The Morphosyntax of Bare Nominals in Indonesian and Javanese: A Relativized Parametric Theory of Nominal Denotation[1]

1. Introduction

This paper discusses the issue of syntax-semantics interface with reference to the relation between the denotation and morphosyntax of bare nominals in two under-represented languages in Indonesia, Indonesian and Javanese. Though the first half of this paper is devoted to the detailed discussion of bare nouns in these two languages, the ultimate goal of this paper is to construct a relativized parametric theory of the denotation of bare nouns across languages within the Principles & Parameters approach to language variation outlined in Chomsky (1986, 1995).

In a series of his recent work (Chierchia 1998a, 1998b), Gennaro Chierchia proposes a semantic parameter known as the *Nominal Mapping Parameter* that states that languages differ in terms of what they allow their bare nouns denote in the syntax-semantics mapping, namely, kinds ([+arg, -pred] languages), properties ([-arg, +pred] languages), or both ([+arg, +pred] languages) under certain conditions. Chierchia argues that setting of this parameter uniquely determines the morphosyntactic profile of nominals in a given language with respect to the availability of bare arguments, the generalized classifier system, and the plural morphology. This claim, therefore, predicts that all natural languages are classified into three and only three types depending on the denotation of nominals in a given language.

In this paper, I provide arguments, modeled after those made in Chung (2000), that Indonesian and Javanese do not fit into any one of the three language types identified under Chierchia's semantic typology. I further argue that the very notion of "semantic parameter" as varying the nature of the mapping between the syntactic and semantic representation of a bare noun across languages is not groundable within the standard generative conception of the locus of parameter as restricted to properties of the lexicon (Chomsky 1986, 1995) or, more precisely, properties of functional categories alone (Borer 1984; Fukui 1986, 1995). Based on these results, I propose an alternative, purely syntactic theory of the effects of the Nominal Mapping Parameter whereby languages differ in terms of the complexity of nominal functional structures each language allows (i.e. DP>QP>ClP>NumP>NP) and in terms of the possible set of values the Num head can take in each language (i.e. {singular, plural} or {neutral, plural}). Neither of these ideas is entirely new but has been around in the syntactic and semantic literature The idea that languages differ in terms of the complexity of nominal structure has been independently proposed on various grounds in recent work as in Grimshaw (1991, 2005), Massam (2001),

[1] ACKNOWLEDGEMENTS

Guilfoyle and Noonan (1992), and Vainikka (1993/1994). The observation that languages differ in their possible set of Num values has been recently made in studies on the number system of languages such as Malay and Indonesian as in Carson (2000) and Chung (2000), respectively. The results achieved in this paper, therefore, provide further evidence for these proposals.

Given the Subset Principle proposed by Wexler and Manzini (1987), the proposed relativized theory of nominal denotation makes an interesting prediction that the morphosyntax of nominals at early acquisitional stages of all languages should mirrors that of bare nominals in Indonesian and Javanese since they instantiate the simplest nominal structure (NumP) under this analysis. I show that this prediction is indeed borne out by the so-called telegraphic stage of acquisition in English, at which nouns share several fundamentally similar morphosyntactic properties with those in Indonesian and Javanese. The proposed analysis also sheds light on the recent debate on the nominal structure of Slavic languages such as Russian. Our discussion of the morphosyntax of bare nouns in Russian shows that bare nouns in this language only project up to NumP as in Indonesian/Javanese bare nouns and leads us to conclude that the universal DP hypothesis for nouns, as argued for in recent work as in Szabolcis (1987, 1994) and Longobardi (1994), must be reconsidered.

The present paper is organized in the following manner. In the next section, I review in detail the Nominal Mapping Parameter proposed by Chierchia (1998a, b). In section 3, I turn to the denotation and morphosyntax of bare nominals in Indonesian and Javanese. I provide evidence that neither of these two languages fits into any one of the three language types under Chierchia's semantic classification. I start in section 3.1 by reviewing Chung's (2000) analysis of Indonesian bare nouns. Though Indonesian allows bare arguments and has plural morphology, I argue against Chung (2000) that Indonesian is not a classifier language. I turn to parallel facts in Javanese in section 3.2. I show that Javanese behaves as Indonesian in all relevant respects; it allows bare arguments, has plural morphology, and lacks a generalized classifier system. These empirical findings strongly indicate that the Nominal Mapping Parameter imposes too tight a mapping between the syntax and semantics of bare nouns in natural language and falsely exclude the behavior of bare nominals in Indonesian and Javanese. These results lead us to pursue a different account of what Chierchia's Nominal Mapping Parameter is supposed to capture. In section 4, starting with the observation that the notion of semantic parameter as constraining the mapping between the syntax and semantics of nominals is at odds with the standard view of the locus of parameter within the Principles-&-Parameters approach to linguistic variation, I propose a new, relativized parametric theory of bare nominals across languages that draws on independently motivated assumptions. According to this theory, languages differ in dimensions: how high a language allows its bare noun to grow and which set of value a

language allows its Num head to take. I show that the morphosyntactic profile of bare nouns in languages such as Javanese, Indonesian, Japanese, English and Italian is naturally derived from the combination of these two parameters. In section 5, I consider a number of new predictions made by the proposed theory of nominal denotation. Combined with the Subset Principle proposed by Wexler and Manzini (1987), the proposed analysis predicts that certain acquisitional stages of all languages should look Indonesian and Javanese in terms of the morphosyntax of nominals. Drawing on the data and analysis presented by Guilfoyle and Noonan (1992) and Vainika (1993/1994), I show that this prediction is indeed borne out by the so-called telegraphic speech produced by English-learning children. I further show that the proposed analysis sheds a new light on the debate concerning the nominal syntax of Slavic languages. Specifically, the proposed analysis indicates that Russian nominals project only up to NumP like Indonesian/Javanese nominals and that the universal DP hypothesis needs to be reconsidered. Section 6 is the conclusion.

2. Chierchia's (1998a, b) Nominal Mapping Parameter

The Nominal Mapping Parameter, recently proposed by Chierchia (1998a, b), claims that languages differ in terms of what they let their bare nouns denote in the syntax-semantics mapping: kinds, properties, or both under certain conditions. Chierchia claims that the setting of this semantic parameter serves to uniquely identify syntactic and morphological properties of a bare noun in a given language.

Chierchia's Nominal Mapping Parameter, which identifies three and only three language types, makes a strong statement that all languages should belong to one of them. In the first type of language such as Chinese and Japanese, which he calls [+arg, -pred] languages, bare nouns are mapped onto kinds (type <e>). A kind is defined by Chierchia (1998a: 349) as "function[s] from worlds (or situations) into pluralities, the sum of all instances of the kind." Since a kind is saturated in the Fregean sense, this type of language allows bare nominal arguments. Languages of this type also lack plural morphology for the following reason. As Chierchia (1998a: 351) puts it, "Fido is as good an instance of the dog-kind as Fido and Barky are. This means that the property corresponding to a kind comes out as being mass." The notion of *mass*, in turn, is defined in Chierchia (1998a: 347) as an entity that "come[s] out of the lexicon already pluralized… a mass noun, such as, say, *furniture*, will be true in an undifferentiated manner of singular pieces of furniture as well as of pluralities thereof… quite literally the neutralization of the singular/plural distinction." Since a kind is essentially mass in that it cannot differentiate between singular and plural instances of that kind, [+arg, -pred] languages should not have plural morphology due to the specified denotation of a bare noun as the name of a particular kind. In other words, the extension of all bare nouns is mass in this type of language. [+arg, -pred] languages also develop a generalized classifier system. This is because kinds cannot be individuated and hence need an appropriate counting level

for each bare noun. Note that all the three morphosyntactic characteristic of bare nouns observed here are the automatic consequence of the denotation of a bare noun as the name of a kind.

The second type of language is what Chierchia (1998a, b) calls [-arg, +pred] language, represented by languages such as Italian and French, where bare nouns are mapped onto properties (type <e, t>). This type of language des not allow bare nominal arguments; they need to be combined with determiners (either covert or overt, depending on the language) to be able to serve as a saturated argument of type <e> (cf. Longobardi 1994).

The third type of language is termed [+arg, +pred] language, and Chierchia mentions English and Russian as examples that belong to this language type. As the setting [+arg, +pred] indicates, this type of language shows a mixed morphosyntactic profile. It behaves as Japanese and Chinese in that mass and bare plurals are mapped onto kinds (hence [+arg]) whereas it behaves as Italian and French in that count nouns are mapped onto properties (hence [+pred])[2]

One important aspect of Chierchia's Nominal Mapping Parameter is that a particular setting of the denotation of a bare noun in a language uniquely predicts its morphosyntactic profile. In other words, Chierchia's theory imposes a rigid one-to-one correspondence in the syntax-semantics mapping between the morphosyntax and the denotation of a bare noun in a given language. Thus, for example, if a language *L* develops a generalized classifier system, it must be the case that that language also should allow bare nominal arguments and lack plural morphology. This point is emphasized by Chierchia (1998a: 354), who states as follows: "for example, a language with the plural-singular contrast and a generalized classifier system is certainly logically conceivable; it could, in principle, exist. The point of view we are adopting offers a seemingly principled way for ruling it out."

3. The Denotation and Morphosyntax of Bare Nominals in Indonesian and Javanese

In this section, I show, based on evidence from Indonesian and Javanese, that these two languages do not fit into any one of the three language types that should exhaustively characterize all natural languages under Chierchia's semantic theory. The arguments presented below owe a great deal to and are modeled on those developed by Chung (2000), who argues against the Nominal Mapping Parameter from Indonesian. Chung shows that Indonesian is a language with bare nominal arguments and a generalized classifier system but nonetheless does have plural morphology marked via full reduplication of the root. I review her analysis of

[2] Note that the fourth logical possibility that bare nouns are not mapped onto any semantic type (i.e. [-arg, -pred]) is excluded because nouns must be mapped onto some semantic type, either kinds, properties, or both, under Chierchia's theory of semantic parameter.

Indonesian bare nouns in section 3.1. Though Indonesian does have generalized bare arguments and plural morphology, I argue that Indonesian is not a generalized classifier language, contrary to Chung's analysis. In section 3.2, I turn to the morphosyntax and denotation of bare nominals in Javanese. I show that Javanese is identical to Indonesian in all respects pertinent to Chierchia's Nominal Mapping Parameter, namely, that Javanese allows bare nominals in all argument positions and has plural morphology marked by full reduplication but does not develop a generalized classifier system of the kind found in Japanese and Chinese.

3.1. *Bare Nominals in Indonesian*

Let us first review the arguments made by Chung (2000) that Indonesian runs counter to the predictions of the Nominal Mapping Parameter. Her basic argument is that, in this language, bare nominal arguments occur freely and numeral classifiers are required under certain conditions but bare nouns have a singular-plural contrast; this cluster of morphosyntactic characteristics would remain mysterious under any setting of the parameter values posited by Chierchia's semantic theory.

First of all, Chung (2000) observes that, in Indonesian, bare nouns can occur freely as direct objects, object of prepositions and subjects, as shown in (1a-c), respectively.

(1)a. Dia membeli buku.
he buy book
'He bought a book.' (Dardjowidjojo 1978 :65; Chung 2000: 159)

b. Tutup-lah pintu dengan kunci.
lock-Emp door with key
'Lock the door with a key.' (McDonald 1976: 128; Chung 2000: 159)

c. Remdepan, tanpa aku rem, mengerem sendiri
brake.front without I brake put.on.brake itself
'The front brake, without being braked by me, baked itself.'
(McDonald 1976: 102; Chung 2000: 160)

The fact that bare nominal arguments occur freely, as shown in (1a-c), indicates that Indonesian is either a [+arg, -pred] such as Japanese or a [+arg, +pred] language such as English. Suppose now that Indonesian is a [+arg, -pred] language for the sake of argument. Chung argues that Indonesian is a classifier language, in which numerals precede bare nouns and are immediately followed by a classifier, consistent with the [+arg, -pred] language. Interestingly, though Dardjowidjojo (1978) notes that Indonesian has developed as many as sixty classifiers, only three of them are in frequent use in contemporary Indonesian, according to Chung (2000: 162); *orang* 'person' used for counting persons,

ekor ‘tail’ used for counting animals, birds and fish, and *buah* ‘fruit’ used for counting other objects. Her evidence that Indonesian is a classifier language is two-fold. First, classifiers are obligatory with the numeral *se-* ‘one’. She observes (p. 163) that *se-* ‘one’ must either be followed by a classifier or else occur in the fixed expression *s(u)atu*, in which it is combined with the obsolete classifier *watu* ‘stone’ (Hopper 1986: 311)”. In the absence of a classifier, *se-* cannot occur. This is illustrated in examples as in (2a, b).

(2)a. Kemudian di-ambil-nya se-helai serbet kertas yang baru.
later Pass-take-by.her one-Cl napkin paper which new
‘Then she got a new napkin.’ (Purwo 1989: 318; Chung 2000: 163)

b. Kemudian di-ambil-nya kertas baru.
later Pass-take-by.her paper new
‘Then she got a new napkin.’ (Purwo 1989: 312; Chung 2000: 163)

Second, Chung notes (p. 164) that, at an earlier stage of the development of Indonesian, overt classifiers were more frequent than they are today after *dua* ‘two’ and higher numerals. She points out that “statistics reported in Hopper’s (1986) careful study of classifier use in the 19th century Malay of the *Hikayat Abdullah*, an autobiography published in 1849, suggest that roughly 80% of the numerals that combine with NPs are accompanied by an overt classifier.” The following examples illustrate this point.

