Reference to kinds: The perspective from Bangla

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1. Introduction

This work deals with the semantics of kind reference and shows that Bangla adds a new dimension to our current understanding of kind-oriented languages and classifiers in these languages. Bangla behaves like a canonical classifier language when it comes to numeral constructions—the language treats both mass and count nouns alike, in that neither can be counted directly, as has been shown for prototypical classifier languages like Mandarin, Japanese, and Korean in Cheng & Sybesma (1999), Jiang (2020), Kim (2009) *a.o*. Both discrete entities like *children/ books* and liquid substances like *water/ blood* cannot be counted directly and require the obligatory interpolation of classifiers when composing with numerals, as shown in (1) and (2). It also lacks morphological number marking[1]—the form of the noun does not change regardless of whether the numeral is singular or plural.

(1) a. ek *(-ta) baccha
one CLF child
'One child'

b. du *(-to) boi
two CLF book
'Two books'

(2) a. ek *(phota) jol
one drop water
'One drop of water'

b. du *(botol) rokto
two bottle blood
'Two bottles of blood'

Earlier works in the literature by Bhattacharya (1999a,b, 2001), Biswas (2012, 2016), Dasgupta (1983), Dasgupta (1985), Dayal (2012, 2014) and Ghosh (2001) have focused on the classifier *ta* both from the syntactic and semantic perspectatives. In this paper, I specifically focus on the denotation of the bare noun[2] itself and how its semantics relate to another comparatively lesser studied classifier in Bangla, *ra*, discussed previously in Biswas (2013, 2016) and Dayal (2012, 2014).

There has been considerable linguistic debate on how to handle the denotations of bare nouns. This debate tracks closely with the discussion on the generalized classifier system—where does the generalized classifier system come from, how do classifier languages contrast with non-classifier languages, *etc*. Following Carlson (1977)'s ontological partition of individual entities into *objects* and *kinds*, there have been two broad positions. The *universalistic approaches* argue that nouns universally start out as either *kinds* (Leffel 2014, Zamparelli 1998) or sets of objects, i.e., *properties* (Longobardi 1994, 2001 *et seq.*) and the other meaning is brought about via further composition with inflectional features, functional projections, or some other syntactic mechanism. On the other hand, the *variable nominal mapping approach* adopts the stance that whether nouns denote properties or kinds is a matter of cross-linguistic

* Ankana Saha, Harvard University, ankana_saha@g.harvard.edu. I am grateful to Gennnaro Chierchia, Yağmur Sağ, and Veneeta Dayal for innumerable discussions and helpful suggestions. I'd also like to thank Rajesh Bhatt, Jess Law, Haoze Li, and the audiences at SNEWS 2022, WCCFL 41, and the Workshop on (In)definiteness and Genericity across Languages, Yale University May 11 for insightful comments and questions. All errors are my own.

[1] Though many classifier languages are reported to possess plural affix-like elements, these markers behave differently from regular plural markers like the English *-s*, marking more than just plurality.

[2] *Terminological note:* Following the convention in (neo)-Carlsonian studies on English bare plurals, the term *bare* refers to determinerless noun phrases. That is, all nouns in Bangla, which by default lack (overt) determiners, in their base form are bare even if they have case-marking on them. Nouns which occurs with a classifier are not bare since it necessitates further structure for the classifier's host beyond the NP level. I follow Bhattacharya (1999a,b) and Dayal (2012, 2014) in assuming that the resulting structure is a full DP with a null determiner.

variation, and this variation is responsible for the different distributions of bare nominal arguments (Chierchia 1998, Dayal 2004 *et. seq.*, Jiang 2020 *a.o.*).

When we look at the distribution of bare nouns cross-linguistically certain macro typological patterns emerge. Within Indo-European languages, we see considerable variation in the distribution of bare nouns. English allows bare plurals allowed in argument positions, but not bare singulars; Hindi allows both bare singulars and bare plurals in argument positions; Italian and Spanish allow bare NPs only in lexically governed positions; and French disallows all bare arguments. On the other hand, in classifier languages like Mandarin, Japanese, Korean, bare nouns are positionally unrestricted. On the universalistic approaches, these typological patterns are not straightforwardly accounted for. However, the variation follows directly from the variable nominal mapping hypothesis, which links the presence of classifiers to the noun type. Taking Mandarin as an empirical starting point (Krifka 1995), it has been argued that classifier languages are [+*arg, -pred*] languages. That is, bare nouns in such languages denote kind terms and it is predicted that these languages freely allow bare nouns as direct arguments to verbs. The role of classifiers in these languages is to yield a property/predicate of objects (Chierchia 1998).

