the subject referent, as is clear from the fact that the following sentences are not contradictory:

(5) a. Sue enjoys the status of a permanent resident here, although she does not have the proper visa.
    b. At 34-years-old, Rosa looks more like she is pushing 50, yet displays the emotional maturity of a three-year-old.

PDIs can describe the subjects in terms of their temporary roles or images, too.

Fourth, the head nouns of the NPs with PDIs are required to denote or stand for the parts of the subject referent: in (6), with eye, a novelist describes Pat Mailer, but with fountain pen, it refers to another person:

(6) Pat Mailer used a novelist’s {eye/fountain pen} to write his articles.

The sense of partitivity relevant to PDIs is based not only on physical parts, but also on the time spans contained in the experience of the subject referent, since PDIs are available in sentences like those in (7), where nouns like language and status are used to stand for time spans that the subject referents have as their parts:

(7) a. Bill speaks the language of a leader.
    b. McLuhan has gained the {status/dignity/aura} of a cult hero.

Like physical parts, time spans and the conditions of how to use them are parts of an individual when it is seen from a four dimensional space-time perspective. In other words, a time span of an individual is a possession or
property which that individual has not in space, but in time, and thanks to which the individual is provided with time-bound characteristics.

Fifth, the verbs that occur with PDIs are inside-oriented in that they describe what takes place in or with the subject referent instead of what takes place outside of it, or between it and others. The PDI-reading disappears if the verb *speak* is replaced by *study* in (7a): while *speak* describes what takes place with the subject, *study* describes the relation between the subject and what exists outside of it. Similarly, the PDI-reading is not available in (8), either, since *observe* belongs to the same class of verbs as *study*:

(8) Bill observed the aura of a freedom fighter.

The relevant verbs for the PDI-reading have to express spatially co-present and temporally simultaneous relations between the subject referent and the time-bound characteristic expressed by the object noun; one can observe or study something which is remote to him, but the language one speaks is necessarily co-present with and simultaneous to his speech. In other words, these verbs share the abstract meaning CONTAIN, with which the presence of the subject entails the presence of the characteristic expressed by the object as its part.³

Some verbs are neutral to the distinction between the inside-oriented verbs and the outside-oriented verbs, for example, *discuss*. The example in (9) is ambiguous between the reading in which *a freelance writer* describes Bill or the one in which it refers to someone else. The former reading is available in (10a), since the non-restrictive relative clause makes clear that the experience of the subject referent contains the time span denoted by the object. However, there is no suggestion that the subject contains the time span in (10b), and so the indefinite is taken to be referential to someone else.

(9) Bill discussed the status of a freelance writer.

³ The concept of time span is closely related to the stage in Carlson’s (1980) sense or what are called “temporal parts” in the philosophical sense (cf. Hawley (2001)), but is different from them. Like temporal parts, the time spans are the parts that an individual has in time rather than in space. However, while stages or temporal parts of an individual, when put together in sequence, make a whole life of that individual, the time spans, in the sense used here, cannot be so aggregated. As illustrated by the dignity one gains, or the language one speaks, they are time-based possessions which are present only in specific periods of time that an individual has, and differ from the temporal parts in that they can recur in the same way. I am indebted to an anonymous reviewer for bringing this difference to my attention.
(10) a. In this seminar, Bill Smith, who has written widely on medical issues, discusses the state of a freelance writer.

b. In this seminar, Bill Smith, who has long managed a publishing company, discusses the state of a freelance writer.

This means that PDIs are licensed not only by a combination of an inside-oriented verb and an object noun representing a time span, but also by contexts which describe inner aspects of the topic referent, as we will argue in more detail in Section 5.

Sixth, attention is given to the subject NP in the form of N₁’s N₂. When N₂ denotes an individual like brother, the description of a PDI applies to N₂ rather than to N₁, as in (11a). On the other hand, when N₂ denotes a part of N₁, it appears to apply to N₁, as is illustrated by nouns denoting time spans or body parts, as in (11b, c):

(11) a. John’s brother showed the affection of a Saint.

b. Although Joseph is still only 24 years old, his performance displayed the musical maturity of a pianist twice his age.

c. Even in the poor light, his thin face and his deep eyes showed the sensitivity of a scholar.

This is a natural outcome of the fact that the verb phrases (VPs) containing PDIs describe, not the subject referent as a whole, but its parts, especially its time spans whose characteristics are represented by its performance, as in (11b), or by its expression of face and eyes, as in (11c).

Lastly, PDIs can also occur outside of the object NPs of transitive verbs, as in the postverbal NPs of there-sentences like (12), taken from Woisetschlaeger (1983: 144):

(12) There is a young man’s vigor in his step.

As I argue in Section 5, PDIs occur in what I call “part-focus contexts,” and a young man in (12) is an instance of PDIs in such contexts. Indefinites in these contexts can describe parts of an individual, for in there-sentences whose locative prepositional phrase is introduced by in, the postverbal NP denotes what is in the location, i.e. a part of the place or the time span, referred to by the prepositional phrase. In (12), (his) step denotes one time span of the individual referred to by his, which contains a young man’s vigor as its part.⁴

⁴ Woisetschlaeger (1983: 144) says that a young man’s vigor in (12) is definite in nature, as it is paraphrased into the vigor of a young man. Thanks to the obligatory indefiniteness of PDIs, there-sentences like (12) appear to exhibit the same kind of definiteness
All these properties follow from an N-bar analysis of PDIs, as is detailed in Section 4, where we will argue that expressing a time span of an individual is equal to expressing a kind of part of that individual, and thus, inter-N-bar anaphora can be extended to express it.

3. Review of Previous Studies

In this section, I first review Rooryck (1997), with reference to a partitive operator involved in the verb *be* as a passive auxiliary. Then I review Tsurusaki’s (1985) and Hirose’s (1997) analyses of bound pronouns, explicating what they call inter-N-bar anaphora. I extend Rooryck’s idea to argue that there are other kinds of VPs involving a partitive operator, which plays a crucial role in my analysis of PDIs, in which they are, like the bound pronouns in Hirose’s analysis, N-bar constituents with operator-bound null determiners.

3.1. Partitive Quantification

In an attempt to answer why passive predicates have to express the properties attributed to the subject, Rooryck (1997) argues that *be* is a key part of the meaning of passive sentences. Rooryck (1997: 203) points out that there are two types of copular sentences that express whole-part and part-whole relations, and the two are reverse to each other, as shown in (13):

(13) a. The whole is {its/a number of/*the} parts.
   b. The parts are {*their/*the/a} whole.

In (13a), *be* means ‘hold’ or ‘contain,’ and in (13b), *be* means ‘constitute.’ The definites are excluded from both predicates in (13), for definiteness, meaning entirety, is incompatible with the whole-containing-part and the part-constituting-whole relations: the former relation holds when each of effect as *there*-sentences with what Belletti (1988) calls NPs assigned partitive Case, as shown by the contrast in *There is [a/*the] man in the garden*. However, while NPs assigned partitive Case mean ‘some of’ or ‘part of a larger set’ (Belletti (1988: 2)), they do not mean or refer to such parts themselves. Instead, they describe those parts, and their indefiniteness comes more directly from the nature of descriptive expressions. In this sense, PDIs are akin to descriptive indefinites like *of* a child in (i), which describes a part of Dylan’s nature:

(i) There is something of a child in Dylan’s nature.