(3)a. Maka di-tembak-lah dua-bělas puchok měriam di-bukit.
then Pass-fire-Emp twelve Cl gun from-hill
‘[A salute of] twelve guns was fired from the hill.’
(Abdullah 1963 [1849]: 222; Chung 2000: 164)

b. Ada pun takala mĕmbuat rumah itu tiga orang orang China kuli jatoh dari atas.
as for when make house the three Cl person Chinese laborer fell from top
‘In the course of its construction three of the Chinese workmen fell from the top.’
(Abdullah 1963 [1849]: 222; Chung 2000: 164)

Granted that Indonesian is a classifier language with generalized bare arguments, the only setting that would account for these two properties is [+arg, -pred] under Chierchia’s Nominal Mapping Parameter. This setting, thus, leads us to the prediction that Indonesian should not have plural morphology. Chung (p. 164) shows, however, that this prediction is false because Indonesian does have a way of expressing plurality via full reduplication of the root, as illustrated in (4a, b).

(4)a. Buah-lah kalimat-kalimat berikut menjadi kalmat-kalimat negatif.
make-Emp sentence-PL following become sentence-PL negative
'Please make the following sentences negative.'
(Dardjowidjojo 1978: 27; Chung 2000: 165)

b. Anak-anak bermain-main.
child-PL play
'The children play.' (Wolff et al. 1992: 263; Chung 2000: 165)

It is widely known in the literature on Indonesian (Dardjowidjojo 1978: Dyen 1964) that, though unreduplicated bare noun can be constructed either as singular or plural, its reduplicated counterpart is necessarily interpreted as plural. The crucial point here is that under Chierchia's system, a kind, by definition, cannot differentiate between singular and plural instances of that kind. The fact that reduplication has the function of denoting plurality, as illustrated in (4a, b), therefore, constitutes strong evidence that Indonesian cannot be a [+arg, -pred] language such as Japanese or Chinese.

Chung further points out two problems that arise with the alternative potential analysis of Indonesian as a [+arg, +pred] language such as English. The first problem concerns the scopelessness of bare nominal arguments. Following Carlson (1977), Chierchia (1998a: 368) observes that bare plurals in English behave as kinds in that they obligatorily take narrow scope with respect to negation and intensional operators whereas indefinite singulars can take wide scope over these scope-bearing elements. This contrast is illustrated in examples such as (5a, b).

(5)a. I didn't see spots on the floor
⇨ Neg>Indefinite (narrow scope): I did not see any spot on the floor.
*Indefinite>Neg (wide scope): There is a spot that I failed to see on the floor.

b. I didn't see a spot on the floor.
⇨ * Neg>Indefinite (narrow scope): I did not see any spot on the floor.
Indefinite>Neg (wide scope): There is a spot that I failed to see on the floor.
(Chierchia 1998a: 368)

There are no elements in Indonesian that correspond to definite or indefinite articles, with the relevant distinction being only made by reference to contexts. In fact, this property is what we expect if Indonesian is a [+arg, +pred] language, as argued in Chierchia's (1998b: 91, 92). In many languages, an indefinite article is a variant of the first numeral. We have seen that the name of a kind cannot pick out a singular instance of that kind. Thus, it is not surprising that this type of language does not have an indefinite article. The lack of a definite article in this language type is also predictable from the semantic function of such an article. When attached

to a bare noun, the definite article singles out the sum of all elements that meets the description provided by the noun as the maximality operator. Then, the definite article provides essentially the same information as the name of a kind under Chierchia's sense of the term as "the sum of all instances of the kind" (Chierchia 1998a: 349). Since bare nouns are independently required to denote a name of a kind, the presence of a definite article in [+arg, -pred] languages is excluded on the ground of (expressive) economy.

With this side note on the lack of determiners in Indonesian in mind, consider the following prediction: if Indonesian is a [+arg, +pred] language, we predict that bare nominals should also be able to take scope over negation as do English indefinites. This prediction is clearly false, as evidenced by examples as in (6a, b), where the bare nouns *buku* 'book' and *perempuan* 'woman' must take narrow scope with respect to the negative element *tidak* 'not'. To express the wide scope reading of bare nominals, a relative clause sentence must be used as in (6c).

(6)a. Ali tidak jadi membeli buku.
Ali not finished buy book
'Ali didn't finish any book(s).'/*'There was a book that All didn't finish.' (Chung 2000: 161)

b. Ia tidak melihat perempuan.
he not see woman
'He saw no women.' (Purwo 1989: 303; Chung 2000: 161)

c. Ada sebuah buku yang Ali tidak jadi beli.
exist one book that Ali Neg finish buy
'There is a book that Ali didn't finish.'

The second problem concerns the lack of reduplicated forms for generic statements. Chierchia (1998a: 362-368) points out that bare nominals in English can be inflected for plural in generic statements as shown in (7).

(7) Dogs bark.
⇨ plural interpretation: There is more than one dog that barks/are barking.
⇨ generic interpretation: It is a general property of dogs that they bark.
(modified from Chierchia 1998a: 367)

We have seen above that Indonesian has a way of expressing plurality by full reduplication of the root, as shown in examples as in (4a, b). Then, if Indonesian is a [+arg, +pred] language, we predict that reduplicated nominals in this language should also be able to feed generic interpretation. Examples as in (8a) show that this prediction is false, because the reduplicated noun *anjing* 'dog' can yield only plural interpretation (Sneddon 1996: 17).

To express the generic interpretation, the unreduplicated bare noun must be used instead, as shown in (8b), which gives rise to both plural and generic interpretations.

(8)a. Anjing-anjing menggonggong.
dog-RED bark
'Dogs bark/are barking.'
⇨ plural interpretation: There is more than one dog that barks/is barking.
*generic interpretation: It is a general property of dogs that they bark.

b. Anjing menggonggong.
dog bark
'Dogs bark/are barking.'
⇨ plural interpretation: There is more than one dog that barks/is barking.
generic interpretation: It is a general property of dogs that they bark.

These two arguments, therefore, suggest that Indonesian is not a [+arg, +pred] language.

Chung (p. 168) briefly considers the final analytic possibility compatible with the Nominal Mapping Parameter whereby Indonesian is in the transition stage from a [+arg, -pred] language to a [+arg, +pred] language. Under this analysis, the properties such as the availability of bare nominal arguments, the obligatory narrow scope of bare nominals and the classifier system, are attributes of the old parameter setting ([+arg, -pred]) whereas the properties such as the singular-plural contrast marked by reduplication reflect the new parameter setting ([+arg, +pred]). Chung rejects this analysis on the ground that it would lead us to "expect the singular-plural contrast to be less in evidence at earlier stages of the language, when overt classifiers were more frequent." She argues that this prediction is not borne out by the 19th century Malay from *Hikayat Abdullah*, because examples as in (9a, b) that contain nouns with overt plural inflection occur frequently in this text.

(9)a. Maka tukang-tukang kayu pun mĕnarah-lah akan sĕgala pĕrkakas rumah itu.
then worker-PL wood also smooth-Emp for all part house that
'Carpenters started shaping planks of wood for various parts of the building.'
(Abdullah 1963 [1849]: 221; Chung 2000: 169)

b. Dan lagi pula pĕrahu- pĕrahu Mĕlayu pun ada mĕmbawa pula hamba-hamba dari Siak.
and still also boat-PL Malay even exist bring also slave-PL from Siak
'There were also Malay boats bringing slaves from Siak.'
(Abdullah 1963 [1849]: 225; Chung 2000: 169)

To sum up thus far, Indonesian does not fit into any one of the three language types under Chierchia's semantic typology. The free occurrence of determinerless, bare

arguments shows that Indonesian is not a [-arg, +pred] language. The presence of plural morphology marked by full reduplication shows that this language is also not a [+arg, -pred] language. The obligatory narrow scope reading of bare nominals with respect to negation and the lack of the reduplicated form of a bare noun for generic statements means that Indonesian is also not a [+arg, +pred] language.

Although Chung's argument against the Nominal Mapping Parameter from Indonesian is clear and I develop similar arguments against it based on parallel facts from Javanese in the next subsection, I point out here that it is problematic to analyze Indonesian as a (generalized) classifier language, as Chung does. In fact, she (p. 162-164) provides a number of examples that suggest that Indonesian is not a classifier language. First, she (p. 162) notes that classifiers in Indonesian are more often than not omitted in colloquial Indonesian after *dua* 'two' and some number greater than two (Dardjowidjojo 1978: 64, 65; MacDonald 1976: 82, 83; Sneddon 1996: 134, 135). Second, she observes (p. 163) that "even in formal registers of the contemporary language, an overt classifier need not occur after *dua* 'two' or higher numerals." These observations, thus, actually suggest that Indonesian is not a classifier language.

How about the two arguments made by Chung based on the obligatory presence of a classifier with the numeral *se-* 'one' and the classifier use in the 19th century Malay of the *Hikayat Abdullah*? The obligatory presence of a classifier with the first numeral can be accounted for independently without necessarily assuming that Indonesian is a classifier language because the numeral *se-* 'one' is a clitic that needs a classifier as a host. Indeed, the non-clitic free morpheme meaning 'one', *satu*, can occur without any classifier, as the comparison between (2a) and (10) shows.

(10)	Kemudian	di-ambil-nya	satu	serbet	kertas	yang	baru.
	later	Pass-take-by.her	one	napkin	paper	which	new
	'Then she got a new napkin.'						

Chung's second argument that Indonesian is a classifier language came from her observation that overt classifiers were more frequent than they are today after *dua* 'two' and higher numerals. We have seen above that this was supported by Hopper's (1986) careful study of classifier use in the 19th century Malay of the *Hikayat Abdullah*, an autobiography published in 1849, according to which roughly 80% of the numerals that combine with NPs are accompanied by an overt classifier. This argument seems hard to evaluate at present for two reasons. First, there is no translation of the relevant autobiography in the modern standard Indonesian to see whether this argument is substantiated. Second, granted that we have such a translation at hand, it is still not clear whether the comparison of the 17th century Malay and the contemporary Indonesian versions of the same text can yield a meaningful result.

Given a variety of differences between the contemporary Malay and Indonesian that have posed a formidable obstacle to field linguists working on Indonesian languages, it is possible that there should have been even more dramatic differences between the 17th century Malay and the contemporary Indonesian.

At any rate, Chung (p.164) concludes, based on the two arguments made above, that "when NP combines with a numeral, a classifier must be syntactically present even though it need not be phonetically overt." This conclusion, however, is incorrect in light of the facts observed in [+arg, -pred] languages such as Japanese or Chinese, which have a bona-fide classifier system. In Japanese, for example, when a noun combines with a numeral, a classifier must be overly expressed. This is shown by the contrast between (11a) and (11b).

(11)a.	Taro-ga	san-nin-no	gakusei-o	mita.
	Taro-Nom	3-Cl-Linker	student-Acc	saw
	'Taro saw three students.'			
b.	* Taro-ga	san-(no)	gakusei-o	mita.
	Taro-Nom	3-Cl-Linker	student-Acc	saw
	'Taro saw three students.'			

As we will see in the next subsection, there is clear evidence that Javanese is not a classifier system. Given the large-scale mutual linguistic interaction between Indonesian and Javanese in Indonesia (see Poedjosoedarmo 1982: 84; see also Chung 2000: 163), one likely scenario, compatible with the all the facts noted above, is that contemporary Indonesian has lost a classifier system due to the linguistic influence from Javanese, a non-classifier language. Based on this consideration, I conclude here, contrary to Chung (2000), that Indonesian is a non-classifier language.

3.2. *Bare Nominals in Javanese*

In this section, I develop similar arguments against the Nominal Mapping Parameter as made by Chung (2000) in Indonesian from Javanese, another closely related under-represented language of the Austronesian family. I show that Javanese behaves as Indonesian in all respects pertinent to the Nominal Mapping Parameter. Specifically, the free occurrence of bare nominal arguments shows that Javanese cannot be a [-arg, +pred] language such as Italian or French under Chierchia's system. This means that Javanese should be either a [+arg, -pred] language such as Japanese or Chinese or a [+arg, +pred] language such as English and Russian. I reject the first possibility on the ground that Javanese has plural morphology marked via reduplication and lacks a generalized classifier system. I reject the second possibility based on the obligatory narrow scope of bare nominals under their indefinite interpretation as well as the lack of reduplicated forms of

bare nouns for generic statements. These results, therefore, show that Javanese presents itself as another counterexample to the predictions of Chierchia's Nominal Mapping Parameter.

As in Indonesian, Javanese permits bare, determinerless arguments to occur rather freely in any argument position, as illustrated in (12a-d).

(12)a. Buku larang. 'A book/the book/books {is/are} expensive.'
book expensive

b. Esti tuku buku. 'Esti bought a book/the book/books.'
Esti buy book

c. Esti nukokke uwong buku. 'Esti bought a man/the man/men a book/the book/books.'
Esti buy man book

d. Esti entul informasi seko buku. 'Esti got information from a book/the book/books.'
Esti get information from book

In these examples, the bare noun *buku* 'book' occurs as the subject (13a), the direct object (13b), the indirect object (13c), and the object of preposition (13d). Notice that there is no definite or indefinite articles/determiners in Javanese, as in Indonesian. As noted in the previous subsection, this fact follows straightforwardly from the specification of Javanese as a [+arg, -pred] language under Chierchia's conception of the homophony between the first number and the indefinite article and the maximality operator contributed by the definite article, and provides preliminary support for this classification. The free occurrence of the bare nominal in Javanese shows that this language cannot be a [-arg, +pred] language. In other words, it should be either a [+arg, -pred] language or a [+arg, +pred] language. However, I demonstrate, following Chung's (2000) arguments based on Indonesian, that Javanese does not fit into any one of the three language types proposed by Chierchia.