There have been two previous approaches for Bangla bare nouns. Dayal (2012, 2014) and Jiang (2020) adopt the Neo-Carlsonian view that Bangla bare nouns are freely argumental. That is, Bangla bare nouns can occur freely as arguments to kind-level predicates, are fully acceptable in generic statements, and can occur in episodic statements where they have the weak indefinite readings expected of kind denoting terms. In this approach, Bangla bare nouns are treated as regular (plural) kind terms, which may optionally be shifted to predicative meanings via the application of *pred*[3] and to narrow scope existential readings via *Derived Kind Predication (DKP)* (Chierchia 1998). Biswas (2016), on the other hand, takes the property-based approach arguing that bare nouns in Bangla are property denoting, and their different interpretations are brought about in syntax via additional null functional projections (Biswas 2016: 16). I argue that bare nouns in Bangla do indeed show some of the hallmark properties of a kind-oriented language, but the full range of their distribution does not lend itself to a regular kind based approach. For a kind oriented language like Mandarin, regular kind terms are instantiated by bare nouns, and for property oriented languages like English or Hindi, bare plurals denote regular (plural) kinds. I present evidence that Bangla bare nouns do not pattern with these languages. I propose that the distribution of Bangla bare nouns can be accounted for in a view that treats them as singular kind terms. On a closely connected note, I discuss *ra*, an animacy restricted classifier (only allowed for animates), and I illustrate how its properties can be accounted for on the singular-kind treatment of Bangla bare nouns.

2. The Bangla data

Generics and kind predication. Once we look beyond numeral constructions in Bangla, the distribution of bare nouns in kind-level predicates, generic statements, and in episodic statements starts to show certain divergences from the expected canonical behavior. Prima facie Bangla bare nouns show the canonical features of a kind-oriented language in that they are acceptable in kind predication (3a), in generic sentences (3b), and in episodic constructions (3c):

(3) a. **dinosor** bilupto.
dinosaur extinct.
'Dinosaurs are extinct.'
(Dayal 2014: 80)

b. **kukur** rat-e dake.
dog night-LOC bark
'Dogs bark at night.'
(Biswas 2016: 19)

c. ami **gari** dekhi ni.
I car see not
'I didn't see cars.'
(Dayal 2014: 50)

Modulo animacy restrictions, *ra* may optionally be present in both kind predication (4a) and generic constructions (4b). *ra* has been analyzed in prior literature as a plural classifier in Bhattacharya (1999a), Dasgupta (1983), and Dayal (2012, 2014), and as an associative plural marker in Biswas (2013, 2016).

[3] In Chierchia (1998), the predicativization operator *pred*, takes the extension a plural kind in a world/situation and returns the set of singular and plural entities that instantiate the kind in that world/ situation (Chierchia 1998: 350). Let d be a kind. Then for any world/situation s, where d_s is the plural individual that comprises all of the atomic members of the kind

$$^{\cup}d = \begin{cases} \lambda x.\ x \leq d_s, \text{ if } d_s \text{ is defined} \\ \lambda x.\ \text{FALSE, otherwise} \end{cases}$$

When *ra* is present, we do not obtain a regular (plural) kind reading, but a taxonomic sub-kind reading in (4a) and (4b). This observation differs from what has been noted in Dayal (2014), where it has been reported that both the bare and the *NP-ra* form in (4a) has the same kind-level reading, '*Dinosaurs are extinct*' (Dayal 2014: 80). A possible reason for this could be that the truth conditonal equivalence of the sentences with the bare and the *NP-ra* form in this case obfuscates the subtle difference in their interpretations. Nevertheless, the difference can be teased apart in appropriate contexts, like (5).

(4) a. dinosor-(ra) bilupto (hoe gyache).
dinosaur-RA extinct be go.PERF.
Bare: 'Dinosaurs are extinct.'
NP-ra: 'All dinosaur sub-kinds are extinct.'

b. kukur-(ra) jore douroy.
dog-RA fast run
Bare: 'Dogs run fast.'
NP-ra: 'All dog sub-kinds run fast.'

(5) bagh-*(era) beshirbhag-i bilupto hoe gyache.
tiger-RA most-part-of-EMPH extinct be go.PERF.
'Most (types of) tigers are extinct.'

