Proceedings of TripleA 3

Fieldwork Perspectives on the
Semantics of African, Asian and Austronesian Languages
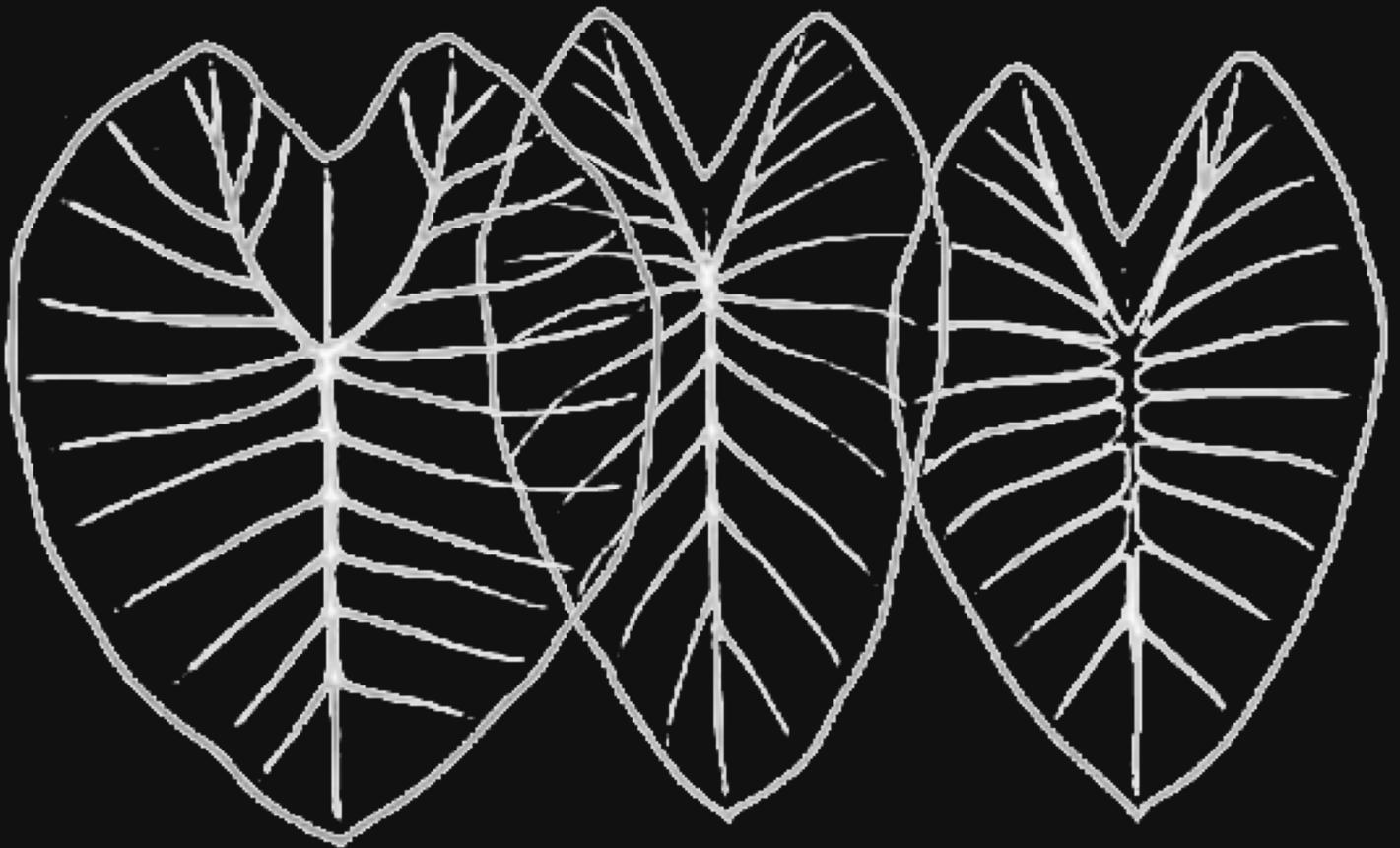
Ed. by Vera Hohaus & Wanda Rothe

Table of Contents

African

Asian

Austronesian

Determining (In)definiteness in the Absence of Articles[1]

Veneeta Dayal — Rutgers University

Abstract.   This paper addresses the view that bare nominals in languages without articles can be definites or indefinites. In particular, it challenges the status of bare nominals as indefinites, providing contexts in which English uses the indefinite article but an article-less language like Hindi must resort to a numeral construction. The empirical generalization based on Hindi is that bare nominals are ambiguous between definites and kind terms and that bare plurals, but not bare singulars, can have kind derived indefinite readings. The indefinite readings available to bare singulars can be traced to NP external factors. The paper then provides an explanation for these facts within a Neo-Carlsonian approach to bare nominals. The last section of the paper extends the insights gained from the case study of Hindi bare nominals to other languages, highlighting empirical and theoretical issues of relevance in determining whether bare nominals in a given language are definites or indefinites.

1   The Definite-Indefinite Dichotomy

In this section we introduce two perspectives on the (in)definiteness of bare nominals in article-less languages, one in which they are ambiguous between definite and indefinite and one in which they are indefinites with a wider distribution. We argue against these positions by looking closely at bare nominals in Hindi. On the basis of clear diagnostics it is established that bare nominals can be definites as well as kind terms. Bare plurals, but not bare singulars, can also have narrow scope indefinite readings that can be ascribed to their status as kind terms. Other possible sources of indefinite readings, available to both bare singulars and bare plurals, are derivative on properties of the constructions they appear in.