Let us consider first the analysis whereby Javanese is a [+arg, -pred] language. Recall that, under Chierchia's semantic theory, this type of language should have three morphosyntactic properties due to the specification of bare nouns as denoting a kind; a bare nominal argument, a generalized classifier system, and no plural morphology. Thus, if Javanese is a [+arg, -pred] language, the Nominal Mapping predicts that a) this language should have a generalized classifier system and that b) it should have no plural morphology, as in Japanese or Chinese.[3] Both of these predictions are falsified by examples as in (13a, b) and (14a, b).

[3] In fact, we will see in the next section that Japanese also does have plural morphology marked by *tachi*-suffixation to or reduplication of a nominal root, as shown in (ia, b).

(13)a. Esti tuku buku telu.
Esti buy book three
'Esti bought three books.'

b. Esti mangan pelem loro.
Esti eat mango two
'Esti ate two mangos.'

(14)a. Esti tuku buku-buku.
Esti buy book-RED
'Esti bought books.'

b. Esti nata meja-meja.
Esti arranged table-RED
'Esti arranged tables.'

The examples in (13a, b) show that Javanese is not a classifier language. This is an observation that has been widely acknowledged in the literature on Javanese as in Poedjosoedarmo (1982) and Robson (2002). This utter lack of a classifier system is in contrast with the optionality of classifiers in Indonesian, as we have seen in the previous section. The examples in (14a, b) show that Javanese also marks plurality via full reduplication of the root, as in Indonesian. These two facts clearly indicate that Javanese is not a [+arg, -pred] language such as Chinese and Japanese.

Consider now the analysis whereby Javanese is a [+arg, +pred] language such as English and Russian. Again applying the two arguments developed by Chung to bare nominals in Javanese, we can see that this analysis cannot be upheld. The first argument concerns the scopelessness of bare nouns in Javanese under their indefinite interpretation. Recall Carlson's (1977)/Chierchia's (1998a: 368) observation from the last subsection that bare plurals in English behave as kinds and obligatorily take narrow scope with respect to negation. This is not the case with indefinite singular nouns which can take wide scope over negation. The relevant contrast was illustrated in (5a, b). If Javanese is a [+arg, +pred] language, a bare nominal argument in this language should also allow the wide scope reading of the argument with respect to negation, as do English indefinites. This prediction is incorrect, as shown by (15a), in which *kotoran* 'spot' must take narrow scope. Just as in Indonesian, a relative clause sentence would be used as in (15b) to express the wide scope reading of the bare nominal.

(i)a. Shonen-tachi-ga kooen-de asonda.
boy-PL-Nom park-Loc played
'Boys played in the park.'

b. Hito-bito-ga kooen-ni kita.
people-RED-Nom park-Loc came
'People came to the park.'

This fact poses a problem for the Nominal Mapping Parameter because Japanese, being a [+arg, -pred] language, should not be able to have plural morphology due to the kind-denoting requirement of bare nouns.

(15)a. Aku ora weruh kotoran ning jubin.
I Neg see spot on floor
'I did not see spots on the floor.'
⇨ Neg>Indefinite (narrow scope): I did not see any spot on the floor.
*Indefinite>Neg (wide scope): There is a spot that I failed to see on the floor.'

b. Ana kotoran sing aku ora weruh ning jubin.
exist spot that I Neg see in floor
'There is a spot on the floor that I failed to see.'
⇨ * Neg>Indefinite (narrow scope): I did not see any spot on the floor.
Indefinite>Neg (wide scope): There is a spot that I failed to see on the floor.

The second argument against the classification of Javanese as a [+arg, +pred] language concerns the absence of reduplicated forms in Javanese for the generic use of bare nouns. We have seen above that bare nominals in English can be inflected for plural in generic statements as in (7a, b). If Javanese is a [+arg, +pred] language, then the prediction is that bare nominal arguments in Javanese should also be able to reduplicated when interpreted as generic. This prediction is incorrect, as shown in (16a).

(16)a. Asu-asu njegug. "Dogs are barking.'
dog-RED bark
⇨ plural interpretation: There is more than one dog that barks/are barking.
* generic interpretation: It is a general property of dogs that they bark.

b. Asu njegug. "A dog/the dog/dogs bark.'
dog bark
⇨ plural interpretation: There is more than one dog that barks/are barking.
generic interpretation: It is a general property of dogs that they bark.

In (16a), the reduplicated noun *asu-asu* 'dogs' only allows plural interpretation. Instead, the non-reduplicated bare nominal is used for generic statements in Javanese, as in (16b). This fact is naturally accounted for if Javanese is a [+arg, -pred] language because kinds are known to yield a universal reading (Chierchia 1998a: 363a). But we have seen that this analytic possibility is incorrect in light of the lack of a generalized classifier system and the presence of plural morphology marked by full reduplication. Therefore, I conclude that Javanese cannot be a [+arg, +pred] language in Chierchia's sense.

3.3. *Section Summary*

To summarize this section, I have shown, using the arguments developed by Chung (2000) that Indonesian and Javanese cannot be classified as any one of the three language types

that should serve to categorize all human languages under Chierchia's Nominal Mapping Parameter. This result is important because it raises important questions about the extent to which the morphosyntactic properties of a bare noun in a language is predictable from its denotation. In other words, the results achieved here indicate that the Nominal Mapping Parameter imposes too tight a mapping between the denotation and morphosyntax of NPs.

In the next section, I develop a new, relativized parametric theory of the denotation of bare nominals across languages within the Principles-&-Parameters approach to linguistic variation that adequacy derives the effects that the Nominal Mapping Parameter was intended to capture without positing any rigid mapping between the syntax and semantics of bare nominals.

4. A Relativied Parametric Theory of Nominal Denotation: From Indonesian/Javanese to the World

In this section, I develop an alternative, purely syntactic explanation for the effects of the Nominal Mapping Parameter within the framework of the Minimalist Program (Chomsky 1995). I start by pointing out a conceptual problem with Chierchia's notion of semantic parameter and show that it is not groundable within the standard conception of the locus of parameters within the Principles & Parameters approach to language variation. Resolution of this problem leads to an alternative explanation in the realm of the morphosyntactic variation of the lexicon in each language, which is an unreducible source of linguistic variation (Borer 1984; Fukui 1986, 1995; Chomsky 1995. I propose a relativized parametric theory of nominal denotation and morphosyntax whereby languages differ in terms of a) the height/complexity of the functional super-structure above bare nominals and b) the possible set of Number values. Point (a) has been independently argued for in recent work such as Grimshaw (1991, 2005), Massam (2001), Guilfoyle and Noonan (1992), and Vainikka (1993/1994). Point (b) has been independently supported by extensive study of the Number system in languages such as Malay and Indonesian as in Carson (2000) and Chung (2000). The proposed analysis, thus, provides further evidence for these claims.

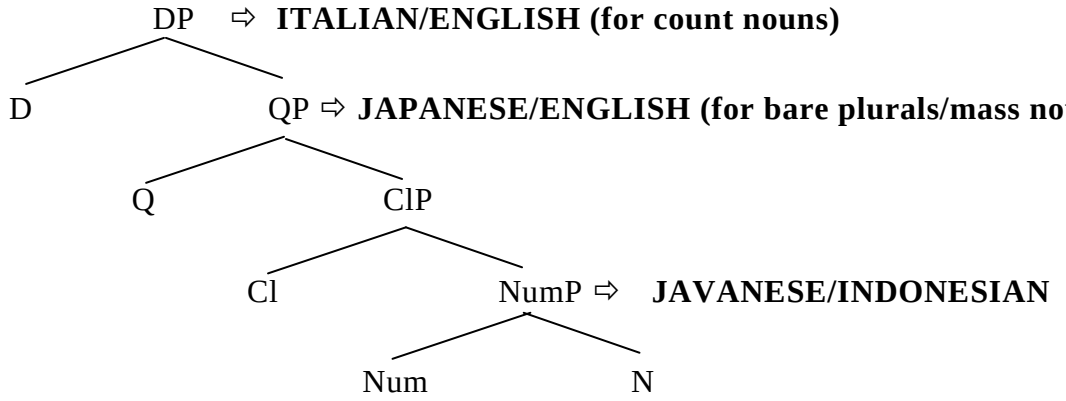
4.1. *The Relativized Theory of Nominal Function Projections and Possible Number Values*

Let us start by pointing out a conceptual problem with Chierchia's (1998a, b) notion of "Semantic Parameter". The idea behind the Nominal Mapping Parameter is that a parameter can be postulated within the mapping between syntactic and semantic/LF representations. This idea, however, is at odds with the standard conception of the locus of the parameter as in the Principles & Parameters approach to language variation as outlined in Chomsky (1995). Instead, parametric variation is commonly assumed within this approach to be restricted to the properties of the lexicon (Chomsky 1995), specifically, those of functional categories alone, a hypothesis known as the *Functional*

Parameterization Hypothesis (Borer 1984; Fukui 1986, 1995). A natural approach to the denotation and morphosyntax of bare nominals, then, should be sought in the variation of the morphosyntactic feature of bare nominals across languages and show that the observed differences follow from morphosyntactic variation alone.

Within this agenda in mind, I propose that languages differ in two dimensions: a) how high a bare nominal can "grow" across languages and b) what set of the binary values the Num head in each language selects. For the first part of this claim, I propose the universal nominal morphosyntactic hierarchy DP>QP>ClP>NumP>NP, from which languages parametrically set the appropriate height of nominal projections for their bare nouns. Specifically, languages such as Javanese and Indonesian project up to NumP; languages such as Japanese project up to QP; languages such as Italian project up to DP; languages such as English project either up to QP (like Japanese) or DP (like Italian), depending on the nature of a noun inserted into the N head in a manner to be explained below. This proposal is summarized in (17).

(17) A Relativized Theory of the Nominal Functional Structure above N



A question arises as to whether there are languages which instantiate the ClP option. I come back to this question in section 5, where I claim, drawing on arguments made by Cheng and Sybesma (1999), that definite bare nouns in Cantonese and Mandarin instantiate this option.

As stated at the outset of this section, the idea of "growth of nominals" is not an entirely new idea but rather has been argued for in recent work as in Grimshaw (1991, 2005), Massam (2001), Guilfoyle and Noonan (1992), and Vainikka (1993/1994) on various grounds. Grimshaw (1991, 2005) proposes a theory of "extended projections" whereby lexical heads such as V and N constitute projections with the functional heads such as T/C

and D/P on top of them conditioned by two constraints on projection.[4] First, two categories must be categorically identical in terms of the verbal and nominal features. Second, the F-value of X is not higher than the F-value of YP when X is the head of YP and YP is a projection of X (Grimshaw 2005: 4). "F-value" is a functional status assigned as follows: F0 is assigned to the lexical categories, F1 is assigned to the lowest level functional category; and Fn to the next successively higher functional categories. Thus, the lexical category V forms an extended projection with T and C because the F-value of V, being associated with the verbal feature, is not higher than that of a T or C. For the same reason, N (F1) forms an extended projection with D (F2) and P (F3). One important respect in which Grimshaw's approach is similar to the proposed analysis is her claim that, under a universal tree structure/inventory (as in Cinque 1999), languages can choose whether or not to include each functional specification as a head in their possible inventory, as long as combinations of the functional head and their complement do not violate the two constraints on projection explicated above. Thus, if we have 20 functional categories in the universal inventory, a language might choose {F20, F9, F5, F0} while another language might choose {F8, F4, F2, F0}. However, the two principles of extended projections impose a strict structure constraint on the relative hierarchy of these categories. Grimshaw's particular application of the theory of extended projection to nominal domains is different from the proposed analysis in that the highest (extended) projection of nominals is PP under her analysis whereas it is DP under my analysis. Nonetheless, her proposal is quite similar to the proposed analysis, according to which languages choose a subset of the universal nominal structure given in (17), and in that this choice determines the fate of the morphosyntactic behavior of elements embedded within the structural configuration parametrically chosen. Thus, the proposed analysis can be understood as one particular way of implementing her theory of extended projection to nominal domains within a more elaborated array of functional heads such as Num, Cl, and Q.

Massam (2001) also reaches similar conclusions based on her extensive study of what she calls Pseudo Noun Incorporation/PNI in Niuean, an ergative-absolutive language of the Tongic subgroup from the Oceanic family. This language is a VSOX language as illustrated in (18a). As Massam observes, this language also allows VOSX order as shown in (18b), which Massam analyzes as a case of PNI.