Kind-level predicates can only apply to the kind as a whole and not individual members of the kind. In a sentence like (5), where you have a kind-level predicate 'extinct', a quantified bare NP is infelicitous as expected. It clearly doesn't make sense to claim '*Most individual members of the tiger species are extinct.*' However, the *NP-ra* form is felicitous and has the interpretation, *'Most sub-kinds of tigers are extinct.'* This establishes that *ra* marked nouns in generics and kind predication are compatible with taxonomic readings. The following example further establishes that, in fact, *NP-ra* only engenders taxonomic readings in kind predication. In (6) we see that *NP-ra* is infelicitous for nouns that do not have further known taxonomic ordering under it (*nilgai*). If NP-*ra* could have a regular kind interpretation in (6), then such infelicity is not expected.[4]

(6) Bangladesh-e nilgai-(#ra) bilupto hoe gyache.
Bangladesh-LOC nilgai-RA extinct be go.PERF.3.
'The nilgai is extinct in Bangladesh.'

However, we cannot yet draw a blanket conclusion that *ra* is a sub-kind marker. This is illustrated by the case of modified nominals in generic constructions. For a modifier like *buno* ('wild') the noun *kukur* ('dog') can be bare (7a), however, in the case of a modifier like 'wounded' the presence of *ra* is obligatory (7b)—this is clearly not a taxonomic reading! In general, adjectives that can directly modify a bare noun are ones that establish a sub-type of the noun that they modify, denoting a classificatory property. On the other hand, it is harder to establish a sub-type relation with modifiers like 'wounded' which simply define physical properties of the entities under discussion. In other words, this contrast relates to the fact that 'wild dogs' are a well established kind, whereas 'wounded dogs' are not.

(7) a. bunokukur jore douroy.
Wild-dog fast run
'Wild dogs run fast.'

b. ahoto kukur-*(ra) jore douroy.
wounded dog-RA fast run
'Wounded dogs run fast.'

Similar restrictions have been discussed for the English singular definite generics. Singular definite generics are sometimes thought to be restricted to well-established kinds (Carlson 1977).[5]

[4] Two speakers (out of 10) report (6) to be felicitous with *NP-ra*. Dayal (2014) also notes that *dodo-ra* (a bird with no known sub-kinds) is felicitous with a kind predicate like 'extinct' (Dayal 2014: 73). For most people who are not taxonomists, a species having multiple sub-species is the more common assumption. Hence, it might be possible that such variation in judgment stems from the spontaneous accommodation of the presence of sub-kinds in discourse.

[5] Dayal (1992, 2004) however notes that under appropriate contextual manipulation *the green bottle* can count as a kind term showing that the restriction may have to do with the conditions under which a noun phrase can denote a (unique) sub-kind.

(1) The factory produces two kinds of bottles, a green one for medicinal purposes and a clear one for cosmetics. The green bottle has a long neck. The clear bottle . . . (Dayal, 1992)

(8) a. The coke/#green bottle has a long neck.
b. Coke/green bottles have long necks.

Reciprocals and distributive predicates. Bare nouns behave unexpectedly with distributive predicates (9a) and with predicates that involve a reciprocal relation with individual members of the species (9b). They are infelicitous in both these contexts, requiring obligatory presence of *ra*.

(9) a. kukur-*(ra) khabar-er sondhane bibhinno para-e ghure beray.
dog-RA food-GEN in-search-of different neighbourhood-LOC roam do
'Dogs roam around different neighborhoods in search of food.'
b. kukur-*(ra) eke-opor-er sathe maramari kore.
dog-RA each-other-GEN with fight do.
'Dogs fight with each other.'

Episodic predication. The occurrence of bare nouns in episodic predication is limited and exhibit various restrictions. Bare nouns can occur in non-case marked object position and in subject positions in certain noun+verb combinations. When they occur, they have a number-neutral, narrow scope interpretations (Dayal 2012, 2014, Biswas 2016). [6] Consistent with the pattern that we have seen in the previous section, in episodic predication too, bare nouns can only be modified by taxonomic modifiers and not regular object-level modifiers (10a & 10b). We see no modification restrictions when the noun isn't bare (11).

(10) a. robi oitihashik/ *mota uponyash kinechhe.
robi historical thick novel bought
'Robi bought one or more ✓historical/✗thick novels.'
b. robi (*ahoto) kukur khawachhilo.
robi wounded dog feed.PST.PROG
'Robi was feeding one or more (✗wounded) dogs.'

(11) robi ahoto kukur-der khawacchilo.
robi wounded dog-RA$_{obl}$ feed.PST.PROG
'Robi was feeding wounded dogs.'

As has been noted previously in Biswas (2016), bare nouns need to be adjacent to the verb and do not allow adverbial intervention (12). Biswas claims that not all bare nouns need to be VP adjacent, based on examples like (13), where the adverb *taratari* ('quickly') can intervene between the bare noun and the verb. While I do agree with the judgement, I find the construction highly marked and involving scrambling from the base order of [Adv [NP VP]] for information-structural reasons. The significance of this distinction will be discussed later in Section (4).