Unlike PDIs, however, descriptive indefinites of this kind are part of indefinite NPs, occurs in the form of the *of*-possessive preceded by *something* or *much*, and does not have the -’s counterpart. It remains to be seen whether it is possible to unify them with PDIs.
the parts contained is smaller, and less complete, than what contains them, and the latter holds when what parts constitute is one form of whole rather than a unique form of whole. Rooryck calls the be in (13a), expressing the former relation, quantificational be.

Rooryck (1997: 206–207) argues that quantificational be occurs as the passive auxiliary, functions as a partitive operator which binds the trace of the passive morpheme, thereby relating “the surface subject to the participial predicate in such a way that the participial predicate is interpreted as a partitive property of the surface subject.” He shows this function with the paraphrase in (14b) and the contrast in (15):

(14) a. The Aztec empire is destroyed by Cortéz.
   b. The Aztec empire has as a defining property the fact that it is destroyed by Cortéz.

(15) a. {Eugine/Everyone} knows Eustache.
   b. Eustache is known by {*Eugine/everyone}.

Rooryck (1997: 207) says that because in passives, quantificational be makes the predicate express a defining part of the whole quantity denoted by the subject, only the predicate that is definitive to the subject is compatible with them. While the fact that everyone knows Eustache socially counts as his defining property, the fact that one person knows him does not. Thus, only the quantified NP is acceptable in the by-phrase of the passive in (15b). 5

As is clear from the above examples, what counts as a part in passives is a defining or intrinsic property. However, it is reasonable to think that besides intrinsic properties, other kinds of parts like time spans may enter into the whole-part relation in (13a). Actually, there are sentences whose subject and predicate stand in a whole-part relation in the temporal sense.

To extend Rooryck’s analysis, I argue that if there are VPs that form a whole-part relation in their clauses as it is formed by quantificational be, or BE[CONTAIN] to stress its lexical sense, then these VPs can function as partitive operators which bind a variable in their scope, relating the subject to the predicate in such a way that the latter is a part of the former. This is

5 As an anonymous reviewer points out, the unacceptable example in (15b) turns into an acceptable one when the preposition by is replaced by to, as in Eustache is known to Eugine. This is certainly the case, but, here I adopt Rooryck’s (1997: 229) position that this contrast is the same kind as the one in Several services are included {in/*by} that price, and such apparent passive-like sentences involve adjectival predicates rather than passive ones, meaning that known (to) is a stative adjective. See Morita (2003) for relevant discussions.
the case with the VPs in which PDIs occur.

3.2. Inter-N-bar Anaphora

Tsurusaki (1985) argues that anaphoric relations hold not only at the level of NPs, but at the level of N-bar constituents. The former relation of inter-NP anaphora holds when the antecedent is a referring expression, as in (16a): in this case, *his* is a referential pronoun and takes as its antecedent the NP *that man* as a whole. The latter relation of inter-N-bar anaphora applies to bound pronouns with quantified antecedents, and, with the conditions specified below, to those with referential antecedents. For example, in (16b), the antecedent of the bound pronoun *his* is not the NP *every man*, but the N-bar *man*; because both *man* and *his* are in the scope of the same quantifier *every*, the variable *x* introduced by *man* in the sense explicated below, determines the value of *his*, as represented in (16c).

(16) a. That man loves his wife.
   b. Every man loves his wife.
   c. \(\forall x: \text{man} \ (x) \ x \text{loves } x^{'}s \text{ wife}\)

To capture the kind of anaphora involved in (16b), Tsurusaki (1985: 229) proposes the generalization in (17), where N′ is a shorthand for N-bar.

(17) If NP\(_1\) c-commands NP\(_2\) and NP\(_2\) is a pronoun, then N′\(_2\) may function as a variable bound by N′\(_1\).

As Hirose (1997: 172) notes, in (17), “N′\(_2\) may function as a variable bound by N′\(_1\)” is misleading, for N′\(_1\) is not an operator that binds N′\(_2\): rather, it is to be read as “N′\(_2\) may function as a variable anaphoric to N′\(_1\)” This formulation of inter-N-bar anaphora is faithful to the logical representation of (16c).

To distinguish himself from Tsurusaki, Hirose (1997: 175) analyzes pronouns in terms of internal structure, saying that the referential pronoun *he* is an NP-proform (*he\(_1\)*) analyzed as (18a) and the bound pronoun *he* is an N-bar proform (*he\(_2\)*) analyzed as (18b):

(18) a. \([\text{NP} \ he]\)
   b. \([\text{NP} ^{\text{Det} \ \delta} \ [N \he]]\) (where \(\delta\) is a null determiner with the features [+anaphoric, +bound])

This means that *he\(_1\)* is an NP-equivalent, and like an ordinary NP, it can be used referentially by itself. This is the case with its deictic use, as in *Look at him*. On the other hand, *he\(_2\)* itself is an N-bar constituent which, in Hirose’s account, specifies a semantic property of ‘being a male,’ but does not refer to a particular male (cf. Hornstein and Lightfoot (1981: 21)). In order to capture the fact that *he\(_2\)* is used as a bound pronoun, Hirose argues
that it takes a null determiner, δ, which is specified with two features [+anaphoric, +bound].

As in (16c), the theory of inter-N-bar anaphora assumes that the N-bar constituent of the antecedent is substituted by a variable which is an entity rather than a property. In this respect, I differ slightly from Hirose (1997) and Hornstein and Lightfoot (1981) in assuming that the N-bar denotes an instance or representative part of the group referred to by a quantified NP (cf. Langacker (1991: 113), van Hoek (1997: 149)). In general, a referring expression or a full NP refers to an individual, which is clearly an entity. On the other hand, an instance or representative part differs from an individual in that it lacks its own identity so as to be replicable by the quantifier every, but it still is an entity. This assumption is more faithful to representation (16c), because it allows the N-bar of a quantified NP to introduce an entity having the property it expresses, which is substituted by a variable to which he₂ is anaphoric. Later we will discuss more about what the N-bar, or the N-bar equivalent in a referring expression, denotes, in connection with the antecedent of a bound pronoun.7

The postulation of he₂ is supported by the fact that it can occur where he₁

---

6 Since Abney’s (1987) determiner-as-head theory has been widely accepted, most current studies in the generative syntactic framework adopt the DP-analysis of nominal expressions, but the choice of the DP-analysis over the NP-analysis has not been decided (see Van Eynde’s (2006) arguments for the NP-analysis, for example). Here, without committing myself to the debates over the choice, I adopt the NP-analysis for the sake of terminological consistency with the Tsurusaki-Hirose line of inquiry, and, as Hirose (1997: 184) does, leave open the possibility that the present account can be recast in terms of the DP-analysis as well.

7 As one reviewer points out, the N-bar proforms are closely related to the so-called paycheck pronouns, which Karttunen (1969: 114) first discussed with the example in (i):

(i) The man who gave his paycheck to his wife was wiser than the man who gave it to his mistress.