1.1 The Ambiguity of Bare Nominals

That bare nominals in languages without articles can function as definites and indefinites is a reasonable assumption when viewed from the perspective of languages with articles. The following comment from Löbner (1985, pg. 320) is representative of this view: "as for languages which do not have a definite article, it is plausible to assume that they just do not explicitly express the way nouns are to be interpreted." I take this to imply that bare nominals in such languages are ambiguous between definite and indefinite.

A more nuanced view is presented in Heim (2011): "in languages without definiteness marking, the relevant "ambigous" DPs may simply be indefinites. They are semantically equivalent to English indefinites. But they have a wider range of felicitous uses than English

---

indefinites, precisely because they do not compete with definites and therefore do not get strengthened to carry the implicatures that would show up if they were uniformly translated as indefinites into English". To put this in context, consider the following meanings for the definite and indefinite articles. (1a) encodes the uniqueness of singular definites, while (1a') gives a unified extension applicable to both singular and plural definites.[2]

(1a) $[\![the]\!] = \lambda P: \exists x \, \forall y \, [P(y) \leftrightarrow y = x]. \, \iota x[P(x)]$

(a') $[\![the]\!] = \lambda P: \exists x \, \forall y \, [(MAX(P))(y) \leftrightarrow y = x]. \, \iota x[(MAX(P))(x)]$
        Where MAX(P) = λx [P(x) & ¬∃y [P(y) & x < y]]

(b) $[\![a/an]\!] = \lambda P. \, \lambda Q. \, \exists x \, [P(x) \, \& \, Q(x)]$

(c)
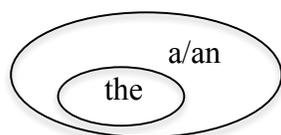
The definite and indefinite articles differ in two respects. The former presupposes uniqueness -- it can be used felicitously only in contexts where there is exactly one individual that satisfies the common noun predicate -- and it picks out that unique individual as its referent. The latter imposes no requirements on how many individuals must satisfy the common noun predicate. It denotes a generalized quantifier, namely the set of properties such that at least one individual who has the common noun property also has that property. Focusing on the first difference, we see that it sets up an entailment relationship between the definite and the indefinite. Every context in which *the N* is felicitous is a context in which *a/an N* is also felictious, but not the other way around.

Consider from this perspective a context in which it is known that there is exactly one cat who may or may not be sitting on the mat.

(2a)   The cat/ #A cat is on the mat.
(b)   The sun/ #A sun is shining.

Both sentences in (2a) are defined in this context – whether they are true or false would depend on what that cat is doing. The version with the indefinite has an implicature that there should be more than one cat in the context. This is due to competition with the definite since Gricean principles of conversation require a speaker to use the strongest statement compatible with the known facts. The perceived infelicity of the indefinite in (2a) is thus accounted for. This is illustrated even more dramatically in (2b) where world knowledge entails the existence of a single sun.

---

[2] For present purposes we work with the simpler version in (1a). The version in (1a') includes plural individuals and imposes uniqueness on maximal individuals, those that are not individual parts of bigger individuals. In the case of singular common nouns P = MAX(P), but in the case of plural individuals MAX(P) is a set with only one individual, the one that is the sum of all the singular individuals in P. This facilitates the shift from the perceived uniqueness of singular terms *(the man is tall)* to the perceived universality of plural terms *(the men are tall)*.

Heim's statement, that the so-called ambiguity of bare NPs in languages without articles arises simply from lack of competition, can be schematically represented in (3a). The more standard view is represented in (3b):

(3a)

Bare NPs in article-less langauges

(b)

Bare NPs in article-less langauges
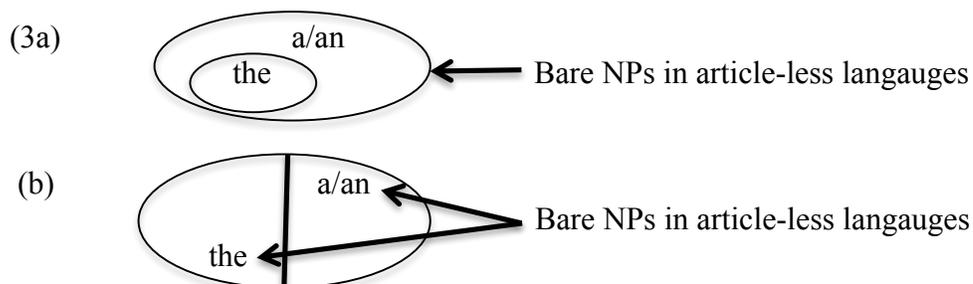
These two views about the interpretation of bare nominals in articleless languages are echoed in the literature on Hindi, which we will take as our primary example of this type of language. They have been taken to be ambiguous between definite and indefinite, and as indefinites whose definite interpretation is pragmatically derived. The next subsections will show that Hindi bare nominals are indeed definites but will provide evidence to challenge the claim that they are indefinites. In effect, then, we will be arguing also against the view that Hindi bare nominals are ambiguous between specific and definite meanings, and asserting my own view earlier claim that they are ambiguous between definites and generics only.