(12) robi ✓nischoi kukur *nischoi khawachhe.
robi definitely dog definitely feeding.
'Robi is definitely feeding one or more dogs.'

(13) taratari lok (taratari) dako. (Biswas 2016: 25)
quickly man quickly call-IMP
'Quickly call some people.'

In the subject position, as well, similar restrictions on modification (14a) and adverbial intervention (14b) apply for the bare noun. These restrictions are not present for the *NP-ra* constructions (15):

Modified bare nouns in Bangla are also sensitive to similar contextual manipulation—but crucially, bare nouns are felicitous with modifiers only when the modified NP can be taken to denote a (unique) sub-kind, either due to well-established classifications or via contextual manipulation.

[6] Bare nouns can have a singular definite reading in one specific context—with a situationally/ globally unique noun, as discussed in Biswas (2012), Simpson et al. (2011), Simpson & Biswas (2016), and Syed (2015) *a.o.*

(14) a. baire ✗choto/ ✓chorui pakhi dakche.
outside small/ sparrow bird calling.
'One or more small birds/ sparrows are chirping outside.'

b. baire (✓nischoi) pakhi (*nishchoi) dakchhe.
outside definitely bird definitely calling.
'One or more birds are definitely chirping outside.'

(15) baire (✓nishchoi) choto pakhi-ra (✓nishchoi) dakchhe.
outside definitely small bird-CLF definitely calling.
'Small birds are definitely chirping outside.'

To summarize, we have seen in this section that (i) the *NP-ra* in kind predication has a sub-kind level interpretation, (ii) *NP-ra* is infelicitous in kind predication for nouns that do not have further taxonomic ordering under them, (iii) bare nouns in Bangla do not allow modification by object-level modifiers, (iv) bare nouns are infelicitous with reciprocal and distributive predicates, (v) bare nouns do not allow adverbial intervention between the noun and the verb. These observations illustrate that Bangla is somewhat different from a regular kind-oriented language. Where do we then situate Bangla in the context of the larger landscape of the debate on noun denotation? I argue that these facts about the language are best captured in an account that treats Bangla bare noun not as regular (plural) kind denoting, but as *singular kind terms*. The next section offers theoretical background on singular kinds.

3. Theoretical Background: Singular kind reference

While both singular and plural terms can be used for kind reference cross-linguistically, they have some well-attested differences. In this section, I discuss singular kind terms and their differences from plural kind terms, which will prove to be in line with the view that Bangla bare nouns denote singular/taxonomic kinds. Dayal (2004) proposes that bare singular nouns are ambiguous between denoting properties of ordinary atomic individuals and properties of taxonomic atomic individuals/ (sub-)kinds. To illustrate with Hindi, which was analysed in this fashion in Dayal (2004), consider the bare singular noun *kutta* ('dog'). At the ordinary object level, *kutta* denotes a set of atomic dog individuals (16a), which undergoes *iota* type-shifting to refer to a unique contextually salient dog individual (16b). This individual can then combine with an object-level predicate in an episodic context, such as *'barking today'* obtaining a definite singular reading.

(16) a. $[\![kutta]\!] = \lambda(x)dog(x)$
b. $\iota[\![kutta]\!] = \iota x[dog(x)]$

At the kind-level denotation of bare singular nouns, Dayal takes singular kind terms to denote group terms (in the sense of Landman 1989, Schwarzschild 1996), which although conceptually plural, are grammatically impure atomic terms in not allowing transparent access to the parts that make it up. In other words, they differ from plural kind terms in not allowing covert type-shifting to sets of object-level entities. It is crucial to think about what such a distinction means at an ontological level and why it matters. To explicate this distinction, Dayal draws an analogy with collective nouns like 'team' and 'committee'. Barker (1992) and Schwarzschild (1996) argue that such nouns are impure atomic group terms, unlike plural definites, which denote sums (Landman 1989, Link et al. 1983), i.e., the (a) and (b) versions of (17) differ in their semantic make-up.

(17) a. The team voted.
b. The players/ team members voted.