In (i), the underlined it is anaphoric to (or means the same as) his paycheck, but is not coreferential with it. It is a case of what Geach (1962) calls the pronoun of laziness, and is a shorthand for saying the same NP as before, for example his paycheck in (i). As Karttunen says, the paycheck pronoun occurs always with his in the sense of his own, which means his in his paycheck in (i) is an instance of he₂. Huddleston and Pullum (2002: 1475) note that it cannot be used with referential antecedents, and the paycheck-pronoun reading is excluded from him in Jill adores his son, but Liz doesn’t like him at all. Since the N-bar proform his is anaphoric to the N-bar antecedent, in (i), man, it, too, denotes an instance of the property expressed by the N-bar without reference to an individual, and the instance so denoted is replicable. It doesn’t make sense for one instance to be coreferential with another when both have the same property, as in (i); both are replicable, and what they possess are also replicable. Thus, the it in question is
cannot. This is illustrated by NPs free from the i-within-i condition, which, to borrow the words of Hoeksema and Napoli (1990: 403), “blocks co-indexation of a phrase with one of its proper subconstituents,” as schematized in (19), where $a$ stands for a subconstituent of such a phrase:

(19) $[^{…}a_{i}^{…}]$

Hirose (1997: 173–175) points out that this condition applies to NPs in which a prepositional phrase is added to a noun, i.e., it is complement to N, as in (20a), but not to NPs in which a prepositional phrase is added to an N-bar, i.e., it is adjunct to N-bar, as in (21a):

(20) a. $[^{…}\text{the owner of his own boat}]$
   b. $[^{\text{NP}}^{\text{the}}[^{\text{N}}^{\text{owner}}][^{\text{PP}}^{\text{of his boat}}]]$

(21) a. the woman in her thirties
   b. $[^{\text{NP}}^{\text{the}}[^{\text{N}}^{\text{1 woman}}][^{\text{PP}}^{\text{in her thirties}}]]$
   c. $[^{\text{the } x: \text{woman } (x) \text{ and } \lambda x [x \text{ is in } x^{'s} \text{ thirties}] (x)]$

As Radford (1988: 186) says, word-level categories like N cannot be replaced by proforms, and so the pronoun cannot stand as a proform to N in (20a). But intermediate bar level categories allow proforms, and so the pronoun can stand as a proform to N-bar, as in (21a).

Hirose argues that N-bar proforms like her in (21a) are bound by a $\lambda$-operator, for prepositional phrases of this kind express the properties of the referents of the NPs that they modify. Thus, the meaning of the NP in (21a) is represented as in (21c), where her is replaced by the variable bound by the $\lambda$-operator, and is paraphrased as saying that the woman has the property of being $x$ such that $x$ is in $x$’s thirties.

It is widely acknowledged that the indefinite pronoun one is (or at least, can be) an N-bar proform (cf. Radford (1988), Baker (1995), McCawley (1998)), as is illustrated by the following examples, taken from Baker (1995: 63):

(22) a. The student of physics with long hair is more intelligent than the one with short hair.
   b. *The student of physics is taller than the one of chemistry.

In (22a), one is a proform to the N-bar student of physics, to which the adjunct with long hair or with short hair is attached. In (22b), however, one cannot replace student, because it is not an N-bar, but an N complemented anaphoric to the NP that contains a replicable instance, and so it, too, denotes a replicable instance instead of being coreferential with it.
by *of physics* or *of chemistry.*

Hirose takes up this N-bar status of *one* to argue that generic *one* is also an N-bar constituent, and that because of their common status, *he* overlaps in distribution with generic *one*, as is shown by the possible alternation between *one’s* and *his* in (23):

(23) One must do {*one’s/his*} duty.

The features of the null determiner of generic *one* are different from those of *he*: the null determiner of *he* is specified with [+anaphoric] and [+bound], while that of *one* does not have the [+anaphoric] feature, but its [+bound] feature is further specified as [+bound by generic operator]. In Section 4, I will argue that the null determiner of PDIs is like that of *he* in that it is specified as [+anaphoric], but is also like that of generic *one* in that it is specified with the kind of operator which binds it.

Hirose (1997: 177–179) points out that both generic *one* and *he* can be modified by a restrictive relative clause, which is adjunct to an N-bar constituent, as in (24):

(24) a. One who enters a monastery submits himself to God.

     b. He who makes no mistakes makes nothing.

As it is free from the [+anaphoric] feature, generic *one* can stand alone in subject, as in (23). By contrast, *he* has to be accompanied by an antecedent because of its [+anaphoric] feature: in (24b), *he* occurs in subject position because, here, it can find its antecedent in the N-bar part of relative pronoun *who*, which, Hirose (1997: 182) decomposes into the structure in (25a):

(25) a. [[NP [Det wh-] [N’ -one]]]

     b. Who that you know is likely to enter the contest?

---

8 Besides the use as an N-bar proform, *one* has an NP-proform use, which is involved in what Grinder and Postal (1971) call identity-of-sense anaphora, as illustrated in (i):

(i) Larry married a nurse who owned an iguana but Pete did not marry one.

In (i), *one* is a proform for *a nurse who owned an iguana*, which is different in reference from, but is identical in sense with, the preceding NP *a nurse who owned an iguana*. Although I do not discuss the NP-proform *one* here, one comment is in order. It is a kind of the numeral *one*, as in the first occurrence of *one* in *You run your business for many reasons, and one important one is to make a profit*. It is plausible to assume that the NP-proform *one* has an unrealized N-bar proform *one*, as suggested in the structure [[NP [Det one] [N (one)]]], in which the N-bar *one* guarantees the identity of sense with the antecedent headed by a singular count noun and the NP-proform *one* introduces a new discourse referent. The N-bar *one* is unrealized, probably for a phonological or functional reason to avoid redundancy. The same structure is relevant to another (one) in examples like *I don’t like this tie, show me another (one)*.
Hirose’s decomposition is based on McCawley (1992), who notes that the relative who may be restricted by a relative clause, as in (25b), showing that it contains an abstract N-bar element which is equivalent to the -one part of indefinite pronouns like someone and anyone. In this way, he$_2$ in (24b) succeeds in being anaphoric to the N-bar one in who, obtaining a parallel relation with his in (23), which likewise is anaphoric to one in subject.

In (24), the [+bound] feature of he$_2$ and the [+bound by generic operator] feature of generic one are bound by the generic operator involved in generic sentences in the present tense (cf. Diesing (1992)). As in (26), he$_2$ and generic one are excluded from the past tense sentences that refer to a particular time and place, for these sentences lack the operator:

(26) *{One who/He who} parked that car has no manners at all.

Thus, the feature specifications of the null determiners restrict the kinds of contexts in which related N-bar constituents like he$_2$ and generic one may occur.

3.3. Inter-N-bar Anaphora and Partitive Operator

So far, most examples of inter-N-bar anaphora have involved quantified antecedents like every man, whose N-bar constituent, i.e. man, is the antecedent of the bound pronoun his, as in (16b). However, inter-N-bar anaphora also obtains in the cases of referential antecedents. Reinhart (1983: 150) points out that the second conjunct of the sentence in (27a) is ambiguous between the reading in (27b), where the understood pronoun in the second conjunct is coreferential with his in the first conjunct, and the reading in (27c).

(27) a. Felix hates his neighbors and so does Max.
   b. Max hates Felix’s neighbors.
   c. Max hates Max’s neighbors.
   d. (λx (x hates x’s neighbors)) (Felix) and (λx (x hates x’s neighbors)) (Max)

Reinhart argues that the reading in (27c) is obtained from an open formula x hates x’s neighbors, which is satisfied by Felix in the first conjunct, and by Max in the second. This is represented in (27d), in which his in (27a) is a bound pronoun.