1.2 The Definiteness of Bare Nominals

There are two clear diagnostics that one can use to determine whether a bare noun phrase is definite or not, anaphoricity and homogeneity. Let us consider anaphoricity first:

(4a)   *A boy and a girl came into the room. The girl sat down.*
 (b)   *ek   laRkaa aur ek laRkii kamre meN aaye. laRkii baith-gayii.*
        one boy   and one girl   room in   came. girl   sat-down
        'A boy and a girl came into the room. The girl sat down.'

As we see in (4a), a definite is required in the second sentence to refer back to a discourse referent introduced in the first sentence. An indefinite would not be felicitous. When we translate the discourse into Hindi in (4b), we see that the bare NP *laRkii* 'girl' is quite felicitous.[3] Thus the bare NP passes the first test for definiteness.

The homogeneity test differentiates definites from demonstratives as well as indefinites, and aligns it with proper names (Löbner 1985). This is in keeping with the semantics of the definite determiner given above:

---

[3] Using two distinct noun phrases in the first sentence makes the use of a full DP in the second sentence more natural by making a null or overt pronoun either unavailable or less preferred.

(5a) *A dog is sleeping and a dog is barking.*
  (b) *That dog is sleeping and that dog is barking.*
  (c) *#The dog is sleeping and the dog is barking.*
  (d) *#Fido is sleeping and Fido is barking.*

Given the analysis of definites as denoting a single individual, it follows that one cannot predicate incompatible properties of a definite. That is, they behave in this respect like proper names. The test also applies to plural definites *(#the dogs are sleeping and the dogs are barking)*, though the test has to be administered with some care.[4] Turning to Hindi, we see that a bare NP in this context is unacceptable:

(6) *kutta so-rahaa-hai   aur kutta bhaunk-rahaa-hai.*
   dog sleep-PROG-PR and dog   bark-PROG-PR
   'The dog is sleeping and the dog is barking.'

Based on these two tests, then, we can safely classify the Hindi bare NP as a definite.

1.3 The Non-indefiniteness of Bare Nominals

The fact that bare NPs in languages without articles are definites is not conversial. But we now will look at diagnostics that call their status as indefinites into question. In fact, the example in (6) is already suggestive. If the bare NP *kutta* 'dog' could be interpreted as an indefinite in (6), the sentence would have been acceptable under the reading that the English (5a) has. The next three diagnostics drive home this point: partitive specificity, referential specificity, scopal inertness, all show the Hindi bare NP diverging from the English indefinite.[5]

Consider first the test of partitive specificity, where the boy and girl referred to in the second sentence are understood as belonging to the set mentioned in the first sentence:

(7a) *There were several kids in the room. A boy and a girl were playing cards*
  (b) *kamre meN kaii   bacce the. #laRkaa aur laRkii taash khel-rahe-the.*
   room in   several kids   were boy   and girl   cards play-PROG-PAST
   'There were several children in the room.
   #The boy and the girl were playing cards.'

No matter how we set up the context, if there were several kids in the room, there must be a plurality of girls or boys or both. If the bare NPs were indefinites, there would be no problem in getting a partitive specific reading, in analogy with (7a). But what we see in (7b) is the infelicity

---

[4] Briefly, plural definites do not require that every member of the set be actively involved. For example, the statement *the reporters asked questions* may be considered true even in contexts where only some of them did. However, it is still the case that the predication applies to the group as a whole so that *the reporters asked questions but the reporters kept quiet* or *the reporters asked questions but some of them kept quiet* would be deemed contradictory (see Dayal 2013 and references cited there).

[5] See von Heusinger (2011), among others, for a survey of issues related to indefiniteness and specificity.

that is predicted of NPs that encode uniqueness. Given that both NPs have singular morphology, the context has to be one with a unique boy and a unique girl. In the given context, the numeral *ek* 'one' would have to be added to the NPs to convey the intended meaning.

Next we consider referential specificity, brought into the public discussion by Fodor and Sag (1982). The important point here is that the speaker has a particular individual in mind, one that the hearer does not necessarily know about. Had the intended referent been identifiable to both the speaker and the hearer, the plain definite *my relative* instead of *a relative of mine* would have been used in (8a).

(8a)   *If a relative of mine dies, I will inherit a fortune.*
 (b)   *agar mere rishtedaar ki maut ho jaaye, to   mujhe bahut paisaa milegaa.*
         if   my   relative   of death happen   then I-DAT lot   money get-FUT
         'If my relative dies, I will get a lot of money.'

The bare NP in (8b) denotes a unique referent identifiable to both speaker and hearer. The addition of a numeral *mere ek   rishtedaar* 'my one relative' is needed to make it parallel to (8a). It should be noted that this diagnostic is known to be a delicate one. The difference between a definite and specific indefinite with respect to referential specificity is slight, riding crucially on a gap between a speaker's presupposition of uniqueness vs. common ground knowledge.[6]

The distinction between bare NPs and indefinites becomes clearer when we look at cases of intermediate scope, by now a well-established fact in the literature on specific indefinites. The intermediate scope reading in (9a) allows the choice of topic to vary with students. Thus, (9a) can be continued with *Mary has read every article on fake news and Sue has read every article on the Affordable Care Act.* This reading is distinct from the wide scope reading we saw in (8) as well as a narrow scope reading. A narrow scope reading for the indefinite would require every student to have read every paper on any current topic – that is every student would have read every paper on every current topic:[7]

(9a)   *Every student has read every article on a current topic.*
 (b)   *har   vidyaarthii-ne maujuudaa vishai par har   lekh   paRhaa.*
         every student-ERG   current   topic on every article read
         'Every student read every article on the current topic.'
 (c)   *har   vidyaarthii-ne ek/ kisii-ek   maujuudaa vishai par har   lekh   paRhaa.*
         every student-ERG one/ some-one current   topic on every article read
         'Every student read every article on one topic/some topic.'