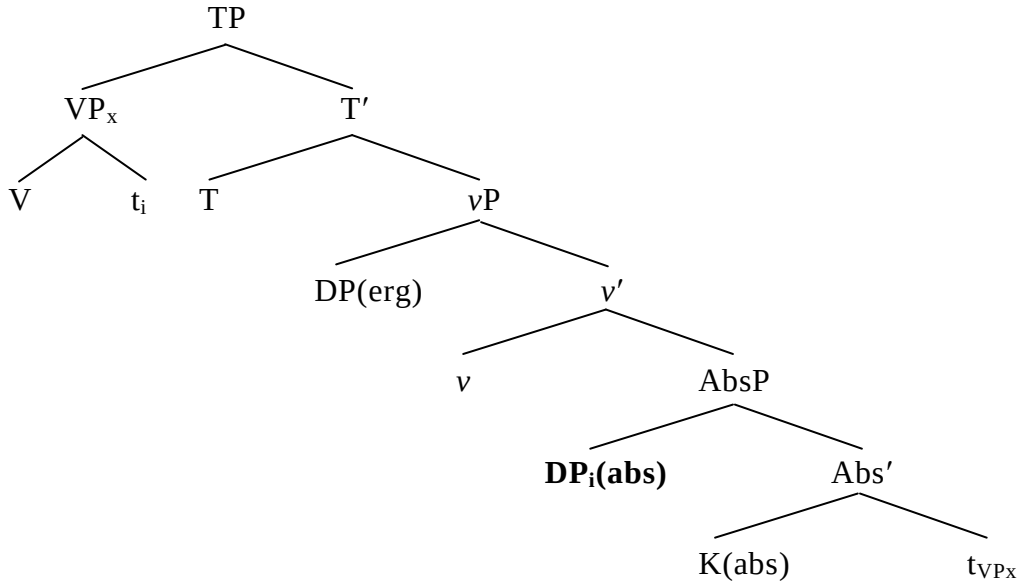
[4] Grimshaw (2005: 64-71) provides a succinct summary of a variety of papers that appeared after the publication of Grimshaw (1991) that address important issues that arise in the theory of extended projections.

(18)a. Ne kai e Sione e tau talo aki e huki.
Pst eat Erg Sione Abs Pl taro with Abs fork
'Sione ate the taros with a fork.' (Massam 2001: 155)

b. Ne inu kofee kono a Mele.
Pst drink coffee bitter Abs Mary
'Mary drank bitter coffee.' (Massam 2001: 158)

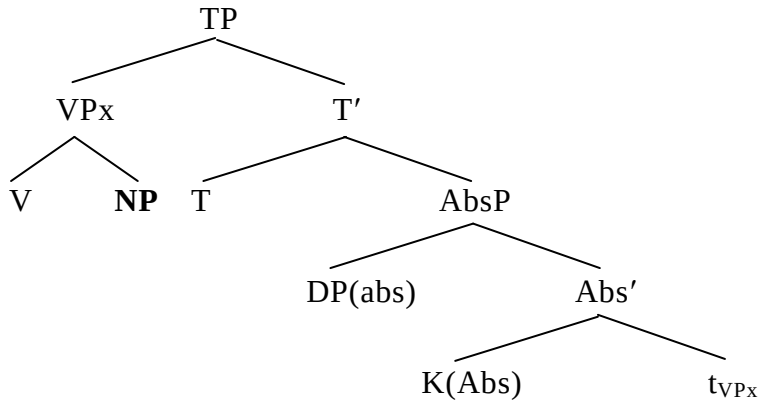
She assumes that both examples are derived by the VP fronting into [Spec, TP]. For the VSOX order illustrated in (18a), the DP argument undergoes movement into [Spec, AbsP] to check Absolutive case. This movement is followed by the fronting of the VP that contains the verb and the trace of the direct object into [Spec, TP]. This derivation is illustrated in (19). For the VOSX/PNI order as in (18b), Massam crucially assumes that the direct object is an NP, not a DP. Under the assumption that Case features appear on an extended functional head such as KP, not on an NP, the direct object in (18b) cannot check Absolutive Case, which instead is checked by the external argument of the sentence. The VOSX order is derived by fronting of the VP that contains both the verb and the NP object. This derivation is illustrated in (20).

(19) The Derivation of the VSOX Order



(slightly modified from Massam 2001: 163)

(20) The Derivation of the VOSX Order



(slightly modified from Massam 2001: 165)

Massam shows that the proposed analysis provides a natural account of several differences between the two types of PNI in Niuean known as Generic PNI and Existential PNI first noted by Seiter (1980) once we take seriously the categorial distinction between NP and DP. The properties of the two types of PNI that are relevant for present purposes are summarized in (21) and (22), together with illustrative examples in each type of the PNI in (23a) and (23b).

(21) The characteristics of the Generic PNI Construction (Massam 2001: 172)
- a. NP is non-specific and non-referential
- b. no extended nominal categories or dependants of extended nominal categories (i.e., tensed relative clauses) appear over N.
- c. durative/frequentative meaning

(22) The characteristics of the Existential PNI Construction (Massam 2001: 177)
- a. occurs with closed class of verbs *fai* 'have/be', *muhu* 'have plenty/be plentiful'
- b. relative clause can appear; at the right edge of the sentence
- c. NP is referential, non-specific and indefinite

(23) a. Example of the Generic PNI

Ne inu kofee kono a Mele.
Pst drink coffee bitter Abs
'Mary drank bitter coffee.'

b. Example of the Existential PNI

kua fai nakai e umu haau?
Perf make Ques Abs oven your
'Have you made your oven yet?' (Massam 2001: 173)

The three characteristics of the Generic PNI in (21a-c) naturally follow from the NP status of the pseudo-incorporated nominal. First, the property (21b) falls out from the fact that it is only a bare NP that undergoes movement into [Spec, TP] with the verb; if it were a DP, it would check absolutive Case, contrary to facts. This NP-based analysis also accounts for the fact that relative clauses cannot attach to pseudo-incorporated nominals under the assumption (Finer 1998; Ghomeshi 1996; Kayne 1994) that relative clauses appear high within DPs. The property in (22a) is also naturally predicted under the standard assumption that a bare nominal has a non-referential, non-specific denotation. This property, in turn, yields the durative/frequentative meaning for the Generic PNI because the lack of referentiality ensures unbounded/non-delimited interpretation of the event denoted by the sentence (21c), as argued for in Jackendoff (1990) and Tenny (1994). Massam further shows that the three properties of the Existential PNI in (22a-c) can be derived if the nominal is topped with a quasi-determiner projection contributed by verbs of existence such as *fai* 'have/be' and *humu* 'have plenty/be plentiful.'. She proposes (p. 186) that "*fai* is essentially at one and the same time a verb and a determiner, in that it serves simultaneously as the main lexical predicate head for the sentence, and as a functional category which confers referentiality on its complement NP in the sense of Higginbotham (1985). Specifically, verbs like *fai* bind the referentiality index of the NP as a determiner does to its complement. This proposal, thus, not only derives the observation in (22b) that relative clauses can appear in the Existential NPI (because verbs of existence serve the same function as D heads) but also yields the referential, non-specific, indefinite reading to the NP (22c). It is clear that Massam's analysis of the differences between the Generic PNI and the Existential PNI crucially depends on the categorial distinction between the NP and DP. Thus, her analysis can be considered as another variation of the analysis proposed here, whereby a parametrically different height of nominal functional projections across languages accounts for different morphosyntactic properties of their bare nominals.

Guilfoyle and Noonan (1992) propose the Structure Building Hypothesis, namely, that, in the early stages of language acquisition, children have the UG-constrained grammar solely consisting of lexical categories, *Lexical Grammar,* with functional categories such as I, C, D, and KASE gradually emerging after lexical categories based on the positive evidence from the input data and the emergence of the Functional Grammar.[5] They show that this hypothesis receives support from the optionality of subjects, the absence of NP-movement and the subject-auxiliary inversion and several stages concerning the position of verbs in German because these properties are exactly what we expect if child English

[5] Guilfoyle and Noonan (p. 241) acknowledge that Lebeaux (1988) and Radford (1990) developed similar ideas. For example, they state, citing Lebeaux (1988), that "the early stages of acquisition are a pure representation of theta-theory."

syntax lacks functional categories such as T and C. The proposed idea of "growth of bare nominals", thus, can be naturally regarded as applying their Structure Building Hypothesis to the domain of nominal syntax; see section 5 for further discussion on this point.

Vainikka (1993/1994) provides further evidence for the non-maturational gradual development of phrase structure based on the parallel acquisition of nominative case and tense-related materials. Her study observes four of Nina's developmental stages. During the first stage of her acquisition (age 1; 11-2; 1), Nina used predominantly genitive subjects. During the second stage (age 2; 1-2; 2), however, she used nominative subjects predominantly instead. This shift in case marking for subjects naturally falls into place under the analysis where Nina's grammar developed a phrase structure that includes up to TP; the subject is assigned genitive case in the specifier of VP but when the TP structure is learned, the subject is assigned nominative case in the specifier of TP, as in Adult English. Vainikka shows that this analysis is supported by the fact that the TP-related material such as modals, auxiliaries, third person singular *-s*, and past tense *-ed*, gradually emerge in the second stage. This development view of phrase structure can be considered another case for the proposed analysis of nominal morphosyntax across languages.

Getting back now to the second part of the claim concerning the semantics of the Num head, I assume that there are two possible sets of values for the Num P that language can choose from; {singular, plural} or {neutral, plural}. Languages such as English and Italian select {singular, plural} values as well as {neutral, plural} values whereas languages such as Japanese, Javanese, and Indonesian select {neutral, plural} values. There is independent evidence that the possible values for the number slot in Italian and English are significantly different from those for the same slot in Indonesian, Javanese, and Japanese. In her extensive study of the number system in Malay, Carson (2000) argues that bare nouns in Malay are *neutral* with respect to number unless reduplication tells us otherwise and that Malay chooses {neutral, plural} values for the Number head. For example, a unreduplicated/ bare nominal can denote either a singular or plural instance of the entity denoted by that nominal whereas its reduplicated form specifically denotes more than one instance of the same entity. The same argument is independently made by Chung (2000: 165, 167) for Indonesian. Consider examples (4a), repeated as (24a) and (24b).[6]

(24)a. Buah-lah kalimat-kalimat berikut menjadi kalmat-kalimat negatif.
make-Emp sentence-PL following become sentence-PL negative
'Please make the following sentences negative.'(Dardjowidjojo 1978: 27; Chung 2000: 165)

[6] The translation for (24b) is slightly modified to reflect the fact that *kalimat* can be interpreted either as singular or plural, a judgment confirmed by my native language consultants.

b. Kalimat Dasar.
sentence basic
'Basic sentence(s) " (Wolff et al, 1992; Chung 2000: 166)

In (24a), the reduplicated noun *kalimat-kalimat* must be construed as 'more than one sentences' whereas in (24b), the corresponding noun *kalimat* can be construed either as a singular or plural. These examples, thus, illustrate that a bare nominal in Indonesian takes {neutral, plural} values for the Num head, as in Malay. See also Dyen (1964: 7a.-10), cited by Chung (2000: 166-167), who makes a similar observation.

There is evidence that Japanese and Javanese select the {neutral, plural} values for the Num head as in Indonesian though dominant morphological processes to specifically denote plurality seem to be different between Japanese (*tachi*-suffixation) and Javanese/Indonesian (reduplication) (see note 3 for relevant discussion). Consider examples in (25a, b) from Javanese and (26a, b) from Japanese.

(25)a. Jaran lagi mangan.
horse Prog eat
'A horse is eating./Horses are eating.'

b. Jaran-jaran lagi mangan.
horse-RED Prog eat
'*A horse is eating.'/Horses are eating.'

(26)a. Uma-ga hasitteiru.
horse-Nom play
'A horse is running./Horses are running.'

b. Uma-tachi-ga hasitteiru.
horse-PL-Nom grass-Acc
'*A horse is running./Horses are running.'

In the example in (25a), the unreduplicated bare nominal *jaran* 'horse' can denote either singular or plural instances of the horse. Its reduplicated correspondent *jaran-jaran* 'horses' specifically denotes plurality, as shown by the English translation given to the example in (25b). Exactly the same observation holds for Japanese examples as in (26a, b), where the bare nominal *uma* 'horse' can be construed as singular or plural depending on contexts but its reduplicated variant must denote plurality once it is suffixed with *-tachi*. Examples as in (27a, b) from Javanese and (28a, b) from Japanese make the same point.

(27)a. Callie lan Tisa kuwi kucing.
Callie and Tisa Cop cat
'Callie and Tisa are cats.'

b. Callie kucing
Callie cat
'Callie is a cat.'

(28)a. Callie to Tisa-wa neko-da.
Callie and Tisa-Top cat-Cop
'Callie and Tisa are cats.'

b. Callie-wa neko-da.
Callie-Top cat-Cop
'Callie is a cat.'

The observed semantic contrast between (25a)/(26a) and (25b)/(26b) and the indeterminate nature of bare nominals with respect to the number value in (27-28), therefore, provide independent evidence for my assumption that bare nominals in Javanese and Japanese are specified as {neutral, plural} for the Num head as in Indonesian.

With this much in mind, the relativized parametric theory of nominal denotation can be summarized as in Table 1.

Table 1: A Relativized Parametric Theory of Nominal Denotation

Languages	Height of Nominal Projections	Num Values
Indonesian/Javanese	NumP	{neutral, plural}
Japanese/English	QP	{neutral, plural}
Italian/English	DP	{singular, plural} or {neutral, plural}

Three theoretical assumptions are in order here before we move onto the actual analysis of bare nominals across languages. First, I assume that the N in the relative theory of nominal projections in (17) is underspecified with respect to its denotation along lines suggested by the framework of Distributed Morphology as in Harley and Noyer (2000). Second, I assume the economy of projection as proposed on various conceptual and empirical grounds in recent work (Chomsky 1995, Fukui 1986, 1995, Fukui and Speas 1986, Law 1991; Speas 1994; Bošković 1997; Grimshaw 1993; Safir 1993). Specifically, if a language selects the {singular, plural} set for the Num head, the Cl(assifier) P does not project on the ground of economy; the individuation function encoded by the singular value of the {singular, plural} set has the same function as that encoded by the classifier. Under the theory that semantic composition is computed in a bottom-up fashion in a strictly local manner, the projection of the NumP with the relevant value makes the projection of the dominating ClP redundant. Finally, I assume that there is a feature checking/valuation relation of some sort between the Num head and its complement N. To be precise, the Num head with the {singular, plural} set values its complement as a count noun while the Num head with the {neutral, plural} set values it as a mass noun. I will return to more detailed discussion of this last assumption in section 4.2.4.