The claim is based on distinguishing compatibility tests with reciprocals and distributive predicates—singular definite collective nouns are not compatible with them, as in (18), unlike plural definites as in (19). This shows that, unlike sums, groups do not allow distributivity over the individuals that they consist of. Conceptually, the group term *team* and the definite plural *the team members* are associated with the same set of entities, i.e., players (a, b, c) and their pluralities ($a \oplus b$, $a \oplus c$, $b \oplus c$, *and* $a \oplus b \oplus c$). But the

distinction lies in the way they relate to these entities. The definite plural has them as its parts, represented by the part-of relation $\leq$. On the other hand, the group term has them as its members, represented by $\downarrow$ in Landman (1989). This means that a type-shifting operator like *pred* which is defined in terms of $\leq$ cannot access the sets of object-level entities corresponding to a group term. Dayal considers a singular kind term to be like a group term, in that, it does not allow transparent access to the parts that make it up.

(18) a. #The team attacked each other.
b. #The team lives in different cities.

(19) a. The players attacked each other.
b. The players live in different cities.

Singular kind terms are derived from the definite determiner (formalized via ι) composing with the kind-level denotation of a bare singular noun, i.e., a property of taxonomic individuals/ (sub-)kinds. Context determines exactly which taxonomic entities and from what level of the taxonomic domain will be in the denotation of a bare singular (Dayal 2004: 426). For example, consider (20a). Here, the relevant domain of quantification is the set of taxonomic entities in the set {LION, WHALE, DOG, ...}, and the denotation of the bare noun 'lion' a singleton set whose only member is the taxonomic individual given in (20b). Thus, the uniqueness requirement of the definite determiner is satisfied, and (20b) composes with *iota* referring to the unique lion kind. Thus, (20a) ends up with the truth condition in (20c).

(20) a. The lion is extinct.
b. $[\![lion]\!] = \{LION\}$
c. $[\![(20a)]\!] = become - extinct(\iota X[LION(X)])$

Now consider the sentence (21a). In this case, relevant level of the taxonomic hierarchy for the bare noun 'lion' for the will be the sub-kinds of the *lion* species, as given in (21b). Similarly, the taxonomic property *African* denote the set of African kinds, i.e. {AFRICAN LION, AFRICAN RHINO, ...}. Their intersection yields the singleton set {AFRICAN LION}, which composes with the definite determiner, and eventually yields the truth conditions for (21a) as given in (21c).

(21) a. The African lion is extinct.
b. $[\![lion]\!] = \{AFRICAN\ LION, ASIAN\ LION, BERBER\ LION\}$
c. $[\![(21a)]\!] = become - extinct(\iota X[AFRICAN\ LION(X)])$

The logical space of noun denotation includes both intensional objects like kinds—singular and plural—and their extensions in the world—groups and sums, respectively. While there are operations in *logic* like $\uparrow$ and $\downarrow$ that allow transformations between a group and its corresponding plurality (Landman 1989) (and in turn property denotation), when it comes to *languages*, the view in the literature has been that corresponding covert type-shifters do not exist between singular kinds and their members. We have covert operators like $^{\cap}$ (*nom*)[7] and $^{\cup}$ (*pred*) readily available in language, which allow transformations between plural kinds and their corresponding property denotations (Chierchia 1998). In contrast, singular kinds, being like group terms, behave as a compact whole and are not transparently related to their members, i.e., there are no covert type-shifters, $^{\cap_{SK}}$ and $^{\cup_{SK}}$ that establishes a relationship between a singular kind and its members. This accounts for their infelicity with reciprocal (also distributive) predicates, which require a reciprocal relation between the members of the group, and in general their restricted use in language.

However, there is evidence in the recent literature that at least some languages do have other mechanisms that allow access to the members of a singular kind term. With evidence from Turkish, Sağ (2019, 2022) argues that while there is no dedicated type-shifting operator in the grammatical component that takes a singular kind and returns the set of entities that are members of this kind, the relation between a singular kind and its members is established as a part of certain grammatical constructions in the language—in pseudo-incorporation, the existential copular construction, and in the predicate position.

[7] In Chierchia (1998), bare plurals in English are argued to start as type $\langle s, \langle e, t\rangle\rangle$ and become kind terms of type $\langle s, e\rangle$ via a nominalization operation (*nom*) (Chierchia 1998: 351), defined as follows:
For any property P and world/situation s, where P_s is the extension of P in s
$^{\cap}P = \begin{cases} \lambda s.\iota x[P_s(x)], \text{ if } \lambda s.\iota x[P_s(x)] \text{ is in } K, \text{ the set of kinds} \\ \text{undefined, otherwise} \end{cases}$

Sağ introduces a *belong–to* relation, which establishes the connection between a group and its members distinct from the way plural kinds are related to their instantiations via *pred*:

(22) **Belong-to relation**
belong–to (y, x^K) is true iff *y* is a member of the kind x^K, where x^K is a singular kind and *y* is an object-level individual. (Sağ 2022: 24)