As is indicated by the λ-representation in (27d), the antecedent of the bound pronoun is not the whole individual referred to by Felix or Max, but the property of the individual. The advantage of the theory of inter-N-bar anaphora is that in the cases of referential antecedents, it is able to specify the antecedent of a bound pronoun, or the bound reading of a pronoun like
his in (27a) as the N-bar element of a referring expression, i.e. a representative part of the referent of that expression, a property, a viewpoint or a representation of that referent, for example. Thus, aside from the reading of reference to someone else in the context, examples like John loves his wife are ambiguous between the coreferential reading of his (his$_1$) and the bound pronoun reading of his (his$_2$) (cf. Hirose (1997: 172)). In the latter reading, the antecedent of his$_2$ is not John as he is seen as a whole individual, i.e. an individual about whom the speaker sees his whole as a third party. Rather, it is a viewpoint of John which represents himself, with which the speaker identifies to see him as he sees himself.\(^9\)

As an anonymous reviewer points out, the bound pronouns with referential antecedents are also found in what Helke (1973) calls “restricted possessives,” i.e. possessive pronouns in idiomatic VPs involving object nouns denoting body- and spirit-parts, as in (28):

\[(28) \begin{array}{ll} a. & \text{We nodded our heads. / I nodded my head. / *I nodded our heads.} \\ b. & \text{The poor girl lost her mind. / *The girl’s father lost her mind.} \\ c. & \text{*Her mind was lost by the girl.} \end{array} \]

Helke notes that the object NPs with restricted possessives behave like reflexives; they agree in number with the subject, as in (28a), they are anaphoric to the local antecedent, as in (28b), and the sentences involving them cannot be passivized, as in (28c).

When cast in terms of inter-N-bar anaphora, the restricted possessive is an

\(^9\) As noted by an anonymous reviewer, the present account of the N-bar element as denoting a representative part of the antecedent referent also makes sense of the metonymic use of reflexive anaphors, as shown by the following examples, offered by Abusch (1989: 5). In both examples in (i), himself is intended to mean ‘his (=Norman Mailer’s) book’:

\[(i) \begin{array}{ll} a. & \text{Norman Mailer reads himself before going to sleep.} \\ b. & \text{*Norman Mailer dropped himself from the third floor.} \end{array} \]

With Hirose (1997: 174), I assume that inter-N-bar anaphora holds between antecedent and reflexive. I also assume, along the lines of the present account, that the VPs with metonymic reflexives involve a representative part-variable. A book can represent the writer’s mind and can be the answer to the question of who the writer is when it is the object of reading, but not when it is the object of dropping. Thus, the reflexive in (ia) can find Norman Mailer as its antecedent because here he is a reader with his mind active in reading, which offers the N-bar antecedent to it, satisfying the variable in the VP, thereby making it stand for his book. By contrast, the reflexive in (ib) cannot find such an N-bar antecedent, since here Mailer is not concerned with understanding what the book represents, and so his mind is unavailable. See Jackendoff (1992: 11), who cites Abusch (1989) to make a similar observation.
instance of $he^2$ which is anaphoric to the N-bar element of the antecedent, i.e. its representative part. However, here is a question of what the N-bar element stands for, or what the representative part of an individual is. This question can be answered once we see that a representative part of an individual has an analogous status with an instance of a group; just as the latter can be replicated to come in the same group, so the former can be replicated to come in the same individual. Since the representative part represents an individual, it qualifies as an entity. Thus, the N-bar element of a referring expression fits for the antecedent of inter-N-bar anaphora; it can be specified in various ways, and so predicates for it contain a part-variable required to be bound by some operator or other to specify its value. For example, when bound by a $\lambda$-operator, as in (27d), it is specified as a property of an individual, by which the bound pronoun is anaphoric to the N-bar property-element of the antecedent.

Turning back to the idiomatic VPs in (28), we see that the relevant verbs denote what takes place in the subject referent and the object NPs denote its proper parts. This means that like BE\(_{[\text{CONTAIN}]}\), the VPs make a whole-containing-part relation with the subject and involve a partitive operator which binds the part-variable to specify its value. Since these VPs are based on the body- and spirit-parts that make physical and emotional appearance of a person, the partitive operator in them specifies the part-variable as the appearance-part of a person, by which the restricted possessive is anaphoric to the N-bar appearance-element of the local antecedent. Thus, the restricted possessives are N-bar proforms like $he^2$ in (18b), but their null determiner is further specified as \(+\text{anaphoric, +bound by partitive operator}\).

### 3.4. Summary of Section 3

The insight of the theory of inter-N-bar anaphora is that an N-bar constituent may occupy the surface NP position as long as the null determiner’s features of that constituent are satisfied by an appropriate operator. The N-bar proforms are anaphoric to a representative part of the referent of the antecedent, for example, an instance of a group or an appearance of a person. Tsurusaki (1985) and Hirose (1997) are concerned only with anaphoric relations involving pronouns, and do not deal with dependency relations of other categories. In the next section, I am going to account for the distribution and interpretation of PDIs, showing that the Tsurusaki-Hirose line of inquiry can be rightly extended to accommodate them.
4. An Extension of the Theory of Inter-N-bar Anaphora

In what follows, PDIs are analyzed as N-bar constituents, like \(he_2\) in (18b). It is shown that the theory of inter-N-bar anaphora can deal not only with a closed class of pronouns, but also with other N-bar constituents which likewise take a null determiner with the \([+\text{anaphoric}, +\text{bound}]\) features. The null determiner of \(he_2\) is typically satisfied by a universal quantifier. If PDIs have a similar null determiner, then we have to clarify what quantifier or operator is involved in satisfying their null determiner. I argue that VPs that accept PDIs involve a partitive operator which binds the part-variable in their null determiner which is anaphoric to the representative parts of the referents of their subjects.

4.1. Indefinite NPs and N-bar Indefinites

There is evidence that Hirose’s account of \(he_1\) and \(he_2\) applies to indefinite singulars, too, which, I propose, are to be distinguished in two structures, as shown in (29):

\[
\begin{align*}
(29) & \quad \text{a. } [\text{NP } [\text{Det } a] N] \\
& \quad \text{b. } [\text{NP } [\text{Det } \delta] [\text{N'} a N']] (\text{where } \delta \text{ is a null determiner with the features } [+\text{anaphoric to the N-bar element of the local antecedent}, +\text{bound by partitive operator}])
\end{align*}
\]

In (29a), \(a\) is a determiner with an existential quantificational function, and makes an NP which can be used to introduce a discourse referent. In (29b), on the other hand, indefinites are assigned the same N-bar structure as \(he_2\) in (18b), and so, I call them “N-bar indefinites.” Their indefinite article is a prenominal adjective which, I argue, has the sense of ‘expressing an aspect of.’ We will have more to say about the adjectival \(a(n)\) in Section 5.

With the features in (29b), the null determiner of a PDI like the one in (30a) can be paraphrased as \([\text{John’s representative part } x \text{ as } (\text{a student})]\text{’s life}, where the PDI is turned into a description of the part-variable in it. The clause structure of (30a) is roughly represented in (30b), in which the partitive operator, PO, in the VP binds the part-variable:

\[
\begin{align*}
(30) & \quad \text{a. } \text{John enjoys } [[\delta] \text{ a student}]\text{’s life.} \\
& \quad \text{b. } \text{John } [\text{VP } \text{PO}_i \text{ enjoys } [[\text{local antecedent’s part-variable } x_i \text{ as}] \text{ a student}]]\text{’s life]}
\end{align*}
\]

This structure is based on the observation that like BE\(_{[\text{contain}]}\) and the idiomatic VPs in (28), VPs like \(\text{enjoy } (\text{one’s}) \text{ life}\) make the whole-containing-part relations with their subject, and thus function as partitive opera-
tors. Such VPs can be realized by those consisting of verbs denoting what takes place in or with the subject and object nouns denoting time spans, *life* or *status*, for example. Since the relevant parts are time spans, the PO involved in the VP binds the null determiner’s part-variable to specify it as an individual’s time span, thanks to which the PDI is taken to describe a time span of the referent of the local antecedent.