4.2. *Deriving the Denotation and Morphosyntax of Bare Nominals across Languages*

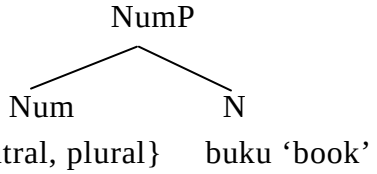
In this subsection, I demonstrate how the relativized parametric theory of nominal denotation adequately captures the morphosyntactic and semantic properties associated with bare nominals in Indonesian, Javanese, Japanese, Italian, and English, including those that Chierchia (1998a, b) attempted to capture by his Nominal Mapping Parameter. I also

show that the current analysis makes new predictions concerning modification and iterativity of determiner (-like) elements that are indeed borne out.

4.2.1. Indonesian/Javanese

Let us consider first the nominal syntax of bare nouns in Indonesian and Javanese. We have seen that these two languages have the following four morphosyntactic characteristics: i) they allow bare nominal arguments, ii) they lack a generalized classifier system, iii) the extension of all nouns is mass, and iv) they allow only narrow scope of bare nominals. All these properties straightforwardly follow if bare nominals in these languages project up to NumP with the set of the Num values being {neutral, plural}, as shown in (29).

(29) The Nominal Structure of Bare Nouns in Indonesian and Javanese



First, the two languages in question allow bare nominal arguments because there is no DP as shown in (29). Second, they do not have a generalized classifier system because they project up to NumP for bare nominals, excluding higher function projections including ClP. Third, the extension of all nouns is mass for the following reason. If the Num value is specified as neutral, the denotation of the syntactic object in (29) is a kind because it does not differentiate between singular and plural instances of the NumP. If the Num value is plural, the denotation of the Num P in (29) comes out as a bare plural, which is also a kind under Carlson's (1977) theory. Thus, whichever value the Num head selects yields a kind, hence mass interpretation to the NumP. Finally, the obligatory narrow scope reading of bare nouns with respect to negation follows from the kind-denoting requirement along lines suggested by Carlson and Chierchia. In this way, the particular clustering of the morphosyntactic properties observed in Indonesian and Javanese, which was shown to be unpredictable under Chierchia's Nominal Mapping Parameter, naturally follows from the interaction of the Num P structure and the {neutral, plural} values.

One potential problem that remains with the proposed analysis of nominal syntax in Indonesian/Javanese is how to account for expressions as in (30a, b) from Indonesian and (31a, b) from Javanese, respectively.

(30)a.	tiga	buku.	b.	buku	ini
	three	book		book	this
	'three books'			'this book'	

(31)a. telung buku. b. buku iki.
three book book this
'three books' 'this book'

Under the present analysis, these examples might be incorrectly ruled out because of the lack of the QP or DP that would host numeral and demonstrative words as their head, respectively. That demonstratives are semantically functioning as determiners in the contemporary Indonesian is noted by MacDonald (1976: 85), who observes that the demonstrative *itu* 'that' is "coming to fulfill a function very much like that of the definite article."

I maintain, however, that both numerals and demonstratives in Indonesian and Javanese are modifiers of the NP projection. Fukui (1986, 1995) and Fukui and Speas (1986) argue that Japanese entirely lacks functional categories such as C, T, and D of the English-kind (or, at best, has an quite impoverished system of these function words), with elements such as subjects and modifiers all being attached to lexical projections as an X′ adjunct. If this analysis can be extended to Indonesian and Javanese, then numerals and demonstratives as in (30a, b) and (31a, b) are also modifiers of lexical projections such as NPs in the structure in (29). More generally, it may well be that a language uses whatever syntactic resources are parametrically chosen to express the same meanings as other languages would express with a different (more articulated) syntactic structure.

There is indeed independent evidence that demonstratives in Indonesian and Javanese are not D heads but instead modifiers of NPs. It is well known that lexical heads such as nouns do not impose any structural limit on the number of modifiers as long as they can be semantically interpreted and licensed. This is illustrated in examples in (32a-c) in English.

(32)a. a big balloon.
b. a red big balloon
c. a red big expensive balloon

Demonstrative words in English such as *this* and *that* are instances of the D head, not modifiers of an NP, by the same criteria. This is shown by the contrast between (33a, b) and (33c), where *this*/*that* can never co-occur with other functional D elements such as *John's*. In other words, D elements are uniterable.

(33)a. this/that book
b. John's book
c. * this/that John's book

Demonstratives in Indonesian and Javanese, by contrast, clearly pattern with modifiers of the NP rather than D heads because they can co-occur with other possessor elements, as illustrated by the acceptability of examples as in (34c) (Indonesian) and (35c) (Javanese).

(34)a.	buku	ini	b.	buku	John	c.	buku	John	ini
	book	this		book	John		book	John	this
	'this book'			'John's book'			'this John's book'		

(35) a.	buku	iki	b.	buku-ne	John	c.	buku	John	iki
	book	this		buku-Poss	John		book	John	this
	'this book'			'John's book'			'this John's book'		

This contrast between (34c)/(35) and (33c), therefore, provides support that there is no D element in Javanese and Indonesian and that demonstratives in these languages are modifiers of the lexical NP projection. Further cross-linguistic evidence for this conclusion is provided by Bernstein (1997). Bernstein points out that, in languages such as Arabic and Greek, demonstratives and determiners can co-occur, suggesting that the former is not a D head. Bernstein further observes that in other languages such as Spanish, Swedish, and Norwegian, the demonstratives are the same words as 'here' and 'there'. This observation holds at least for Indonesian as well, as shown in examples in (36a, b).[7]

(36)a.	buku	di	***sini***.	b.	buku	***ini***
	book	in	here		book	this
	'A book/the book/books/the books are here.'				'This book/these books'	

The expression in (36a) is a TP due to the lack of copulas in Indonesian where the word *sini* is used as a preposition. The expression in (36b) is a nominal phrase modified by the related

[7] In fact, Bernstein (p. 93) points out Javanese examples as in (i) as a case where a demonstrative and a determiner may co-occur, attributing it to Delsing (1988).

(i)	ika	n	anak
	this	the	child
	'this child'		(Bernstein 1997: 93)

This example, however, was judged unacceptable by my consultants, who speak modern Javanese. Modern Javanese does not have any determiners like *n* 'the' as in (i); recall our observation on Javanese made in section 3.2. My consultants all reported that the demonstrative (-like) word *iki* 'this' should be used instead of *ika*.

word *ini*. This homophony between words meaning 'here' in Indonesian, thus, provide further support for the view that demonstratives do not necessarily have to be analyzed as instances of the D head but rather can be locative modifiers arguably attached to NPs.

4.2.2. Japanese

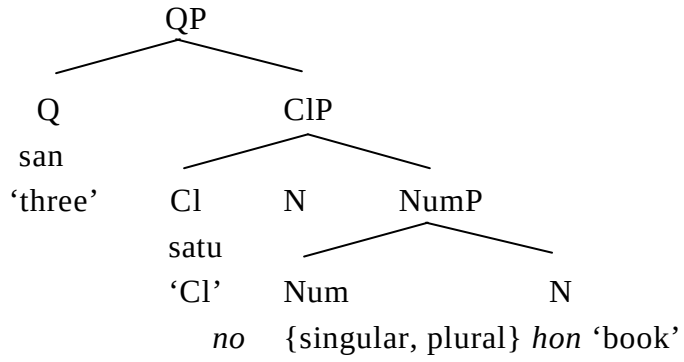
Let us now turn to the nominal syntax of bare nouns in Japanese. Japanese has the following morphosyntactic characteristics; i) it allows bare arguments, ii) has a generalized classifier system, iii) the extension of all nouns is mass, and iv) the obligatory narrow scope of bare nouns with respect to negation. The first three properties were noted by Chierchia (1998a, b); the last property is illustrated in the contrast between (37a) and (37b); the bare noun *yogore* 'dirt' cannot take scope over the negative morpheme *nai* 'not', as shown in (37a). The wide scope reading is expressed by the relative clause structure, as illustrated in (37b).

(37)a. John-ga yuka-de yogore-o mituke-naka-tta (koto)
John-Nom floor-Loc dirt-Acc find-Neg-Past (fact)
'(The fact that) John did not find a spot/any spot/spots on the floor.'
⇨ Neg>indefinite (narrow scope): I did not see any spot on the floor.'
* indefinite>Neg (wide scope): There is a spot that I failed to see on the floor.'

b. John-ga yuka-de mituke-naka-tta yogore-ga aru (koto).
John floor-Loc find-Neg-Past dirt-Nom exist (fact)
'(The fact that) There is a spot that John did not find on the floor.'
⇨ * Neg>indefinite (narrow scope): I did not see any spot on the floor.'
indefinite>Neg (wide scope): There is a spot that I failed to see on the floor.'

I propose that the nominal structure in Japanese is as shown in (38). Japanese bare nominals project up to QP with the Num specification being {neutral, plural} as in Indonesian and Javanese. I assume, following Kitagawa and Ross (1982) and Watanabe (2006), that what otherwise looks like a genitive case marker *no* in expressions such as *san satu-no hon* 'three-Cl books' that intervenes between the classifier and the head noun is a linker that is inserted post-syntactically. This treatment seems appropriate given that there are no structurally characterizable conditions that govern the occurrence of this marker.

(38) The Nominal Structure of Bare Nouns in Japanese



The above-noted morphosyntactic profile of bare nominals in Japanese directly follows. First, Japanese allows bare nominals in any argument position because there is no DP projection in (38). Second, Japanese has a generalized classifier system due to the projection up to QP which dominates the ClP. Third, the extension of all nouns is mass for the same reason that the extension of all nouns is mass in Javanese and Indonesia: whichever value the Num head takes, the denotation of the NumP always ends up as the name of a kind, which is mass. Finally, bare nominals in Japanese can only take narrow scope with respect to negation due to their kind-denoting requirement that blocks wide scope readings independently.

The idea that Japanese does not have anything like D heads in English has been a traditional one within the generative research on this language since Fukui (1986). Noguchi (1997) provides arguments in favor of this position based on the contrast between English and Japanese with respect to the availability of variable binding for pronouns. One candidate for the D head in Japanese is a class of demonstratives such as *kono* 'this' and *ano* 'that'. However, the iterativity test introduced earlier shows that these elements are not D heads but instead modifiers of some other projection such as NP or the whole QP in (38) because, as Fukui (1986, 1995) notes, these elements can occur with other possessor or pronominal adjectives, as in (39b, c).

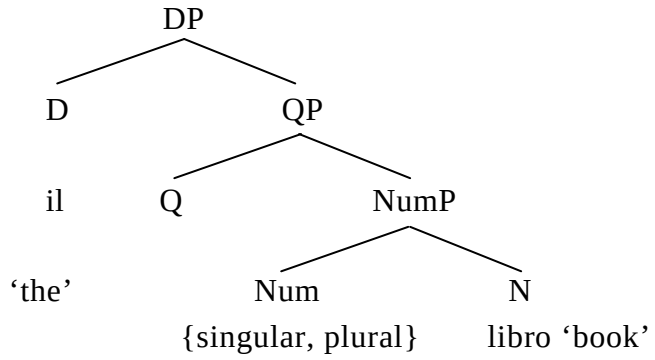
(39)a. ano kuruma b. John-no ano kuruma c. ookina John-no anokuruma
that car John-Gen that car big John-Gen thatcar
'that car' '*John's that car' '*big John's that car'
(Fukui 1995: 106, 107)

4.2.3. Italian

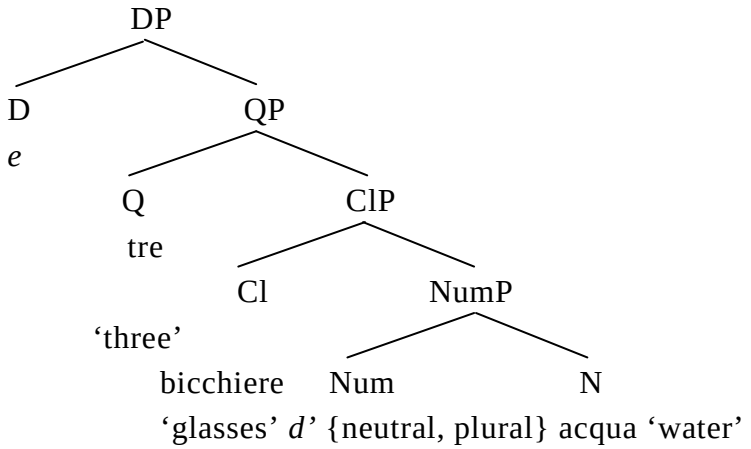
Let us now consider the nominal syntax of bare nouns in Italian. Italian, being one of the examples of the [+arg, -pred] language under Chierchia's Nominal Mapping Parameter, does not allow bare arguments. The unavailability of bare nominal arguments in Italian directly follows if we assume that Italian nouns must always project up to DPs and hence instantiate

the maximally complex nominal structure among languages of the world. We have also seen that Italian can take either {singular, plural} or {neutral, plural} sets for the Num value. The structure for Italian nominals, thus, will be as in (40) or (41), depending on whether the Num value is specified either as {singular, plural} or {neutral, plural}. Note that nominals in Italian project up to DP in both cases. I assume that *de* 'of' in the structure in (41) is inserted post-syntactically as a linker, like *no* in Japanese.