---

[6] One may argue, quite rightly, that the definiteness in this example is due to the possessive construction. The absence of the relevant reading can be ascertained by translating examples like *if a tall dark-haired student comes, tell her to wait.* See von Heusinger (2011) for the types of modification that facilitate this reading.

[7] It is unclear to me why some form of modification facilitates the relevant reading in (9a) with the indefinite article *a*, but is not needed with *some*. In the interest of space I am setting aside many important differences between different indefinite articles (see Farkas and Brasoveanu *forthcoming*, among others, for relevant discussion). Hindi (9b) is not fully acceptable without modification. To get the definite reading without modification, a demonstrative *us vishai* 'that topic' seems to be required.

We see from (9b)-(9c) that Hindi needs an overt marker of indefiniteness to get the relevant reading, one that allows a follow-up with different students paired with different topics. Other examples can be constructed along the same lines to show that the surviving reading of a bare nominal is that of a definite:

(10a) *Every teacher wrote two articles which he gave to a student of his.*
 (b) *har   adhyaapak-ne do lekh   likhe jo unhoN-ne apne vidyaarthii-ko diyaa.*
       Every teacher-ERG   two articles wrote that he-ERG   self's student-DAT gave
       'Every student wrote two articles which he gave to his student.'

While (10b) allows students to vary with teachers, a reading that is forced by the anaphoric possessive in the relative clause, the presupposition of uniqueness projects. Each teacher is assumed to have a single student who is contextually relevant. What we do not get is the specific indefinite reading. In order to get that reading, we would need to add the overt marker of indefiniteness *apne ek vidyaarthii-ko* 'self's one student-DAT'. With this addition, each professor could have multiple students but only one of whom would be referred to as a recipient of the articles.[8]

   It turns out that the inability to take intermediate scope is simply a reflex of the bare nominals' inability to take scope over even clause-mate operators. In this respect Hindi bare nominals behave like English bare nominals:

(11a) *John didn't read a book/books.*
 (b) *Rabbits/#A rabbit kept dying.*
 (c) *Dogs have evolved from wolves.*

As originally pointed out by Carlson (1977), a sentence like (11a) with a singular indefinite has two readings, one where there is a particular book John didn't read while he may have read others *(∃ > ¬)*; and another in which he read no books at all *(¬ > ∃)*. The bare plural has only the latter reading. This may suggest that bare plurals are a sub-type of indefinites but the example in (11b) shows that this is not the case. The indefinite has the implausible reading where the same rabbit died several times *(∃ > Duration)* while the bare plural has a plausible differentiated reading that allows for different rabbits to die at different times *(Duration > ∃)*. Carlson's account of bare plurals is that they are not indefinites at all but rather kind terms and that they can be arguments of kind level predicates, as in (11c). When they occur as arguments of individual and stage level predicates, semantic operations make their instantiations available for semantic composition. We will come back to details of the theory in section 2. For now it is important to note that there is a correlation between scopal inertness and kind terms, a correlation that is also present in Hindi:

(12a) *sher vilupt   ho jaa saktaa hai./ sher vilupt   ho jaa   sakte haiN.*
       tiger extinct become can   tigers extinct become can
       'The tiger can become extinct.'/ 'Tigers can become extinct.'

---

[8] Again, we may want to steer clear of the possessive construction to ensure that it is not the locus of definiteness (see footnote 6).

(b) *tiin din tak…*
three days till
'For three days'
khargosh marte rahe./ #khargosh martaa rahaa./ #ek khargosh martaa rahaa.
rabbits   die-PROG/#rabbit die-PROG/   one rabbit die-PROG
'Rabbits kept dying.' / 'The rabbit kept dying'/'A rabbit kept dying.'

In (12a) we have a kind-level statement with a bare singular and a bare plural. In (12b) we see the differentiated scope behavior of bare plurals, where different rabbits can be understood to die during the interval referred to. We note that the same is not true of the bare singular or the indefinite.[9] We will return to this difference between bare plurals and bare singulars, both of which are bona fide kind terms, in the next subsection.

What we have established here is that Hindi bare nominals are not like English indefinites. In particular, they cannot be classified as specific or partitive indefinites. We have also noted that they are scopally inert and related it to their being kind terms. Interestingly, this scopal inertness results in readings that are unavailable to regular indefinites, at least in the case of bare plurals. We will now turn to a consideration of the evidence that has formed the basis of the commonly held view that bare nominals in languages like Hindi are indefinites.

1.4 The Pseudo-indefiniteness of Bare Nominals

One of the strongest cases for taking bare nominals to be indefinites comes from examples like (13a). A background question like *what were you doing yesterday afternoon?* removes the likelihood of there being a salient book in the common ground. And answers like (13a) in such a context is most naturally translated with an indefinite determiner. However, this does not necessarily mean that the indefiniteness is inherent to the bare nominal, as (13b)-(13c) show:

(13a) *maiN kitaab paRh-rahii-thii.*
I   book read-PROG-PAST
'I was reading a book.'
 (b) *maiN bacce-ko   khaanaa khilaa-rahii-thii.*
I   child-DAT food   feed-PROG-PAST
'I was feeding the child.'
(c) *maiN baccoN-ko   khaanaa khilaa-rahii-thii.*
I   children-DAT food   feed-PROG-PAST
'I was feeding children/the children.'