4. The proposal

4.1. Bangla bare nouns denote singular kinds

Section 2 establishes that Bangla bare nouns do show properties typical of kind denoting nouns. However, we have also seen that presence of *ra* is obligatory in many contexts where a typical kind-oriented language is predicted to furnish a bare argument. Recall that Bangla bare nouns are infelicitous with distributive and reciprocal predicates, repeated below in (23a). (Similar pattern is seen with a distributive predicate, as in (9a), as well.) This contrasts sharply with the behavior of bare nouns in a prototypical kind denoting language like Mandarin. In Mandarin, where bare nouns are claimed to denote regular (plural) kinds, we do not see this pattern. A bare noun is perfectly felicitous with a reciprocal predicate (23b).

(23) a. kukur-*(ra) eke-opor-er sathe maramari kore.
dog-CLF each-other-GEN with fight do.PRS.3
'Dogs fight with each other.'

b. gǒu huì hùxiàng gōngjī.
Dog MOD.GEN each.other attack
'Dogs attack each other.' (Wei-Fang Hsieh, p.c.)

Additionally, unlike Bangla, we also do not see any adjacency requirement between a non-case marked bare noun and verb (24a), or restrictions on adverbial intervention between a bare noun and verb in episodic predication (24b) in Mandarin.

(24) a. Gou zai meigeren-de houyuan-li jiao (Dayal 2004: 413)
dog at everyone-DE backyard-inside bark
'Dogs (different ones) are barking in everyone's backyard.'

b. Wo xiang waimian gou keneng zai-jiao (Dayal 2004: 405)
I think outside dogs probably be-barking
'I think dogs are probably barking outside.'

To further reinforce my point, had Bangla bare nouns been been regular kind terms, like bare plurals in English, we expect them to be free with modification, as is expected of Carlsonian kinds. However, Section (2) shows this is not the case with Bangla. I argue that these distributional features of Bangla bare nouns fall out if you consider them to be singular kind terms (rather than plural kinds). Note that the contrast in (25) is analogous to the distinction we see in the kind reading of English bare plurals and the definite singular. The infelicity of Bangla bare nouns with distributive and reciprocal predicates shows that they behave like atomic group terms in not allowing access to their members, just like we see with English singular definite kinds.

(25) a. ✓Dogs fight with each other.
b. *The dog fights with each other.

Hence I argue that bare nouns in Bangla denote singular kind terms. Crucially, they *unambiguously* denote singular kinds, that is, they do not exhibit the object-level and kind-level ambiguity that we see in Hindi or Turkish (Dayal 2004, Sağ 2022). If an object-level denotation were available to Bangla bare nouns, the obligatory presence of classifiers in numeral constructions would not be expected. Following Ionin & Matushansky (2006, 2018), I adopt the view that numerals are modifiers of type ⟨⟨e, t⟩, ⟨e, t⟩⟩, that is, they are functions from properties to properties. If Bangla bare nouns could denote properties of

objects, they would be the right type to directly serve as arguments to numerals. However, this is not the pattern we see in Bangla. Recall from (1) and (2), obligatory presence of classifiers is required when bare nouns combine with numerals. The role of the classifier can thus be understood as a repair mechanism for the type mismatch that happens when property taking numerals combine with kind denoting nouns.

Based on these facts, I argue that taxonomic kinds are a primitive notion in Bangla. In other words, I posit that in Bangla bare nouns directly denote taxonomic kinds (rather than denoting a property of taxonomic kinds). This contrasts with what has been claimed for Hindi or Turkish (Dayal 2004, Sağ 2022), where singular/taxonomic kind terms are not a basic notion—they are compositionally derived. A singular kind term results from the application of a definite determiner (whether overt (English) or covert (Hindi/Turkish)) with a noun that denotes a property of taxonomic individuals (i.e., sub-kinds).

Pseudo-incorporation of singular kind terms. Bare nouns are often known to combine with predicates in ways that are different from a full DP. In many languages, bare nouns appear 'weakened' compared to other nominals (Dayal 2011, Massam 2001, Öztürk 2005), and they exhibit (some subset of) a cluster of properties like staying adjacent to the verb forming a unit with it, being number-neutral, taking low scope with respect to operators like negation and not being case-marked, unlike full DPs. It is often not a fully productive process and only available if it conveys and canonically recognized activity (referred to as *name-worthiness*). Bare NPs that exhibit these properties are said to undergo 'Pseudo-Incorporation' (PI).[8] Bangla bare nouns in episodic predication showed several of these hallmarks of PI, such as, adjacency with the verb, restriction to certain noun-verb combination only, etc.