(40) The Nominal Structure of Bare Nouns in Italian (for count nouns)



(41) The Nominal Structure of Bare Nouns in Italian (for mass nouns)



The fact that Italian disallows bare nominal arguments falls out because nominals in this language project up to the DP, whether its head is phonologically realized or not. Evidence for this analysis comes from the subject-object asymmetry in Italian noted by Chierchia (1998a: 356), who points out that bare nominal arguments are allowed in direct object positions in certain cases but never permitted in subject positions, as illustrated by the contrast between (42a) and (42b). The same observation is also made by Longobardi (1994: 616), who points out the contrast between (43a) and (43b, c).

(42)a. * Bambini sono venuti da noi. b. Ho preso bicotti con il mio latte.
kids be come by us I-have taken cookie with the my milk
'Kids came by us.' 'I ate cookies with my milk.'

(43)a. * Acqua viene giù dalle colline.
water comes down from the hills
'Water comes down from the hills.'
b. Viene giù acqua dalle colline.
comes down water from the hills
'Down from the hills comes water.'
c. Ho presco acqua dalla soregente.
I took water from the spring
'I took water from the spring.' (Longobardi 1994: 616)

The subject-object asymmetry observed here naturally follows if Italian nouns always project up to a DP with an empty head. A standard assumption in the generative framework has been that empty heads must be properly licensed by appropriate heads (Chomsky 1981, 1986; Rizzi 1990). Under this assumption, the null D head in (43a) that dominates the bare noun *bicotti* 'cookie' is correctly licensed by the verbal head *preso* 'take'. This licensing option is unavailable in (42b). A similar story holds for the contrast between (43a, b) and (43c). Therefore, the subject object asymmetry here provides independent support for the DP structure for Italian bare nominals, as proposed in the current analysis.

4.2.4. English

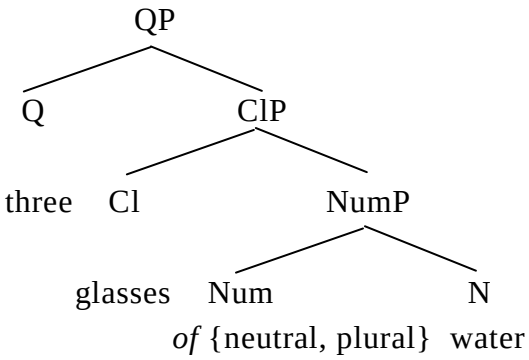
Consider finally the syntax of bare nominals in English. We have seen in the previous section that, under Chierchia's Nominal Mapping Parameter, English belongs to the [+arg, +pred] language type. This means that this language behaves as Japanese and Chinese in that the extension of its bare plural and mass nouns is a kind (hence [+arg]), but, at the same time, behaves like Italian and French in that it prohibits count nouns from occurring without determiners (hence [+pred]). I propose that this dual behavior of English nouns follows if English can choose the Japanese-type QP-structure or the Italian-type DP structure.

Let us consider first the Japanese-type structure assigned to English when bare plurals and mass nouns are involved. In this case, English allows bare arguments, requires a classifier system, and does not have plural morphology, as shown in (44a-c), respectively. These properties mirror exactly those observed in Japanese.

(44)a. I drank water.
b. I drank three glasses of water.
c. * I drank waters.

I propose the nominal structure for bare plurals and mass nouns as shown in (45), which is the Japanese-type nominal structure; it projects up to QP with the Num value being chosen from the {neutral, plural} set. As in Italian *de* and *no* in Japanese, I assume here again that the preposition *of* is inserted post-syntactically between classifiers and water as in *three glasses of water*.

(45) The Nominal Structure in English (for bare plurals and mass nouns)



The three morphosyntactic properties of bare plurals and mass nouns in English noted above are derived automatically by virtue of the fact that English has the Japanese-type QP structure. The bare nominal argument option is possible because there is no DP on top of the QP. The Num specification shown in (45) requires that the denotation of the NumP be a kind. Thus, a certain set of classifier-like expressions such as *glass, cup,* and *piece* is required for nouns in (46) to set up an appropriate counting level for each noun, just as in languages such as Indonesian, Javanese, and Japanese, wherein all bare nouns denote a kind. There is no plural morphology observed in bare plurals or mass nouns because they are true in an undifferentiated manner of a singular or plural instance of the entity denoted by this type of noun.

If English is like Indonesian, Javanese, and Japanese, then the proposed analysis also leads to the prediction that bare plurals and mass nouns cannot take wide scope over negation due to their kind-denoting requirement. This prediction is indeed confirmed by the examples like (5a, b), repeated here as (46a, b).

(46)a. I didn't see spots on the floor
⇨ Neg>Indefinite (narrow scope): I did not see any spot on the floor.
*Indefinite>Neg (wide scope): There is a spot that I failed to see on the floor.

b. I didn't see a spot on the floor.

⇨ * Neg>Indefinite (narrow scope): I did not see any spot on the floor.

Indefinite>Neg (wide scope): There is a spot that I failed to see on the floor.

(Chierchia 1998a: 368)

Consider now the structure for count nouns in English. When count nouns are involved, English does not allow bare nominal arguments (47a), lacks any classifier (47b), has plural morphology (47c), a cluster of properties that we have seen to characterize nominals in Italian.

(47)a. I saw a cat.

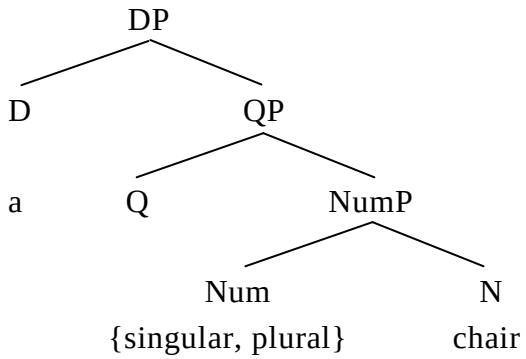
b. * I saw a cat.

c. * I saw a piece of cat.

d. I saw cats.

Thus, English takes the Italian-type nominal functional structure shown in (48). I assume that the indefinite article *a* is base-generated under the D head. Alternatively, *a* realizes the Q head (that is raised to the D head), since it denotes a singular instance of a discrete, countable entity; see also Longobardi 1994).

(48) The Nominal Structure in English (for count nouns)



The determiner-less bare option for count nouns is impossible for count nouns because the nominal structure projects up to the DP, as shown in (48). When the singular value is selected for the Num head, the denotation of the NumP is a singular instance of the chair, which is compatible with the function of the indefinite article *a*. When the plural value is selected instead, the denotation of the NumP comes out as a bare plural, which is a name of kind, as argued for by Carlson and Chierchia.

There are two potential problems with the proposed analysis for nominal syntax in English. The first potential problem concerns the selection between the Num head and its N

complement. The question is why it is that only bare plurals and mass nouns are inserted in the structure in (45) whereas only count nouns are inserted in the structure in (48). What blocks count nouns and bare plurals/mass nouns from being inserted in the structures in (48) and (45) in that order? I maintain that there is nothing wrong with this choice as far as syntax is concerned and that the syntax-external component interprets whatever syntactic object the narrow syntax creates. It has been widely known that, when the meaning of an open class nominal element clashes with that of determiners, it is always determiners whose interpretation molds that of nouns (Harley and Noyer 2000: Harley 2006: 213-214). For example, we can use mass nouns with determiners that specifically select count nouns; thus, not only (49a) but also (49b) is possible in English. With an appropriate context, *two coffees* in the sentence in (50b) can be interpreted by speakers of English as packaged coffees in cups or bags. Similarly, we can use count nouns together with determiners that specifically select mass nouns. In the example in (50b), the bare nominal *cookie* is not interpreted as a discrete entity but instead as amorphous substance that cookies are generally made of. (The examples in (49a, b) and (50a) are from Harley 2006: 213.).

(49)a. I don't drink much coffee.
b. I bought two coffees this morning.

(50)a. I had a cookie for breakfast.
b. That baby has cookie all over his face.

These examples illustrate that the meaning of the (lexical) noun is always the one that is bended to be compatible with the semantic contribution of the determiner which it co-occurs, not the other way around. In other words, there is no *ungrammatical* combination of nouns and functional elements within syntax, with the semantics trying its best to get a felicitous interpretation that is compatible with our world knowledge. Thus, when we have sentences like (51) below, to which we cannot assign any reasonable interpretation by any stretch of our encyclopedic knowledge, they are anomalous solely by our purely syntax-external criteria.

(51) # I had three oxygens in the kitchen. (Harley and Noyer 2000: 21)

The second potential problem with the proposed analysis of English nominals concerns the modifiability of elements like *glasses, cups* and *pieces*, which I have thus far analyzed as a classifier on a par with Japanese classifiers like *satu, nin,* and *hiki.* This unified treatment seems to be incorrect in light of the fact that the former may be modified by adjectives while the latter may not, as the contrast between (52a) and (52b) shows.

(52)a. three big cups of coffee

b. * san ookii hai-no kohii.
three big CL-L coffee
'three big cups of coffee'

c. ookina kappu san-hai-(bun)-no kohii
big cup three-Cl-Measure-L coffee
'three big cups of coffee'

There are two ways to get around this problem. One way is to give up a parallel treatment of English bare plurals and mass nouns and Japanese bare nominals and to say that English expressions like *cups*, *pieces,* and *glasses* are *measure phrases* that occupy the specifier position of the ClP. Since the specifier of a functional project can itself grow into a complex nominal structure, nothing blocks modification of measure phrases by pre-nominal adjectives as in *three big cups of coffee*. Another way to maintain the proposed analysis, which I adopt in this paper, is that the modification of classifiers in Japanese is blocked independently by a certain cliticization or prosodic requirement of classifiers in Japanese. Recall that I have argued in section 3.1 that the reason why the Indonesian *se-* 'one' needs a classifier is due to its clitic nature. In the same spirit, the example in (52b) could be ruled out because the clitic requirement of the numeral *san* 'three' cannot be satisfied due to the intervention of the adjective *ookii* 'big' between the numeral and the host classifier *hai* (cf. Bobaljik 1995). This analysis is supported by the fact that when the linear adjacency requirement is not disrupted, as shown in (52c), the result is grammatical. Therefore, I maintain that the contrast between (52a) and (52b) does not undermine the present unified analysis of English bare plurals/mass nouns and Japanese bare nominals.

4.3. *Section Summary*

To sum up this section, I have claimed that the different morphosyntactic profile exhibited by bare nominals in different languages is derivable from the interaction of two independently motivated parameters: how high each language allows its bare nominal to grow and what set of value each language can choose. The proposed analysis does not require any rigid mapping between the syntax and semantics of bare nominals, as in Chierchia's Nominal Mapping Parameter, but captures its effects through the set of functional items and of the possible number values available in each language, in a way that is compatible with the standard generative assumption about the locus of parameters.

5. New Typological Predictions of the Proposed Analysis

The relativized parametric theory of the denotation of bare nominals presented in the last section makes several predictions concerning the morphosyntax profile of nominals in

other languages. In this section, I am primarily concerned with three such languages, Child English, Russian and Chinese, whose morphosyntactic profiles are naturally predicted by the proposed analysis, though the discussion will also briefly discuss bare nominals in some other languages such as Brazilian Portuguese.

5.1. *Telegraphic Speech in English Acquisition*

The *Subset Principle* proposed by Wexler and Manzini (1987) states that child language acquisition starts with the setting of the parameter values that rules out the most, so that children can revise and modify their working hypothesizes solely on the basis of positive evidence.[8] Coupled within the proposed idea of "growth of nouns", this principle means that children learn nominal syntax in a bottom up fashion.