If the person answering the question with (13b) or (13c) works in a daycare or any situation with multiple children in it, there is no reason why the bare singular indirect object should not have an

---

[9] Note that a bare singular does not lend itself to a narrow scope reading in conditionals. The Hindi translation of *if a student filed a complaint, she will be reprimanded* would need *koi vidyaarthii* 'some student'. The bare singular would suggest the existence of a single contextually salient student.

indefinite reading. The fact that (13c) can have a non-specific indefinite reading establishes that there is no pragmatic obstacle involved. What we can conclude from this paradigm is that the indefinite readings we see in (13) come from two distinct sources. One is the indefiniteness associated with plural kind terms (13c), the other is the indefiniteness associated with incorporation and/or complex predicate formation, a process that targets direct objects (13a). If indefiniteness were inherent to the bare nominal, changing from direct to indirect object position would not make the difference it does in (13b).

A second case where indefiniteness is perceived is the existential construction. The position of arguments in relation to locative phrases has been noted to correlate with (in)definiteness. While there is clearly validity to this generalization, it is worth noting that it does not readily extend to all bare nominals, especially singular bare nominals:

(14a) *cuuhaa kamre meN hai.*
mouse   room in   is
'The mouse is in the room.'
  (b) *kamre meN cuuhaa hai.*
room   in   mouse is
'There's a mouse in the room.'
  (c) *kamre meN ??(ek) buuDhii aurat   hai.*
room   in   one old   woman is
'There's an old woman in the room.'

Why should the switch from *cuhaa* 'mouse' to *buuDhii aurat* 'old woman' make a difference to indefiniteness? The bare plural counterpart of (14c) would be quite acceptable. This suggests again that bare singulars in existential contexts are dependent on factors independent of quantificational properties of the noun phrase, factors that are not very well understood currently.

Let me end this section with a canonical property associated with indefinites, namely the ability to introduce discourse referents. We can test this by setting up a presentational context, ruling out the possibilty of reference to familiar entities. Neither of the following seem acceptable without the addition of the unstressed numeral *ek* 'one', specially if the story is expected to elaborate on the relevant individuals:

(15a) *bahut saal pahle is   ghar meN ?(ek) bhuuDhii aurat   rahtii-thii.*
Many year back this house in   one old   woman live-HAB-PAST
'Many years ago, an old woman used to live in this house.'
  (b) *bahut saal pahle is   ghar meN ?(ek) vidyaarthii-kii maut ho-gayii-thii.*
Many year back this house in   one student-GEN   death happen-PAST
'Many years ago, a student had died in this house.'

Though there is some speaker variation regarding the ability of bare singulars to introduce novel discourse referents, I believe it can be said with some confidence that for most speakers there are at least some contexts in which they cannot. And for no speaker is it the case that bare NPs are preferred over the indefinite version. Substituting bare plurals in (15a)-(15b) leads to marked improvement, making them perhaps even fully acceptable.

1.5 A Snapshot of the Empirical Landscape

In the previous subsections I have collected together the evidence in the literature establishing that bare nominals in an article-less language like Hindi are definites but not specific or non-specific indefinites and that their apparent indefiniteness is construction specific and/or restricted to bare plurals. I summarize the findings for indefiniteness in the following table:

(16)	E: Indef NP	H: Num NP	H: bare sing	H: bare plural	E: bare plural
Partitive Specificity	√	√	X	X	X
Referential Specificity	√	√	X	X	X
Wide/ Intermediate Scope	√	√	X	X	X
Narrow Scope Universal/ Negation	√	√/X	√	√	√
Differentiated Scope under Adv	X	X	X	√	√
Presentational Contexts	√	√	X	√	√

There are a couple of points worth noting in the above. We have not discussed the inability of the numeral NPs *ek N* in Hindi to take scope under negation. This will be taken up in section 3. I have also idealized the data for bare singulars in presentational contexts. As noted in section 1.4 this may well be contextually sensitive and subject to speaker variation. The point to note though is that bare nominals are not specific indefinites. And it is not at all clear that their non-specific indefinite behavior can be delinked from their life as kind terms. The fact that singular and plural terms behave differently with respect to differentiated scope and presentational contexts is significant in this connection. I therefore take the relevant generalization to be that bare nominals in Hindi are ambiguous between definites and kind terms. In section 2 I provide a theoretical account for this generalization. Those not particularly interested in the theory or already familiar with it should feel free to skip to section 3 where I discuss how the empirical landscape outlined above could be used to study the (in)definiteness of bare nominals in other languages.

2 A Neo-Carlsonian Account of Bare Nominals

This section presents an account of the facts discussed in section 1. It recognizes the universality of operations that yield kind, definite and indefinite readings, allowing for these operations to have lexical exponents or be available as covert type shifts. The theory also includes constraints on type shifts, in relation to overt determiners and in relation to each other. Finally, a formal distinction between singular and plural kind terms is drawn with respect to individuals that at the intuitive level are instantiations of the kind. Together they account for the core generalization that bare nominals in article-less languages are bona fide definites but not bona fide indefinites.