It has been argued in Sağ (2019, 2022) that singular kind terms pseudo-incorporate in Turkish both in subject and object positions. Adopting the analysis in Sağ (2019, 2022), a similar account has been proposed to account for the instances of bare nouns in episodic predication in Saha (2023). Biswas (2016), however, argues that instances of bare nouns in examples like (13) are interpreted as indefinites. They are not pseudo-incorporated since they allow adverbial intervention and don't require adjacency with the verb. While there is a general adjacency requirement between a pseudo-incorporated noun and the verb, an incorporated noun can scramble for discourse-related purposes, such as contrastive topic or focus, as has been discussed for Hindi and Turkish (see Dayal 2011, Sağ 2019 for details). I argue that (13) is an exemplification of the same phenomena—the unmarked order is [Adv [NP VP]], and (13) shows information structural movement.[9]

To wrap up, in this section I argue that (i) taxonomic kinds are a primitive notion in Bangla and (ii) bare nouns in the language unambiguously denote taxonomic kinds. In the following section I illustrate how the properties of *ra* fit with this account.

4.2. The semantics of ra

Before diving into how *ra* relates to this account, let us go back to the modificational restrictions we saw earlier—object-level modifiers do not combine with bare nouns.

(26) ahoto kukur-*(ra) jore douroy.
wounded dog-RA fast run
'Wounded dogs run fast.'

On the view that bare nouns in Bangla are singular kinds this is easily accounted for. I assume that taxonomic adjectives are kind modifiers. They denote functions from kinds to kinds, returning a new modified (sub-)kind out of their input kind: $Mod_{kind} : A_{kind} \rightarrow B_{kind}$. Hence they can combine with a kind-denoting bare noun directly. On the other hand, an object-level modifier requires access to object-level instantiations of the kind for composition. A singular kind term does not transparently allow access to these instantiations via a covert-type shifter like *pred*, resulting in the infelicity of object-level modifiers

[8] Pseudo-incorporation differs from noun incorporation in being phrasal in nature.

[9] Biswas (2016) also refers to pronominal discourse anaphora (which indefinites allow but pseudo-incorporated nouns do not), and gapping (which is possible with indefinites but not with pseudo-incorporated nouns (Mohanan 1995)) to claim that Bangla has indefinite bare nouns which are distinct from pseudo-incorporated bare nouns (Biswas 2016: 23-24). I do not share the same judgements for the data presented and was not able to replicate them with three other speakers I consulted. I am setting this aside for future investigations.

with bare nouns. However, as discussed in Section (3), some languages, such as Turkish, exhibit other means to establish a relationship between singular kinds and the set of of entities that are members of the kind (Sağ 2019, 2022).

In Bangla, too, the interpretation we obtain with the NP-ra in (26) (*'Members belonging to the dog kind that are wounded run fast.'*) indicates that there is a mechanism to access the members of the singular kind term *kukur* ('dog'). *Pred* (defined only over sums) is not operative here since bare nouns in Bangla are singular group terms. So, it must be *ra* that establishes the relation between a singular kind and its members in (26). It should be noted that, while both Turkish and Bangla exhibit mechanisms to establish a relationship between a singular kind term and its members, the languages differ in the way such a mechanism is established. In Turkish, the relation is established not by any type-shifting operator in the grammatical component, but only via certain grammatical constructions. However, in Bangla we do see an overt lexical exponent in the form of *ra*. Given a singular kind term x^K and a world w, ra_{obj} takes the extension x^K in w (a group term) and returns the set of (singular and plural) entities that instantiate the kind in that world. The definition of ra_{obj} can be formalized in terms of the logical operators $\downarrow$ (derives the sum corresponding to a group) (Landman 1989) and $\leq$ (part-of relation defined on sums), as in (27).

(27) $[\![ra_{obj}]\!] = \lambda x^K.\lambda w.\lambda y : animate(y).[y \leq_{\downarrow} x^K(w)]$[10]

Thus, in (26), *ra* composes with the bare noun to yield a property (28a), which can then be modified by the object level modifier *ahoto* ('wounded') in (28b). This sort of modificational hierarchy finds support from the existing generalization since Bolinger (1967) that characterizing properties are expressed by modifiers structurally close to head nouns and distant modifiers express accidental/non-essential properties.