Here I mainly deal with the VPs whose object nouns denote or stand for time spans, and the PO in them binds the part-variable to make it represent the time span of an individual. A similar treatment is given to the VPs whose object nouns denote physical parts like those that occur with restricted possessives, and their PO specifies the part-variable as the appearance of an individual. This applies to examples like (6), which has a body-part object *eye*, or to *This diagram takes the form of a tree*, where *a tree* describes the subject’s appearance.

4.2. VPs of the BE\{CONTAIN\} Type as a Source of Partitive Operator

There are at least three types of VPs that involve PO in a way that BE\{CONTAIN\} does. The first type is a class of VPs whose inside-oriented transitive verbs take object nouns denoting or standing for time spans, as in *enjoy (one’s) life*. The second is a class of VPs whose intransitive verbs take cognate objects, as in (31a). The third is a class of VPs whose intransitive verbs are modified by adverbial prepositional phrases, as in (31b):

\[(31) \quad a. \quad \text{I once lived the life of a millionaire.}\]
\[b. \quad \text{Mr. Haywood arrived in Moscow with the aura of a martyr.}\]

Like object nouns of the first type, cognate objects denote time spans contained in the action or state expressed by the intransitive verbs. Similarly, prepositional phrases like the one in (31b) contain an NP whose head noun denotes a time span contained in the action or state expressed by the VP. Since these two types of VPs are the same as the first type in expressing what takes place in or with an individual rather than what takes place between it and others, they likewise involve PO to bind the part-variable in the null determiner of the N-bar indefinites, thanks to which they come to describe the subject.\[10\]

---

\[10\] Rooryck (1997) takes up BE\{CONTAIN\} in (13a) as a partitive operator and does not discuss BE\{CONSTITUTE\} in (13b). I, too, focus on VPs of the BE\{CONTAIN\} type here, but VPs of the BE\{CONSTITUTE\} type may also be relevant. The sentences in (i) have possessive indefinites as parts of their subjects, and are similar to sentences with backward
Since the operator is involved in these types of VPs, it cannot be available when the time span NP is not a constituent of the relevant VP. Thus, when passivized, sentences with PDIs become unacceptable, for that NP does not make a VP with the verb in (32a):

(32) a. *A student’s life was enjoyed by John.
   b. A student’s life was observed by John.

In (32a), a student’s life is put in subject position, and its partitive-variable cannot be bound by the PO, which has a VP as its scope. Moreover, with the passive be as another partitive operator, the subject in (32a) is wrongly made a whole that contains the property of being enjoyed by John, leading to a contradiction between the PDI reading in which a student’s life is a part of John and the passive reading in which John is a part of a student’s life (cf. Rooryck (1997: 209)).

On the other hand, since observe is an outside-oriented verb, the VP it heads does not involve PO, and so does not accept a PDI; instead, it accepts an indefinite NP which introduces a discourse referent. Thus, the passive in (32b) is acceptable as a sentence about the referent of the indefinite NP.

The example in (33a) is acceptable with the PDI reading of a soldier, because courage denotes a mental part of an individual, and the VP display courage involves PO to bind the part-variable in the indefinite’s null determiner. When passivized, as in (33b), this sentence becomes unacceptable for the same reason as (32a):

(33) a. John displayed a soldier’s courage in the face of the enemy.
   b. *A soldier’s courage was displayed by John in the face of the enemy.

By contrast, the VP display a uniform does not involve PO, because a uni-


(i) a. A cute teenager’s face brought Jane into stardom.
   b. A famous lawyer’s status made John popular with politicians.

In (ia), a cute teenager describes Jane, and in (ib), a famous lawyer describes John, and both share the sense that the parts or time spans denoted in subject constitute the later life of an individual referred to by the object. I suggest that the VPs for the “backward” PDIs are of the BE[CONSTITUTE] type, and that they relate a time span to an individual, thereby making a part-constituting-whole relation in the sentences. Two questions arise about the backward PDIs. First, does their null determiner, if any, have the same features as those in (29b)? Second, do the VPs for the backward PDIs function as a kind of operator in the way that the VPs of the BE[CONTAIN] type do? These questions seem to have positive answers in light of the present account, but they have to be left open for future research.
form is not a part of an individual. The PDI reading of a soldier does not obtain in (34a), and so the passivized example in (34b) is acceptable as a sentence about a particular soldier:

(34) a. John displayed a soldier’s uniform in the face of the enemy.
    b. A soldier’s uniform was displayed by John in the face of the enemy.

These contrasts follow from the internal structure of N-bar indefinites in (29b), thanks to which they can occur where they are bound by PO.11

As we have seen in (28) and (32)–(34), the PDIs have basically the same distribution as the restricted possessives, for both are bound by the same kind of partitive operator. However, there is one difference as to their “antecedents.” While the restricted possessives are anaphoric to the strictly local antecedents, the antecedents of the null determiners of PDIs may have a part-denoting noun in them. This difference comes from their internal structures. The restricted possessives are pronouns, and so are entirely substituted by the part-variable. On the other hand, the null determiner followed by a PDI, as in (29b), is substituted in one part by the part-variable and in another part by the as-equivalent to introduce its description. This internal structure allows the antecedent to have a parallel form to a PDI, and so it can contain a part-denoting noun as the N-bar antecedent to be described by a PDI.

Note that unlike the restricted possessives that have strictly local antecedents alone, reflexives can allow part-denoting nouns to be added to their antecedents, as in (35):

(35) a. {John/*John’s face} blinked his eyes.
    b. John betrayed himself.
    c. {John’s words/John’s look on his face} betrayed himself.

I do not go further into this issue, but this suggests that reflexives may consist of the determiner-part (him-, your-) and the part-descriptive part (-self), and have a parallel structure to the null determiner followed by a PDI,

11 As one reviewer notes, in contrast to the unacceptable passive sentences, cleft sentences like those in (i) are acceptable, although the NPs with PDIs are not inside of the VPs:

(i) a. It is a student’s life that he enjoys.
    b. What Bill enjoys is a student’s life.

In cleft sentences, the verb governs the trace of a student’s life, thanks to which the relevant VP is reconstructed. Thus, the NPs with PDIs parallel reflexives in the cleft sentences that exhibit what Higgins (1979) calls syntactic connectedness, as in What he saw was himself.
thereby allowing a parallel form to the antecedent.

As a piece of evidence that PDIs are in the scope of PO, they can be modified with a restrictive relative clause if it does not make reference to specific time and place, as in (36):

(36) a. Luther displayed the maturity of a musician who reflects upon his music both on and off the stage.

b. *Luther displayed the maturity of a musician who played the guitar well here yesterday.

Because the PDI describes the part-variable whose value is obtained by partitioning an individual into parts so as to extract one, the PDI has the referential range which is likewise partitioned; thus, the clause modifying a PDI has to express a situation which can be partitioned. Unlike the past tense clause in (36b), the present tense relative clause in (36a) expresses a habitual situation, which, Declerck (1991: 280) says, is unbounded, homogeneous and “dissective.” In other words, it can be partitioned into smaller sub-situations of the same nature. Because the PDI in (36a) has this dissectivity, but that in (36b) does not, only the former may describe the part-variable, which is bound by PO to have a time span value.

Since PDIs depend on the part-variable whose value is specified by PO in the VP, their descriptions can be free from the real properties of the subject referent, as in (5). They do not describe the referent as such, but rather describe representative parts of it, whose values depend on the types of VPs having the CONTAIN sense. For example, object nouns of VPs like enjoy life or display maturity denote time spans, and so the PO in them specifies the part-variable as an individual’s time span. Such time spans are present with an individual only during the time when it engages in a specific activity, and vanish as the activity ends. Thus, the subject referent can be described by a PDI whose description lasts so far as the situation denoted by the relevant VP lasts, which means that the content of its description can be independent of the referent’s real properties that hold independently of the time flow.