2.1 Bare Plurals as Kinds and Definites

The basic premise of the neo-Carlsonian approach is that bare plurals in argument position refer to kinds, not only in the case of kind-level predication but also in the case of object-level predication, as originally proposed in Carlson (1977). Their quantificational force, however, is governed by the same principles that have been established for the variable quantificational force of regular indefinites (see Dayal 2011a for background).

Chierchia (1998) extends the kind-based view of English bare plurals to a cross-linguistic theory of noun phrase variation. Within the general perspective of flexible types (Partee 1987), he admits three basic operations for turning an NP with a predicative meaning (type $<e,t>$) into an argument (type e or $<<e,t>t>$), *nom*, *iota* and *∃*:

(17a) iota: $\lambda P \, \iota \, P_s$, if there exists a unique maximal entity in P, undefined otherwise.
  (b) nom: For any property P and world/situation s, $^\cap P = \lambda s \, \iota P_s$, if $\lambda s \, \iota P_s$ is in K[IND] undefined otherwise, where P_s is the extension of P in s.
  (c) ∃: $\lambda P \, \lambda Q \, \exists x \, [P(x) \, \& \, Q(x)]$

Of these, he considers the first two meaning preserving in the sense that they map a predicate into an entity without introducing quantificational complexity. *Iota* picks out the unique maximal entity in the extension of the predicate at the relevant situation, if there is one, and is undefined otherwise. As indicated in section 1, this is the lexical meaning of the definite article, but in languages without a definite article it operates as a covert type shift. *Nom*, the kind forming operator, is a function from indices to the maximal entity that is in the extension of the predicate at that index – that is, it yields the unique maximal entity that instantiates the kind at the index. *Nom* is a partial function because it is undefined for predicates that do not fit the concept of a kind. It also only operates on plural predicates. The third type-shift ∃ not only turns a predicative expression into an argument, it also introduces ∃ quantification. Since this yields a generalized quantifier, its operand can interact with other scopal expressions. Unlike the first two operations, ∃ is total. These possibilities are constrained by two principles specific to type shifts:

(18a) *Ranking*: nom > {iota, ∃}   *to be revised*
  (b) *Blocking Principle* ('Type Shifting as Last Resort'):
        For any type shifting operation π and any X:
        * $\pi(X)$ if there is a determiner D
        such that for any set X in its domain, $D(X) = \pi(X)$.

Finally, the rule of DKP mediates between a kind denoting term and a predicate of objects, a repair operation on sorts. Essentially, it existentially binds instantiations of the kind at the relevant index. Since this ∃ is introduced at the point where the sort adjustment is required, it ensures obligatory narrow scope for its operand:

(19a) DKP: If P applies to objects and k denotes a kind, then $P(k) = \exists x \, [^\cup k(x) \wedge P(x)]$
  (b) PRED ($^\cup$): $\lambda d_{<s,e>} \, \{\lambda x \, [x \leq d_s] \text{ if } d_s \text{ is defined}, \lambda x[\text{FALSE}] \text{ otherwise}\}$, where d_s
        Is the plural individual that comprises all of the atomic members of the kind.

A simple demonstration of the system can be given for English:

(20a) Dogs have evolved from wolves
  (b) evolve-from($^\cap$dogs, $^\cap$wolves)

(21a) Dogs are barking.
  (b) ∃ [are-barking (s) ($^\cap$dogs(s)(x))] $=DKP\Rightarrow$ ∃s x [$^{\cup\cap}$dogs(s)(x) ∧ are-barking (s)(x)]

Since *evolve* in (20a) is a kind level predicate, and the predicates *dogs* and *wolves* have the requisite intensionality, *nom* turns them into arguments which can be fed into the verb meaning directly. Since *bark* in (21a) is an object-level predicate, it cannot hold of the kind, only of its instantiations and DKP comes into play. The truth conditions associated with (21b) are identical to those of a corresponding statement with an indefinite but there is a difference that shows up in scopal contexts. Even when a bare plural outscopes negation, for example, it has narrow scope:

(22a) Dogs are not barking
  (b) [dogs$_i$ [not [t$_i$ are barking]]]
  (c) λx$_i$ ⟦[not [t$_i$ are barking]]⟧ (⟦$^\cap$dogs⟧)
       ⇒ ¬are-barking (s) ($^\cap$dogs) $=DKP\Rightarrow$ ¬ ∃x[$^{\cup\cap}$dogs(s)(x) ∧ are-barking(s)(x)]

Since the bare plural is individual denoting (type $<s, e>$), it gets lowered into the argument position of the negative predicate. When DKP adjusts the mismatch between *barking* and $^\cap$*dogs*, ∃ enters into the derivation, necessarily below negation. The regular indefinite instead is a generalized quantifier, which means that it enters into an operator-variable relation with its trace and therefore has scope over negation. Appealing to reference to kinds for bare plurals and to a generalized quantifier meaning for indefinites thus yields radically different scopal properties for them. This difference, we saw, is particularly striking in the case of differentiated scope readings in which bare plurals have readings unavailable to indefinites.[10]

As pointed out in Dayal (1999, 2004), the ranking proposed by Chierchia requires revision since it does not capture the facts that he wants to capture, namely that bare nominals in languages without articles can be definite as well as indefinite. The ranking in (18a) predicts that both *iota* and ∃ would be outranked by *nom,* making both definite and indefinite readings unavailable. We have argued against the (in)definiteness of bare nominals in Hindi. As such, the ranking of type shifts that is needed is the one in (23) from Dayal (1999, 2004):

(23) {nom, iota} > ∃

The ambiguity of Hindi bare nominals as definites and kinds, but not indefinites, now follows straightforwardly. The only indefinite readings possible are derivative on their kind reading or due to properties specific to certain syntactic positions or constructions. Hindi and English bare plurals differ, of course, in the possibility of the definite reading because *iota* is available in Hindi as a covert type shift but lexically blocked in English by the definite determiner .