As mentioned in the last section, the idea that children learn nominal syntax in a bottom-up way, proceeding from the NP projection to some other higher projections such as DP projections, has been independently proposed by Guilfoyle and Noonan (1992) and Vainikka (1993/1994). Guilfoyle and Noonan propose the Structure Building Hypothesis, namely, that the Functional Grammar is not present in the early stages of language acquisition, based on well-known acquisitional properties such as the optionality of subjects, the absence of NP-movement, subject-auxiliary inversion, and verb placement facts. To repeat one argument based on the absence of NP-movement, Borer and Wexler (1987) observe that children treat all passives as adjectival passives and claim that this observation naturally follows under the syntactic NP-movement account of verbal passives (see Baker et al. 1989 for a detailed analysis) if children cannot form A-chain. This maturation analysis is untenable according to Guilfoyle and Noonan because principles of UG such as the θ-Criterion, the EPP, and the Projection Principle (Chomsky 1981, 1986) built into their grammar would not be able to

---

[8] To be more precise, following the standard assumption that only positive evidence is available to children learning a language, Wexler and Manzini (p. 44) state the *Subset Principle* as follows:

> "Suppose one value of a parameter yields a language $L(_i)$ and another value of the parameter yields a language $L(_j)$. Suppose further that $L(_i)$ is a smaller language that $L(_j)$, that is, that $L(_i)$ is contained in $L(_j)$. $L(_i)$ is a strict subset of $L(_j)$. Then the learning strategy specified by the Subset Principle is that the learner select the value which yields $L(_i)$ first. If this is the correct choice, there will never be evidence that it isn't, and the learner will stay with the value. If this is the wrong choice, then there will be positive evidence (sentences from $L(_i)$) which are not in $L(_i)$) which the learn will eventually hear; this evidence must exist because $L(_i)$ is a strict subset of $L(_j)$. The Subset Principle specifies that when positive evidence which shows that $L(_i)$ is the wrong language is encountered, the learner will switch to the parameter that yields language. In short, the Subset Principle is a method for specifying a markedness hierarchy when alternative values yield languages that are in a subset relation."

block their association of two structural positions with a single θ-role. Instead, Guilfoyle and Noonan argue that the above observation is straightforwardly derived if there is no IP in the child language syntax so that the movement of an NP can target: as a result, children treat all cases of passive as adjectival because formation of this type of passive is a lexical process that does not require the projection of the IP projection (Wasow 1977; Levin and Rappaport 1986). This 'bottom-up', gradual view of phrase structure is also supported by Vainikka's developmental evidence that the emergence of nominative subjects occurs around the same time as that of TP-related material such as modals, auxiliaries, and past tense.

The proposed analysis, therefore, makes the following interesting prediction; early stages of acquisition of nominal syntax in all languages should mirror the morphosyntactic profile of bare nominals in Javanese and Indonesian because these two languages instantiate the simplest nominal functional structure (NumP). Specifically, we predict that initial stages of all child languages should i) allow bare nominal arguments, ii) lack a classifier system for nouns, and iii) have plural morphology. This prediction is indeed borne out by what the literature on acquisition calls the *Telegraphic Speech*, as illustrated in English examples as in (53); see also Chierchia (1998a: 400) for a similar remark made on the basis of his Nominal Mapping Parameter.

(53) Telegraphic Speech [9]

25	[danʔ ɪʔ t^{s}ɪʔ]	"don't eat (the) chip"
	[b^{w}dʔ tat]	"block (is on) top"
26	[mamis tu hæs]	"Mommy's two hands"
	[mo bʌs go]	"Where bus go?"
	[dædi go]	"Where Daddy go?"
27	[ʔaj gat tu d^{j}us]	"I got two (glasses of) juice"
	[do bajʔ mi]	"don't bite (kiss) me"
	[kʌdər sʌni ber]	"Sonny color(ed a) bear"
28	[ʔaj gat pwe dɪs]	"I ('m) play(ing with) this.'
	[mamɪs tak mɛns]	"Mommy talk(ed to the) men"

(Fromkin et al. 2003: 365)

The examples illustrate use of generalized bare arguments (i.e. *chip*, *block*, *bus*, *juice*, *bear*), lack of classifiers for mass nouns (i.e. *juice*), and presence of plural morphology (*hands*, *men*), a clustering of properties that we have seen to hold for Javanese and Indonesian. This behavior of nominals in Child English, therefore, provides evidence for

[9] The number on the left-hand side indicates the age at which the utterances on the rights are uttered.

the proposed analysis of bare nominals and for the Structure Building Hypothesis of Guilfoyle and Noonan from the domain of nominal syntax.

The current analysis also makes another prediction concerning child English syntax. Recall that I have argued above that expressions like demonstratives in languages such as Indonesian, Javanese, and Japanese should be analyzed as modifiers of the NP projection on the ground of their co-occurrence with other modifying elements such as possessives and adjectives. If child English starts like Javanese, we predict that there should be instances where what are analzyed as D elements in Adult English should be able to co-occur with similar types of elements. This prediction is borne out by examples as in (54a-c) from Miller and Ervin-Tripp (1973), where "determiners" co-occur with possessives and adjectives.

(54) a. Is that the blue mine?
b. this a Bonnie pants
c. I know a that.
d. These a Lidz pants
e. mine, all a mine. (Miller and Ervin-Tripp 1973: 363)

The iterability of functional elements in child syntax, therefore, provides further evidence that the nominal syntax in Child English does not project up to the DP for count nouns.

5.2. *Russian and Chinese*

The proposed relativized parametric theory of nominal denotation also sheds new light on the syntax of bare nominals in languages such as Russian and Chinese.

Chierchia (1998a, b) mentions Russian as a language of the [+arg, +pred] type on a par with English. The morphosyntactic profile of this language is as follows: i) bare nominals are permitted in argument positions, ii) a generalized classifier system is missing, iii) bare nominals may take either wide or narrow scope with respect to negation. This last scope-related property is illustrated in (55a, b).[10]

(55)a. Ya ne vizhu ni odnogo pyanta na polu.
I Neg see no one spot on floor
'I didn't see a single spot on the floor.'
⇨ Neg>indefinite (narrow scope): I did not see a single spot on the floor.
* Indefinite>Neg (wide scope): There is a spot on the floor that I failed to see.'

[10] Thanks to Tatyana Slobodchikoff (personal communication) for the examples in (55a, b).

b. Ya ne zametila ni odnogo pyatna na polu.
I Neg notice no single spot on floor
'There might have been one spot on the floor that I failed to notice.'
⇨ Neg>indefinite (narrow scope): I did not see a single spot on the floor.'
indefinite>Neg (wide scope): There is a spot on the floor that I failed to see.'

Under the proposed analysis, this morphosyntactic profile of Russian falls into place if bare nouns in this language project up to NumP, as in Javanese and Indonesian, but with its possible set of the Num values being either {singular, plural} or {neutral, plural}, as in English and Italian. The availability of bare nominal arguments and the lack of a generalized classifier system results from the NumP nominal structure. The scope variability of bare nominals as shown in (55a, b) results when a N is selected by the Num head with the singular specification, as in English and Italian count nouns. In this way, the proposed analysis can serve to classify languages such as Russian in terms of the complexity of nominal projections and the possible number values and derive their morphosyntactic profile from the interaction of these two parameters.

Let us now consider the morphosyntax of bare nominals in Chinese. Recall the universal nominal morphosyntactic hierachy shown in (17). I have provided evidence that the DP, QP, and NumP options are instantiated by Italian/English (for count nouns), Japanese/English (for bare plurals and mass nouns) and Javanese/Indonesian, respectively. The proposed analysis predicts that there should be languages that instantiate the ClP option. Of course, there may be conceptual reasons why languages of this type are not easy to find. As Iljic (1994: 104) notes (see also Croft 1994), clasisifers have the function of individuation, which makes it possible to extract "discrete occurences.' This individuation function may well naturally tie with numerals to produce expressions like *three cups of coffee*, thereby blocking the ClP option from being utilized across the board in natural language syntax. However, as we have seen above, English can choose one or the other structure depending on the nature of bare nouns involved. Therefore, the proposed analysis still leads us to expect that some languages instantiate the ClP option in a restricted range of circumstances. Importantly, Cheng and Sybesma (1999) show that definite bare nominals in Mandarin and Cantonese project up to ClPs whereas indefinite bare nominals in these languages project up to Numeral P (QP under the proposed analysis). The definite interpretation is derived from the ClP structure under their assumption that N-to-Cl movement feeds the generation of the ι-operator, which, according to Chierchia (1998a: 359), "defines selects the greatest element from the extension of a predicate and constitutes typically the meaning of a definite article." (see Cheng and Sybesma 1999: 524 for detailed discussion). The indefinite interpretation, on the other hand, is derived from the NumeralP/QP option since "the numeral apparently has

the effect of undoing the definiteness." (Cheng and Sybesma 1999: 524). Their argument, thus, indicates, that Cantonese and Mandarin are candidates for the ClP languages.

The present analysis also correcly predicts several other morphosyntactic properties of bare nominals in these two languages that are indeed borne out by Cheng and Sybesma's findings. First, these two languages allow bare nominal arguments because these languages do not project up to DPs. Second, these languages have a generalized classifier system due to the projection up to ClPs or QPs that dominate them. Third, the fact that these languages do not have plural morphology is exactly what is predicted if these languages choose the {neutral, plural} value for the Num head, an assumption that is supported by the finding in Cheng and Sybesma's (1999: 519) that "Chinese bare nouns can be interpreted as both singular and plural." Finally, bare nominals should not be able to take scope over negation, a prediction that is borne out by the obligatory narrow scope of bare nominals as in (56a), in contrast to (56b), in Mandarin Chinese.[11]

(56)a. di ban shang yil ge ban-dian wo mei kan-dao.
floor board on one CL spot I not see
'I did not see a spot on the floor.'
⇨ Neg>Indefinite (narrow scope): I did not see any spot on the floor.
* Indefinite>Neg (wide scope): There is a spot that I failed to see on the floor.'

b. di ban shang you ge ban-dian wo mei kan-dao.
floor board on exist CL spot I not see
'There is a spot that I failed to see on the floor.'
⇨ * Neg>Indefinite (narrow scope): I did not see any spot on the floor.
Indefinite>Neg (wide scope): There is a spot that I failed to see on the floor.

In this way, the proposed analysis correcly characterizes the morphosyntactic profile of bare nominals in languages such as Mandarin/Cantonese by assuming that they project up to ClPs/QPs depending on the definiteness with the Num value being set as {neutral, plural}.

5.3. *Other Languages*

The proposed analysis may well predict some other language types once the research goes beyond those languages discussed in detail in this paper. For example, in a series of recent work, Schmitt and Munn (1999, 2002) show that Brazilian Portuguese provide a counterexample to Chierchia's Nominal Mapping Parameter and argue for a purely syntactic account of the morphosyntactic profile of bare nominals in this language that

[11] Thanks to Sunjing Ji (personal communication) for the examples in (56a, b).

draws on their extention of Bobaljik's (1995) Free Agr Parameter to nominal domains. Importantly, they observe that bare singulars in this language must take narrow scope with respect to negation and underspecified for number, meaning that the Num value must be selected from {neutral, plural} set as in Javanese, Indonesian, Japanese, and Mandarin/Cantonese. Schmitt and Munn conclude that bare singulars in Brazilian Portuguese are DPs. Combining this conclusion with the above-noted parametric view of the possible values for the Num head across languages, one may well conclude that bare nominals always project up to DP as in Italian and English with the Num head being specified for {neutral, plural} as in Javanese, Indonesian, Japanese and Mandarin/Cantonese. The facts in Brazilian Portuguse are, of course, not as simple as presented here: Schmitt and Munn note many detailed interpretive subtlities involved in the use of bare singulars caused by the nature of predicates, espisodic contexts, and so on. However, the fact that the core morphosyntactic property of bare nominals in Brazilian Portuguese can be characterized as the interaction of the morphosyntactic complexity with the possible Num values indicates that the proposed analysis is on the right track.

6. Conclusions

In this paper, I have discussed the issue of syntax-semantics interface with reference to the denotation and morphosyntax of bare nominals in several languages. Drawing on evidence from Indonesian and Javanese, I have shown that these two languages do not fit into any one of the three language types predicted by Chierchia's (1998a, b) Nominal Mapping Parameter. First, the free occurrence of bare arguments in Indonesian and Javanese shows that these languages are not [-arg, +pred] languages such as Italian. Second, the absence of a generalized classifier system and the presence of plural morphology marked by reduplication of a root argues against catgeorizing the two languages as [+arg, -pred] languages such as Japanese and Chinese. Finally, the obligatory narrow scope of bare nominals with respect to negation and the lack of pluralized/reduplicated forms for generic statements suggests that Indonesian and Javanese are also not [+arg, +pred] languages such as English and Russian. This result casts serious doubts on the the rigid mapping between the syntax and semantics of bare nominals of the kind assumed in Chierchia's Nominal Mapping Parameter.

Following the standard conception of the locus of parameters in the Principles-&-Parameters approach to language variation (Borer 1984; Fukui 1986l 1995; Chomsky 1986, 1995), I have proposed an alternative relativized parametric theory of nominal denotation that draws on independently motivated assumptions concerning the relative complexity of nominal functional structures and the possible set of Num values that are available in each language. The complete summary of this theory is summarized in Table 2 with a full range of languages dicussed in this paper.

Table 2: A Relativized Parametric Theory of Nominal Denotation

Languages	Nominal Syntax	Num Values
Indonesian Javanese	NumP	{neutral, plural}
Russian	NumP	{singular, plural} or {neutral, plural}
Chinese	ClP	{neutral, plural}
Chinese Japanese English	QP	{neutral, plural}
Italian English	DP	{singular, plural} or {neutral, plural}

I have also shown that the proposed analysis makes new predictions that have not been dicussed in detail in Chierchia (1998a, b). Coupled with the Subset Principle of Wexler and Manzini (1987) and the Structure Building Hypothesis of Guilfoyle and Noonan (1992), the proposed analysis predicts that nominals in early stage of language acqusiition should show the same set of morphosyntactic properties as those in Javanese and Indonesian because these languages instantiate the simplex nominal functional structure. I have shown that this prediction is borne out by telegraphic speeches. I have also argued that the current analysis sheds light on the syntax of nominals in languages such as Russian and Chinese.