4.3. N-bar Indefinites and the i-within-i Condition

As in a woman, in her thirties, the pronoun in a prepositional adjunct like in one’s thirties can be coindexed with the head of the NP the adjunct modifies, without incurring the i-within-i condition. The same is true of NPs modified with a prepositional adjunct which has a possessive indefinite in place of a possessive pronoun, as in (37):
(37) a. a man with a lion’s heart  
   b. an adult in a child’s body  
The NP in (37a) allows an unnatural reading in which there is a man who has in his hands a lion’s heart separated from the body. In this case, a lion itself is taken to be an indefinite NP having existential quantificational force. But example (37a) has a more natural reading in which a lion describes the NP that the prepositional adjunct modifies. This reading follows from a partitive operator involved in the adjunct and the N-bar status of a lion.

Prepositional adjuncts of this kind are typically introduced by with and in, both meaning ‘having part of,’ and introduce an NP whose head noun denotes a body-part. Like the structure in (29b), the NP structure of (37a) roughly goes as follows:

\[(38) \left[ \text{NP a [N}_{1} \left[ \text{N}_{2} \text{man} \right] } \right. \left[ \text{PP with [NP [Det } \delta] \left[ \text{N}_{3} \text{ a lion’s] heart] } \right. \right. \right. \right. \]

We do not discuss the first indefinite article here, because it is a determiner of the whole NP, and its function depends on the context in which it is used. Rather we focus on the N-bar constituents, i.e. the inside of the brackets of N’1, to find a relation parallel to (29b). The PO involved in prepositional phrases like with (one’s) heart provides an answer to the question why indefinites like a lion in (37a) may describe the NP headed by man.\(^{12}\)

Like the PO in VPs like enjoy (one’s) life, the PO in these prepositional adjuncts binds the part-variable in the N-bar indefinite N’3’s null determiner whose antecedent is given by the N-bar constituent in N’2 in (38), thereby making N’3 describe its representative part. Unlike the PO in the VPs, however, this PO does not relate an individual to a time span, for it is not produced from a VP that has a time span in its scope, nor has an individual as the antecedent of the null determiner it binds. Instead, the antecedent is offered by the N-bar in N’2, i.e. an instance of the semantic property it expresses, and the PO relates the instance to another semantic property, by binding the part-variable in the null determiner of N’3, which is thus speci-  

\(^{12}\) As in I was a grown-up in a child’s body, NPs of this type are often used as predicate nominals, in which the first indefinite article does not function as an existential quantifier. In the current discussion, the lack of the quantificational meaning suggests that predicate nominals, too, may be N-bar constituents. Rooryck (1997: 204) notes that predicational be differs in meaning from quantificational be, but it may also involve a kind of PO to satisfy the features of a null determiner, if any, which predicate nominals are supposed to take. This topic deserves a separate study.
fied as a property of a body-part like body or heart, for example, body-form or heart-strength. The relation in (37a) is represented as follows:

\[(39) \quad [\text{NP} \ a \ [_{N1} \ [_{N2} \ \text{man}] \ [\text{PP} \ \text{PO}_i \ \text{with} \ [\text{NP} \ [\text{Det} \ \text{local} \ N\text-bar \ \text{antecedent’s part-variable} \ x_i \ (= \ \text{local} \ N\text-bar’s \ \text{representative} \ \text{semantic} \ \text{property} \ x_i) \ \text{as} \ [_{N3} \ \text{a} \ \text{lion}]])]]]
\]

Thanks to the null determiner whose part-variable is bound by PO, the N-bar \textit{a lion} describes an instance of the N-bar \textit{man} in terms of a body-part-related semantic property. The instance is given a semantic property of N’3 as well as that of N’2, and this means that the semantic property of \textit{man} partly overlaps with that of a lion in the N-bar constituents as a whole. Since this descriptive relation results in a restrictive modification of the semantic property of \textit{man}, it is semantically equivalent to what Bolinger (1967) calls “reference-modification” of \textit{man}. In other words, \textit{a man with a lion’s heart} is equivalent to \textit{a lion-hearted man}, where the descriptive relation in an NP is replaced by the modifier-head relation in an NP.

The internal structure in (29b) also accounts for the fact that PDIs agree in number with the subjects, as in (40), and, with less rigidity, however, with the head nouns in the descriptive relation in NPs, as in (41):

\[(40) \quad \begin{align*}
\text{a.} & \quad \text{He achieved the status of a folk hero.} \\
\text{b.} & \quad \text{They achieved the status of folk heroes.}
\end{align*}
\]

\[(41) \quad \begin{align*}
\text{a.} & \quad \text{three men with a child’s mind} \\
\text{b.} & \quad \text{*three men with children’s mind} \\
\text{c.} & \quad \text{three men with children’s minds}
\end{align*}
\]

Number agreement happens because, thanks to the anaphoric null determiner, the PDI describes the representative part of the null determiner’s antecedent, whose number is one for an entity, and thus is accordingly countable: in (40), the PDI describes a part per individual, and in (41), it describes a part, or a semantic property, for each instance of a countable noun.

The presence of a representative part involved in the number agreement is evidenced by examples like the following, in which the PDI describes the subject referents as a unit:

\[(42) \quad \text{John and Yoko have a married couple’s perspective of the world.}
\]

The null determiner of a PDI is not directly coreferential with the referent of its antecedent, but is anaphoric to, i.e. inherits the value from, its representative part. For this reason, when the subject referents make a unit, and are counted as an entity to have a single representative part, as in (42), the PDI offers it a singular description. Thus, the number of PDIs reflects the number of representative parts denoted by the null determiner’s antecedent.
4.4. Summary of Section 4
As in (29b), N-bar indefinites like PDIs consist of an N-bar constituent and the null determiner which contains a part-variable, and is anaphoric to the representative part of the local antecedent, and whose [+bound by partitive operator] feature is satisfied by PO. The PO in the VP whose object noun denotes a time span specifies the part-variable as the time span of an individual, and the PO in the prepositional phrase whose object noun denotes a body-part specifies it as the body-part-related semantic property of an N-bar constituent. In both cases, the null determiner has to be located in the operator’s scope, and for this reason, the distribution of PDIs is constrained in the way that of bound pronouns is.

5. A New Typology of Indefinites
We have so far focused on the N-bar indefinites in possessive position, but here we deal with other related use of indefinites. The presence of N-bar indefinites as distinguished from indefinite NPs accounts for the apparently contradictory functions of indefinite singulars.

The function of indefinite nominals has been characterized in terms of existential quantification (see Neale (1990), for example): on the basis of the claim of existence of a referent that satisfies their descriptive content, indefinite nominals may be used to introduce a new discourse referent (cf. Karttunen (1976)), or to imply that, unlike the referent of a definite nominal, its referent is non-unique (cf. Hawkins (1991)). However, the N-bar indefinites are associated with an anaphoric function, which differs in nature from the existential quantification. The present account is able to handle the two contrastive functions by assigning the former function to indefinite NPs in which the indefinite article functions as an existential quantifier, and the latter to N-bar indefinites whose null determiner is bound by a partitive operator: they become, in the operator’s scope, descriptive of the discourse referent that is independently identifiable in the relevant discourse.