---

[10] The unavailability of differentiated scope readings for indefinite is one of the strongest arguments for adopting the neo-Carlsonian approach over the ambiguity approach (see Dayal 2011a for a survey).

2.2 Singular vs. Plural Bare Nominals

The revised ranking of type shifts explains the properties of Hindi bare plurals. We now need to account for differences between Hindi bare plurals and Hindi bare singulars. Let us focus on the differentiated scope reading, illustrated in (12b) and repeated below:

(24) *tiin   din   tak khargosh marte-rahe./ #khargosh martaa-rahaa.*
       three days till rabbits   die-PROG/ #rabbit   die-PROG
       'For three days rabbits kept dying.' / 'For three days, the rabbit kept dying'

To recap, the bare plural names a kind and is of type *<s,e>*. It can therefore function as a direct argument of the verb. If the verb is not a kind-level predicate, there is a sort mismatch which the DKP repairs. We get the narrowest scope reading in cases like these where the adverbial operator takes scope immediately above the verb and below the position at which a generalized quantifier is interpreted. Thus the existential associated with the bare plural kind term takes scope at a position unavailable to the indefinite. If bare singulars are also kind terms but do not have DKP-based indefinite readings an explanation is called for.

   The current account of singular kind terms, proposed in Dayal (2004), takes them to be semantically plural but grammatically atomic, in analogy with collective nouns like *committee* or *team.* Briefly, it is proposed that *nom* is not responsible for singular kind terms. Rather, they are formed by the application of *iota* to a property of taxonomic kinds. In languages in which *iota* is lexicalized, we get the definite singular generic, in languages in which it operates as a covert type-shift we get bare singular kinds, as in the singular variant of Hindi (12a):

(25a) *The lion is an endangered species*
   (b) endangered-species(ιx [LION(x)])

The relevant point here is that such terms do not allow access to their instantiations for purposes of predication. Any indefinite reading of bare singulars, then, must be construction dependent. For example, in direct object position a bare singular can be treated as a predicative term of type *<e,t>*, which feeds into the meaning of an incorporating verb and ends up having existential force. Thus a non case-marked bare singular in object position, but not in subject position, can show differentiated scope. I refer the reader to Dayal (2004) for the full picture on singular kind terms and to Dayal (2011b) for their indefinite reading in direct object position.

   Let me end this section by making two points. The first is that Hindi bare singulars and English definite singulars can both function as kind terms but Hindi bare singulars can also function as predicates. This explains why bare singulars seem to have a wider range of readings than definite singular generics. This still leaves open why it is possible, to whatever extent, to use at least some bare singulars in presentational contexts. Note that we cannot appeal to a generalized quantifier interpretation for these cases as that would incorrectly predict that they would behave like indefinites more generally. The second point is that in languages in which plural kind terms must occur with a definite determiner, such as the Romance languages, they do not have DKP based indefinite readings. This suggests that the presuppositions associated with a lexical exponent of *nom* or *iota* cannot be overriden by DKP while those that rely on covert type shifts can. Due to constraints of space, however, I must leave further discussion of these issues for another occasion.

3   (In)definiteness in Other Article-less Languages

In this section we will briefly consider the extent to which the insights gleaned from our study of Hindi bare nominals can inform investigation into the semantic properties of bare nominals in other article-less languages. The first issue to settle for any language is whether it has definite and indefinite lexical determiners. We know that definite determiners develop from demonstratives and indefinite determiners from the numeral *one*. Demonstratives and numerals are attested in most, perhaps all languages, so we need diagnostics to identify lexical determiners. We have already seen diagnostics for separating definite determiners from demonstratives: anaphoricity and homogeneity. Another one that is implicit in the latter test is the infelicity of definite determiners in a context where the common noun is not a singleton. The indexical in the demonstrative makes it possible to refer to a subset:

(26)   There are ten children in that room. That/ #The child is singing.

There are two diagnostics for separating indefinite determiners from the numeral, discussed in Chierchia (1998). Indefinite determiners lend themselves to generic statements and are able to take scope under negation:

(27a)   A student works hard.
  (b)   John didn't buy a book.

The Hindi translation of (27a) with *ek vidyaarthii* 'one student', for example, lacks the reading that working hard is the property of students generally. And the Hindi translation of (27b) with *ek kitaab* 'one book' does not have a neutral narrow scope reading, conveying instead a wide scope reading for the indefinite or an emphatic narrow scope reading. In this respect it is similar to *John didn't read one book*. We can say with some confidence then that any language that aligns with Hindi in these respects lacks both the definite and the indefinite articles.