I conclude the present paper by drawing several theoretical implications of the proposed analysis by couching it within the larger context of the syntax-semantics interace. First of all, the current analysis provides support for a certain conception on the economy of derivation and projection at the syntax-semantics interface: a language employs whatever syntatic recourses are avalailable to the language to express the same denotation that other languages would express with a more complex nominal functional structures. This was seen, for example, in the treatment of demonstratives and numerals as adjuncts of the NP projection in Indonesian, Javanese and Japanese, which would consitute D and Q heads in languages such as Adult English and Italian. This point also applies to the morphosyntactic development of bare nominals in Child English, which suggests that child language acquisition also respects structural economy in the sense that they posit minimal structures necessary to analyze the data available to children unitil it ends with the QP/DP structure. We also have noted that various denotations assigned to a particular nominal element (kind, predicate, indefinite, etc.) are the interpetive outcome of the semantic component that obtains via a different height of the nominal functional projection and of the Num values. Similarly, when the functional requirement of a determiner clashes with the conceptual structure of its complement nouns (mass vs. count), it is always the former that prevails, forcing the semantic interpretive component to interpret the output of syntax in every possible way

compatible with our knowledge of whether the nouns can be conceptualized as discreet individualizable objects or amorphous discreet mass. These results provide strong support for the idea that the syntactic computation provides a parametrically defined curve that the universal conceptual/semantic interfaces must blindly follow, without any extrinsically determined mapping between the syntax and semantics of a particular expression as in Chierchia's (1998a, b) Nominal Mapping Parameter. The manner the syntactic representation is mapped onto the semantic representation is language-invariant. The narrow syntactic computation will do whatever it can within a parametrically chosen set of morphosyntactic features and their projections in each language, and the universal semantics will come up with an interpretation that is compatible with our conceptual knowledge of how things are represented in the external world.

Second, the proposed cross-linguistic analysis of bare nominals argues against the common assumption in the generative liteature (e.g., Higginbotham 1985; Stowell 1989; Szabolcis 1987, 1994; Longobardi 1994) that it is only DPs that can serve as arguments. This assumption is understandable given that NPs denote <e, t> whereas DPs denote a type <e>; as a result, a NP must combine with a D to be saturated and computed as type <e>. This assumption also makes sense if D can be considered to have the function of mapping the set of enitities denoted by the N-set to a specific/definite entity thereof. To the extent that the current analysis is correct, however, the results archived here provide evidence against this commonly held view. To mention one famous case, there has been a considerable debate concerning whether nouns in Slavic languages such as Serbo-Croatian, Bosnian and Polish are associated with DPs or NPs. See Progobac (1998), Rappaport (2001), Trugman (2005), and Pereltsvaig (2007) for the DP analysis; see Trenkic (2004), Bošković (2004, 2005), Zlatić (1997), and Stepanović (1999) for the bare NP analysis. If the proposed analysis of Russian morphosyntax in section 5.2 correct, it argues for the parametrized NP hypothesis for Slavic, hence necessiates a large-scale re-examination of the data in this language family that has been adduced in favor of the universal DP hypothesis for article-less languages.

References

Abdullah bin Abdul Kadir Munshi. 1963 [1849]. *Hikayat Abdulla*, Vol. 2. Singapore: Pustaka Antara.

Baker, Mark, Kyle Johnson, and Ian Roberts. 1989. Passive arguments raised. *Linguistic Inquiry* 20: 219-251.

Bernstein, Judy. 1997. Demonstratives and reinforcers in Romance and Germaic languages. *Lingua* 102: 87-113.

Bobaljik, Jonathan. 1995. *Morphosyntax: The syntax of verbal inflection*. Ph.D. dissertation, MIT.

Borer, Hagit. 1984. *Parametric syntax*. Dordrecht: Foris.

Borer, Hagit and Kenneth Wexler. 1987. The maturation of syntax. In: Thomas Roeper and Edwin Williams (eds.) *Parameter setting*. 23-172. Dordrecht: Leidel.

Bošković, Željko. 1997. *The syntax of nonfinite complementation: An economy approach*. Cambridge, MA: MIT Press.

Bošković, Željko. 2004. Topicalization, focalization, lexical insertion, and scrambling. *Linguistic Inquiry* 35: 613-638.

Bošković, Željko. 2005. On the locality of left branch extraction and the structure of NP. *Studia Linguistica* 59: 1-45.

Carlson, Greg. 1977. *Reference to kinds in English*. Ph.D.dissertation, University of Massachusetts, Amherst.

Carson, Jana. 2000. *The semantics of number in Malay noun phrases*. Master's thesis, University of Calgary.

Cheng, Lisa and Rint Sybesma. 1999. Bare and not-so-bare nouns and the structure of NP. *Linguistic Inquiry* 30: 509-542.

Chierchia, Gennaro. 1998a. Reference to kinds acorss languages. *Natural Language Semantics* 6: 339-405.

Chierchia, Gennaro. 1998b. Plurality of nouns and the notion of "semantic parameter." In: Susan Rothstein (ed.) *Events and grammar*. 53-103. Dordrecht: Kluwer.

Chomsky, Noam. 1981. *Lectures on government and binding*. Dorecht: Foris.

Chomsky, Noam. 1986. *Knwoledge of language: Its nature, origin, and use*. New York: Praeger.

Chomsky, Noam. 1995. *The minimalist program*. Cambridge, MA: MIT Press.

Chung, Sandra. 2000. On reference to kinds in Indonesian. *Natural Language Sematics* 8: 157-171.

Cinque, Guglielmo. 1999. *Adverbs and functional heads-A crosslinguistic perspective*. Oxford: Oxford University Press.

Croft, William. 1994. Semantic universals in classifier systems. *Word* 45: 145-171.

Dardjowidjojo, Soenjono. 1978. *Sentence patterns of Indonesian*. Honolulu, HI: University of Hawaii Press.

Delsing, Lars-Olof. 1988. The scandinavian noun phrase. *Working Papers in Scandinavian Syntax* 42: 57-79.

Dyen, Isidore. 1964. *Beginning Indonesian: Lessons 1-24*, Vol. 1-3. U.S. Department of Education: Language Research Section.

Finer, Daniel. 1998. V to D raising in Sulawesi relatives. In Diane Massam and Barry Miller (eds.) *Arguments and structure in Austronesian languages: Thematic issue of the Candian Journal of Linguistics* 43, 283-306.

Fromkin, Vicki, Robert Rodman, and Nina Hyams. 2003. *An introduction to language, seventh edition*. Boston: Heinle.

Fukui, Naoki. 1986. *A theory of category projections and its application*. Ph.D. dissertation, MIT.

Fukui, Naoki. 1995. *Theory of projection in syntax*. Stanford, CA: CSLI.

Fukui, Naoki and Margaret Speas. 1986. Specifiers and projections. *MIT Working Papers in Linguistics* 8: 128-172.

Ghomeshi, Jila. 1996. *Projection and inflection: A study of Persian phrase structure*. Ph.D.dissertation, University of Toronto.

Grimshaw, Jane.1991. Extended projections. Ms., Brandeis University.

Grimshaw, Jane. 1993. Minimal projection, heads and optimality. Ms. Rutgers University Center for Cognitive Science.

Grimshaw, Jane. 2005. *Words and structure*. Stanford, CA: CSLI.

Guilfoyle, Eithne and Maire Noonan. 1992. Functional categories and language acquision. *Canadian Journal of Linguistics* 37: 241-272.

Harley, Heidi. 2006. *English words: A linguistic introduction*. Oxford: Blackwell.

Harley, Heidi and Rolf Noyer. 2000. Formal versus encyclopedia properties of vocabulary: Evidence from nominalizations. In Bert Peters (ed.) *The lexicon-encyclopedia interface*. 349-374. Amsterdam: Elsevier.

Higginbotham, James. 1985. On semantics. *Linguistic Inquiry* 16: 547-594.

Hopper, Paul. 1986. Some discourse functions of classifiers in Malay. In Chaudron Craig (ed.) *Noun classes and categorization*. 309-325. Amsterdam: John Benjamins.

Iljic, Robert. 1994. Quantification in Mandarin Chinese: Two markers of pluraity. *Linguistics* 32: 91-116.

Jackendoff, Ray. 1990. *Semantic structures*. Cambridge, MA: MIT Press.

Kayne, Richard. 1994. *The antisymmetry of syntax*. Cambridge, MA: MIT Press.

Kitagawa, Chisato and Claudia Ross. 1982. Prenominal modification in Chinese and Japanese. *Linguistic Analysis* 9: 19-53.

Law, Paul. 1991. *Effects of head movement on theories of subjacency and proper government*. Ph.D.dissertation, MIT.

Lebeaux, David. 1988. *Language acquisition and the form of the grammar*. Ph.D. dissertation, University of Massaschusetts, Amherst.

Levin, Beth and Malka Rappaport H. 1986. The formation of adjectival passives. *Linguistic Inquiry* 17: 623-661.

Longobardi, Giuseppe. 1994. Reference and proper names: A theory of N-movement in syntax and logical form. *Linguistic Inquiry* 25: 609-655.

MacDonald, Ross. 1976. *Indonesian reference grammar*. Washington, DC: Georgetown University Press.

Massam, Diane. 2001. Pseudo noun incorporation in Niuean. *Natural Language and Linguistic Theory* 19: 153-197.

Miller, Wick and Susan Ervin-Tripp. 1973. The development of grammar in child language. In Dan Slobin and Charles Ferguson (eds.) *Studies in child language development*. 355-380. New York: Holt, Rinehart and Winston.

Noguchi, Tohru. 1997. Two types of pronouns and variable binding. *Language* 73: 770-797.

Pereltsvaig, Asya. 2007. The universality of DP: A view from Russian. *Studia Linguistica* 61: 59-94.

Poedjosoedarmo, Soepomo. 1982. *Javanese influence on Indonesian*. Materials in Languages of Indonesia, No. 7. *Pacific Linguistics*, Series D., No. 38.

Provovac, Ljiljana. 1998. Determiner phrase in a language without determiners. *Journal of Linguistics* 34: 165-179.

Purwo, Bambang Kaswanti, ed. 1989. *Serpih-serpih telaah pasif bahasa Indonesia*. Yogyakarta: Penerbit Kanisius.

Radford, Andrew. 1990. *Syntatcic theory and the acquision of English syntax*. Oxford: Backwell.

Rappaport, Gilbert. 2001. Extraction from nominal phrases in Polish and the theory of determiners. *Journal of Slavic Linguistics* 8: 159-198.

Rizzi, Luigi. 1990. *Relativized minimality*. Cambridge, MA: MIT Press.

Robson, Stuart. 2002. *Javanese grammar for students*. Victoria: Monash University Press.

Safir, Kenneth. 1993. Perception, selection, and structural economy. *Natural Language Semantics* 2: 47-70.

Schmitt, Cristina and Alan Munn. 1999. Against the nominal mapping parameter: Bare nouns in Brazilian Portuguese. *Proceedings of the 29th Northeastern Linguistic Scoiety*. 339-353.

Schmitt, Cristina and Alan Munn. 2002. The syntax and semantics of bare arguments in Brazilian Portuguese. *Linguistic Variation Yearbook* 2: 185-216.

Seiter, William. 1980. *Studies in Niuean syntax*. New York: Garland.

Sneddon, James. 1996. *Indonesian: A comprehensive grammar*. London: Routledge.

Speas, Margaret. 1994. Null arguments in a theory of economy of projection. *University of Massachusetts Occasional Papers in Linguistics* 17: 179-208. University of Massachusets, Amherst: GLSA.

Stepanović, Sandra. 1999. Scrambling: Overt movement or base generation and LF movement. *Journal of Slavic Linguistics* 7: 305-324.

Stowell, Timothy. 1989. Subjects, specifiers, and X-bar theory. In Mark Baltin and Anthony Kroch (eds.) *Alternative conceptions of phrase structure*. 232-262. Chicago: University of Chicago Press.

Szabolcsi, Anna. 1987. Functional categories in the noun phrase. In Istvan Kenesei (ed.) *Approaches to Hungarian*. 167-190. JATE: Szeged.

Szabolcsi, Anna. 1994. The noun phrase. In Ferenc Kiefer and Katalin Kiss (eds.) *Syntax and Semantics 27: The syntatcic structure of Hungarian*. 170-274. San Diego, CA: Academic Press.

Tenny, Carol. 1994. *Aspectual roles and the syntax-semantics interface*. Dorecht: Kluwer.

Trenkic, Danijela. 2004. Definiteness in Serbian/Croatian/Bosnian and some implications for the general structure of the nominal phrase. *Lingua* 114: 1401-1427.

Trugman, Helen. 2005. *Syntax of Russian DPs and DP-internal agreement phenomena*. Ph.D. dissertation, Tel-Aviv Uiversity.

Vainikka, Anne. 1993/1994. Case in the devlopment of English syntax. *Language Acquisition* 3: 257-324.

Wasow, Thomas. 1977. Transformations and the lexicon. In Peter Culicover, Thomas Wasow, and Adrian Akmajian (eds.) *Formal syntax*. 327-360. New York: Academic Press.

Watanabe, Akira. 2006. Functional projections of nominals in Japanese: Syntax of classifiers. *Natural Language and Linguistic Theory* 24: 241-306.

Wexler, Kenneth and Rita Manzini. 1987. Parameters and learnability in binding theory. In Thomas Roeper and Edwin Williams (eds.) *Parameter setting.* 41-76. Dordrecht: Reidel.

Wolff, John, Dede Oetomo, and Daniel Fietkiewicz. 1992b. *Beginning Indonesian through self-instruction, vol. 2-3*. Ithaca, NY.: Cornell University Southeast Asia Program.

Zlantić, Larisa. 1997. *The structure of the Serbian noun phrase*. Ph.D. dissertation, University of Texas, Austin.