As we have seen, the syntactic positions of bound pronouns can be partly substituted by those of N-bar indefinites, because both have a similar structure, and the quantifier or operator to license bound pronouns can be partly substituted by PO to license N-bar indefinites. In this section, I show that PO itself, too, can be substituted by contexts that share with it the function of relating an individual to a subpart, especially to an attribute or a time span. The N-bar indefinites are taken to be discourse-anaphoric in such contexts.
There are two uses of indefinite singulars which, I argue, are classified to be N-bar indefinites; the generic use and the so-called anaphoric use.

5.1. Generic Indefinite Singulars as N-bar Indefinites

Nunberg and Pan (1975: 415) point out that indefinite singulars of the form \( a(n) N \) are different from singulars preceded by every or any in that they are characteristically used in generic sentences about hypothetical entities that are presupposed not to exist, as in (43):

\[
\{A/?\text{Every}/?\text{Any}\} \text{ perpetual-motion machine runs forever.}
\]

This fact agrees with our claim that indefinite singulars in generic use are N-bar indefinites rather than indefinite NPs. Unlike indefinite NPs whose indefinite article functions as an existential quantifier, N-bar indefinites do not make an existential claim by themselves.

As has been noted by Perlmutter (1970) and Heyer (1985) for example, generic definite singulars, meaning entirety, can stand for a kind as a whole and occur with predicates that denote properties of a kind, such as be extinct in (44a), but generic indefinite singulars can only occur with predicates that denote properties of an individual, as in (44b):

\[
a. \{\text{The}/^{*}\text{A}\} \text{ beaver is extinct.} \\
b. \{\text{The}/\text{A}\} \text{ lion is a beast of prey.}
\]

This is because generic indefinite singulars take a null determiner similar to that of PDIs. Like generic one, the [+bound] feature is specified as [+bound by generic operator], and the [+anaphoric] feature is specified as [+anaphoric to a representative individual’s part], for which the predicates for them are limited to those that describe parts of an individual. Because successful reference to this individual is a matter of anaphoric context instead of existential presupposition, generic indefinite singulars can be used to express what is present only in some context, but is absent in the real world, as in (43).

The two features of the null determiner are adequate to explain how generic indefinite singulars are used in context. They are characteristically suited to the context in which they apply to just one identifiable referent, even when their descriptive content does not fit it. For example, Burton-Roberts (1977: 187–188) notes that in (45), Emile’s mother, who is the speaker, gives him the generic sentence starting with a gentleman to let him behave like a gentleman, implying that he is not a gentleman, at least, for now:

\[
\text{(45) Emile! A gentleman opens doors for ladies.}
\]

This usage comes from the speaker’s exploitation of their null determiner,
especially that of its anaphoric feature. Besides satisfying the [+bound by generic operator] feature with the generic operator involved in the sentence, the speaker of (45) satisfies the [+anaphoric to a representative individual’s part (as)] feature of the null determiner of a gentleman with an anaphoric reference to Emile’s time span. In this way, she implies that because it is always true that a gentleman opens doors for ladies, Emile, too, is to do so as long as his part, or his temporal phase of action, merits the description of a gentleman.

In (45), the speaker can also use a definite singular like the gentleman to let Emile open the door, but it implies strongly that opening doors is an already decided course of action for gentlemen. A clearer contrast between definiteness and indefiniteness is available in (46):

(46) [Talking to a crying boy whose hands are injured]
Your hands are okay, now. {A brave boy/*The brave boy} never cries, right?

Unlike the speaker in (45), the speaker in (46) does not have to compare the addressee with a pre-established norm for brave boys, which makes the definite singular unacceptable here. He has only to assign a new property to an aspect of the addressee, by using an indefinite singular whose null determiner can be developed from [a representative individual’s part x as (a brave boy)] into [the addressee’s action as (a brave boy)].

5.2. The So-called Anaphoric Indefinites.

The N-bar indefinites are also found with indefinites in discourse anaphora. Ushie (1986: 432–433) gives relevant contrasts in this respect: after the text in (47), sentence (A) is an acceptable continuation in which the indefinite a 19-year-old boy is taken to be anaphorically descriptive of Malcolm, but sentence (B) is not acceptable as a continuation in which it has such an anaphoric reading. Similarly, continuation sentence (C) is fine with the anaphoric indefinite, but sentence (D) is not.

(47) … By the time he was 19, Malcolm₁ was doing a bit of social drinking and had acquired the chain-smoking habit…. Then one day Malcolm’s wealthy uncle came out to visit from New Hampshire. Uncle Daniel drank nothing but the purest of water and had some strong ideas about people who didn’t believe as he did.

(A) He was shocked to find {a 19-year-old boy/Malcolm₁} smoking and drinking…. 
(B) When he found {*a 19-year-old boy/Malcolm₁} smoking
and drinking, he was shocked….

(C) The fact that {a 19-year-old boy/Malcolm} was smoking and drinking shocked him….

(D) Upon arriving, he found {*a 19-year-old boy/Malcolm} smoking and drinking, and he was shocked….

To borrow Ushie’s words, indefinites like this “refer to the already mentioned individual, but represents him in a new aspect.” Thus, she calls this anaphoric relation “corepresentation” rather than coreference. In order to clarify what context is appropriate for corepresentational indefinites, Ushie (1986: 432–433) points out the relevance of the text producer’s focus on a certain aspect of the character, saying that in (47), while sentence (A) provides “the cause of Uncle Daniel’s shocking,” sentence (B) “presents a series of events in succession.”

The contrasts in the continuation sentences in (47) find a natural account once we see that corepresentational or anaphoric indefinites are N-bar indefinites, and that the PO required for the null determiner can be functionally substituted by the context that focuses on a time span of a topic individual to represent an attribute of that individual in the time span in question. Such substitution is possible because PO is composite in nature.

One way of producing PO in VPs is to combine verbs denoting what takes place in an individual with object nouns denoting time spans. Such combinations can be reproduced from a string of context that describes an inner aspect of an individual and a concomitant time span. Contexts of this type have the same effect as, and substitute for, PO in relating an individual to a time span and licensing the null determiner for N-bar indefinites. The N-bar indefinites so licensed share the same features of their null determiner as those of PDIs, and describe a time span of an individual previously identified in the context.

In sentence (A) in (47), what Jespersen (1940), Duffley (1992) and others call “the infinitive of reaction” is used to stop the time flow of the story, so as to extract a time span of Malcolm’s, and embed the indefinite in it into the context set for that time span. This “time span-focus” context substitutes for PO in satisfying the [+bound by partitive operator] feature of its null determiner, thereby making the indefinite describe a time span of the discourse referent, expressed to be in the scope of the context, i.e. Malcolm. By contrast, sentence (B) does not have such a stop of the time flow and fails to fix one specific time span, which is required for the null determiner’s feature. Thus, without the substitute for PO, the indefinite in sentence (B) can only be taken as an indefinite NP, rather than as an N-bar
The contrast between sentence (C) and sentence (D) in (47) is explained in the same way. Since the fact that-clause in sentence (C) describes Malcolm’s situation as a fixed point in time, it can focus on a time span of Malcolm’s to describe it. It is compatible with the anaphoric indefinite for this reason. By contrast, in sentence (D), the story goes as time flows, and there is no fixed point in time to fix a time span for him. Such an unfolding of the story does not substitute for PO, and the anaphoric indefinite is unacceptable with it.

The narrative is not the only context that fixes a part of an individual to represent that individual. The shortest, and clearest examples of the part-focus context come from article titles whose head nouns stand for specific parts of an individual, as in (48):

(48) a. BLOG: From a Dietitian’s Perspective
    b. A Soldier’s Way: An Autobiography

From the title in (48a), the reader sees that the author of this blog is a dietitian, and the possessive indefinite appears to be deictically related to the author in the way that the first person indexical “I” is related to the speaker. Similar remarks apply to the indefinite in (48b).