It is worth noting, though, that while the presence or absence of a definite determiner makes a clear difference in the possibility of definite readings for bare nominals, the presence or absence of an indefinite determiner may not have an impact on indefinite readings. Recall that we have proposed two constraints on covert type shifts: *blocking* and *ranking* (cf. 18). Although *blocking* is not without its complexities (see Dayal 2013), it is still a good predictor of the availability of definite readings for bare nominals. But if *nom* and *iota* outrank $\exists$, it is predicted that bare nominals will not have a genuine indefinite interpretation regardless of the presence or absence of an indefinite determiner in the language. Of course, it is entirely possible that *ranking* is subject to cross-linguistic variation, and if so, bare nominals in a language that does not follow this principle would have all three readings: kind, definite and indefinite.[11]

The case study of Hindi in section 1 also highlights the importance of going beyond intuitions regarding the novelty-familiarity of the referent in determining the status of a bare nominal as indefinite. Tests probing specificity and scope are significant in this connection. If a

---

[11] The present account of bare nominals treats them as NPs that undergo covert type shift rather than DPs with a null Det. Note that all of the considerations that apply to covert type shifts would apply equally to the potential null determiner in the alternative analysis.

bare nominal seems to take obligatory narrow scope, even in contexts where an indefinite could not, we can be relatively sure that it is not an indefinite. The source of the perceived indefiniteness could be constructional or derivative on a kind level meaning. Direct objects, we saw, can be targets of incorporation and/or complex predicate formation. Similarly, subjects may involve topichood and therefore lean towards a definite interpretation. It is thus important to check for indefinite readings in a variety of syntactic positions. The indirect object position, which has neither of these biases, proved to be revealing in the case of Hindi bare singulars.

As mentioned above, kind terms are one source for narrow scope indefinite readings of bare nominals. As such, their status as kind terms needs to be established on the basis of kind-level predicates rather than generic statements. As observed by Carlson (1977), this test seaparates English indefinites, which are compatible with generic statements, from bare plurals. (28b) is only acceptable under a taxonomic reading, referring to a subtype of dinosaur:

(28a) Dinosaurs are extinct.
  (b) *A dinosaur is extinct.

Note in this connection that Hindi and English both mark number inside the nominal and that singular and plural kind terms differ in two respects. Languages with articles typically disallow bare singulars and indefinite readings of singular kind terms are typically not available.[12] In languages that do not make a similar distinction but allow bare nominals to refer to kinds, bare nominals typically behave like bare plurals rather than bare singulars. This holds for languages like Chinese that require the obligatory use of classifiers for counting as well as for languages like Haitian Creole that do not.

4   Conclusion

In this paper I have collected together various tests that I have used in the past to determine the semantic properties of bare nominals. In the process, I have emphasized the need for precision and clarity in making claims about interpretation. Although much more is known about the semantics of bare nominals today than even twenty years ago, we still need to flesh out an empirically adequate picture of noun phrase interpretation in order to refine our current understanding of cross-linguistic variation. Shifting our attention from languages with overt exponents of (in)definiteness to those without articles can help us gain a deeper understanding of what constitutes definiteness and indefiniteness.

---

[12] The definite singular generic lends itself to representative object interpretations, as in *We photographed the lion on our trip* or *The rat reached Australia in 1770* (see Dayal 2011a for a survey).

References

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

Chierchia, G. 1998. Reference to kinds across language. *Natural Language Semantics* 6.4, 339-405.

Dayal, V. 1999. Bare NP's, reference to kinds, and incorporation. In *Proceedings of SALT*, vol. 9, 34-51.

Dayal, V. 2004. Number marking and (in)definiteness in kind terms. *Linguistics and Philosophy* 27.4, 393-450.

Dayal, V. 2011a. Bare noun phrases. In K. von Heusinger, C. Maienborn & P. Portner (eds.), *Semantics. An International Handbook of Natural Language Meaning*. Vol. 2. Berlin: de Gruyter, 1088-1109.

Dayal, V. 2011b. Hindi pseudo-incorporation. *Natural Language & Linguistic Theory* 29.1, 123-167.

Dayal, V. 2013. On the existential force of bare plurals across languages. In I. Caponigro & C. Cechetto (eds.), *From Grammar to Meaning: The Spontaneous Logicality of Language.* Cambridge: Cambridge University Press, 49-80.

Farkas, D. & A. Brasoveanu. Forthcoming. In M. Aloni & P. Dekker (eds.), *Cambridge Handbook for Formal Semantics*. Cambridge: Cambridge University Press.

Fodor, J. D. & I. Sag. 1982. Referential and quantificational indefinites. *Linguistics and Philosophy* 5.3, 355-398.

Heim, I. 2011. Definiteness and indefiniteness. In K. von Heusinger & C. Maienborn & P. Portner (eds.), *Semantics. An International Handbook of Natural Language Meaning*. Vol. 2. Berlin: de Gruyter, 996-1025.

von Heusinger, K. 2011. Specificity. In K. von Heusinger & C. Maienborn & P. Portner (eds.), *Semantics. An International Handbook of Natural Language Meaning*. Vol. 2. Berlin: de Gruyter, 1025-1058.

Löbner, S. 1985. Definites, *Journal of Semantics* 4.4, 279-326.

Partee, B. 1987. Noun phrase interpretation and type-shifting principles. In J. Groenendijk, D. de Jongh & M. Stokhof (eds.), *Studies in Discourse Representation Theory and the Theory of Generalized Quantifiers*. Dordrecht: Foris, 115-144.