The first-person orientation of these indefinites comes from their use in the titles focusing on the parts that stand for individuals from which they are extracted. These titles often accompany the preposition from, but actually, there are titles without a preposition, as in (48b), suggesting that it is the context of a title as such rather than some kind of prepositional phrase that has the part-focus effect required to license the N-bar indefinites. Since a title is a part that represents the whole story, it can naturally express a representative part of a person who is responsible for that whole story, one aspect of the author, for example.\(^{13}\)

One difference between the N-bar indefinites licensed by the PO involved

\(^{13}\) Similarly, generic one can show the first-person orientation. Moltmann (2006) notes that generic sentences with one like (ia) are taken to be generalizations from the speaker’s own experience, but that deontic generic sentences like (ib) are taken to be generalizations which apply primarily to the addressee’s experience and only secondarily to the speaker’s:

(i) a. One can see the picture from the entrance.

Moltmann does not answer why generic one in (ia) is oriented to the speaker, but the present account can derive this from the partitive nature of generic one as an N-bar indefinite: it denotes a representative part of the person responsible for the generalization expressed in the sentence in which it occurs. When the generalization comes from a part
in VPs and those licensed in the part-focus contexts is that unlike the former, the latter denote an actual property of the individual in question, because a part-focus context like a title is in itself an actual part that stands for the individual, as is the case with the examples in (48).

To show the status as an N-bar indefinite, the title in (48a) becomes unacceptable when the indefinite article is changed into a definite article:

(49) ??BLOG: From the Dietitian’s Perspective
The definite NP can only be taken to refer to the dietitian who is identified before the title is introduced, and cannot be linked with the author.

As we have seen in (13), definiteness means entirety, and so is excluded from the context that has to do with a specific part partitioned from an individual to represent it. Thus, the anaphoric descriptive relation expressed through the partition of an individual cannot be obtained from definites, nor from indefinite NPs that express existential quantification, but from N-bar indefinites that stand for parts of an independently established referent.

5.3. On the Nature of \( A(n) \) in N-bar Indefinites

We have argued that the apparent indefinite article \( a(n) \) involved in N-bar indefinites is an adjective, rather than a determiner that makes an N-bar constituent into an NP. This is not an ad hoc treatment, because the adjectival \( a(n) \) meaning ‘expressing an aspect of’ is independently found with NPs whose head nouns denote unique entities, as in (50):

(50) a. A new crescent moon rose above the town.
   b. A dejected Shunsuke Nakamura exits the pitch Wednesday night.

The example in (50b) is taken from a newspaper caption for a picture which captures a particular aspect of the motion made by Shunsuke Nakamura. If we took \( a \) in these cases as a determiner having the function of existential quantification, we would have a wrong interpretation where there were more than one moon in the sky, or there were another Shunsuke Nakamura to be contrasted with the person referred to in (50b). Since prenominal adjectives are adjuncts modifying the N-bar constituent, the \( a \) in (50) shifts the otherwise uniquely referring expression into the N-bar that denotes a representative part of the referent of that expression, which is further specified as a time span of that referent by being modified with an adjective that expresses of the speaker’s experience, as in (ia), it is understood to represent the speaker as a possessor of that part.
a temporal characteristic, like *crescent* or *dejected*. Thus, the modified NP refers to a time span of the referent of the corresponding unmodified NP.

The present account of the indefinite article in N-bar indefinites as an adjective meaning ‘expressing an aspect of’ agrees with Perlmutter’s (1970) argument that the indefinite article is derived from the numeral *one*; in fact, the *a(n)* of N-bar indefinites is a part-counting numeral *one* embedded in the numeral *one* per individual, i.e. a numeral which counts one aspect in an individual, which is paraphrased as *one aspect of one individual*.

5.4. Remaining Problems

In the current analysis, different null determiners are postulated for different kinds of N-bar indefinites. Being null, however, they are hard to differentiate. The null determiners share the [+anaphoric, +bound] features, but differ in details, as in [+anaphoric to the N-bar element of the local antecedent, +bound by partitive operator] for PDIs, and [+anaphoric to a representative individual’s part, +bound by generic operator] for generic indefinite singulars. Instead, there may be one null determiner whose features are generalized as [+anaphoric to a representative part of the topic antecedent, +bound by part-focus operator], where the part-focus operator is an abstract one which can be realized either by the PO or by the generic operator, and can be substituted by a part-focus context.

This is reasonable because a representative part comes into being either as a part of an individual or as a part of the kind to which the individual belongs (cf. Carlson (1980: 69–70), Woisetschlaeger (1983: 143–144)). With the generic operator as a part-focus operator, generic sentences focus on a part of the kind to represent the whole kind, and this applies especially to those whose subject is an indefinite singular. In place of the part-focus operator, part-focusing can also be achieved by contexts that fix one aspect of a discourse topic individual as being separated from the temporal sequence of the discourse in question, or from the time flow of the speaker’s utterance. For the sake of simplification, such a unified null determiner should replace the null determiners that have been used here, but further study is required to flesh out the generalized null determiner for the N-bar indefinites.

I have also left untouched the question of how N-bar indefinites are related to indefinite NPs. The part-describing use of N-bar indefinites may not be a separate category, but be an extension of the instance-denoting use of indefinite NPs, because an instance is a part of the group. English does not have a special form of nominals to express a part of an individual,
so a nominal form to express a part of a group may be diverted to fill this gap. Of course, again, we need to study this issue more before arriving at any decisive conclusions.

5.5. Summary of Section 5

The two apparently opposing functions of indefinite nominals are due to their two structural manifestations: indefinite NPs are given the function of introducing a new discourse referent, and N-bar indefinites are, thanks to their null determiner, given an anaphoric function. Since there are contexts that can be substitutes for a required operator to satisfy the features of the null determiner, N-bar indefinites become discourse-anaphoric in those contexts. Because the licensing conditions for the anaphoric null determiner are available both from sentence structures and from contexts, the N-bar indefinites with the null determiner can enter into both intrasentential anaphora and discourse anaphora.

6. Conclusion

In this article, I demonstrated how to extend the application of the theory of inter-N-bar anaphora from a closed set of pronouns to an open set of indefinites. Specifically, I showed that indefinite nominals in English allow for two different structures, one of which assigns them the same N-bar status as bound pronouns. The N-bar indefinites were shown to take the same kind of null determiner as bound pronouns, which is why they partly overlap in distribution with them. To the extent that this approach succeeds in accounting for the distribution and interpretation of specific types of indefinites which do not have existential quantificational force, it proves the existence and validity of the null determiner for them.

I also showed that N-bar indefinites are found with the generic and anaphoric uses of indefinite singulars, and that the anaphoric null determiner that brings about their descriptive relations pertains to discourse anaphora as well as to intrasentential anaphora, since the partitive operator that licenses it at the clausal level can be functionally substituted by contexts that relate a discourse topic individual to a representative part or property. This means that a concept pertaining to sentence grammar can find its equivalent in discourse, which makes it possible to translate dependency relations specified by sentence structures in terms of discourse organization to reproduce these relations.
REFERENCES


Sources of Examples


[received September 20 2010, revised and accepted January 23 2011]

Graduate School of Information Sciences
Tohoku University
6–3–09 Aoba, Aramaki-aza, Aoba-ku, Sendai-shi
Miyagi 980–8579
e-mail: nishida@ling.human.is.tohoku.ac.jp