(28) $[\![ahoto\ kukur - ra]\!]^w$

a. $[\![kukur - ra]\!]^w = \lambda y : animate(y).[y \leq_{\downarrow} DOG(w)]$[11]

b. $[\![ahoto\ kukur - ra]\!]^w = \lambda y : animate(y).[y \leq_{\downarrow} DOG(w) \wedge wounded(y)]$

I take *ra* to be a type-flexible function that takes a kind e_k and outputs a property, but the exact type of the property it returns is variable. In other words, what kind of predicativizing relation *ra* establishes depends on the members of the singular kind relevant in the context. Consider an example of a kind-level predication (4a) repeated below as (29):

(29) dinosor-ra bilupto hoe gyache.
dinosaur-RA extinct be go.PERF.
'The various dinosaur sub-kinds are extinct.'

For a kind-level predicate like *extinct*, an interpretation where individual members of the dinosaur kind are extinct is certainly ruled out. The only felicitous interpretation can be that all the various sub-kinds of dinosaurs are extinct. That is, the relevant members of the singular kind DINOSAUR are its taxonomic sub-kinds. Consequently, in this case, the predicativizing relation established by *ra* operates at the taxonomic level. This can be formalized as in (30). $ra_{subkind}$ takes as input a singular kind x^K and returns a set of entities that are its taxonomic (sub-)kinds relevant in the world of context W_c. While the sub-kinds of a given kind are world invariant, they are context specific. That is, in some context, we might be talking about {HUNTING DOGS, PET DOGS, WILD DOGS ... } and in another context, the relevant sub-kinds could be {GERMAN SHEPHERD, HUSKY, MALAMUTE, LABRADOR ... }. Which sub-kinds will be returned by *-ra* is determined by the context specified by the world-of-context variable W_c.

(30) $[\![ra_{subkind}]\!] = \lambda x^K.\ \lambda y^K : animate(y^K).[y^K \leq_{SK}^{W_c} x^K]$, where $\leq_{SK}$ establishes a relationship between a singular kind and the sub-kinds that are members of this kind.

The property denotation $\langle e, t\rangle$ or $\langle e_k, t\rangle$ given by *ra* can be argumentized via *nom* to serve as an argument to the verbal predicate. This would predict that *NP-ra* can always yield a regular kind reading. But recall from (6) that regular kind reading are unavailable for *-ra* marked nouns in kind-predicates, repeated below as (31).

[10]This aligns with Dayal (2014)'s treatment of the animacy requirement as a presupposition on *ra*, but the formalism differs slightly.

[11]Adopting the convention in Dayal (2004), singular kinds are represented with capital letters.

(31) Bangladesh-e nilgai-(#ra) bilupto hoe gyache.
Bangladesh-LOC nilgai-RA extinct be.INF go.PERF.3.
'The nilgai is extinct in Bangladesh.'

I argue that the infelicity of *ra* in (31) is due to a blocking effect of the bare noun on the NP-*ra* form. The semantics we have posited claims that *ra* is unspecified for the domain of members for the bare noun that it operates on—it can be the domain of individual entities or the members of the domain can be the various sub-kinds of the singular kind term. In (31) *nilgai* does not have further taxonomic hierarchy under it, so $ra_{subkind}$ does not apply. Technically, it is possible for ra_{obj} to apply followed by the application of *nom* to take us to the kind level reading. While a sentence with the *ra*-marked noun would be semantically equivalent to one with the bare noun in this case, the former involves more computational steps and hence costlier when we have at our disposal the primitive bare form to express the same information. Thus the bare noun blocks the occurrence of the *ra*-marked form. In other words, if the bare form is available, *ra* will only yield the sub-kind reading. This explains the effect we saw in generics in Section (2). I repeat the relevant data below:

(32) a. bunokukur-(ra) jore douroy.
Wild-dog-CLF fast run
'Wild dogs run fast.'

b. baccha kukur-*(ra) jore douroy na.
young dog-CLF fast run NEG
'Young dogs do not run fast.'

In (32a), $bunokukur\ jore\ douroy \equiv {}^{\cap}(bunokukur - ra_{obj})\ jore\ douroy$. Of course, the internal make-up of the two noun forms are different. The bare form is a singular kind term whose extension is a group, whereas the nominalized ra-marked form is a plural kind, which denotes a sum. However the meaning we obtain at the sentence level is essentially the same, just brought about in two different ways. Consequently, when we talk about the kind as a whole, the primitive form blocks the computationally and morphologically more complex form. Thus, if *ra* marking occurs in (32a), we only get a taxonomic sub-kind level reading brought about by $ra_{subkind}$. In (32b), *young* being an object level modifier looks for a property of objects to compose with. ra_{obj} applies to derive an object-level property that the adjective *baccha* ('young') composes with. Post nominalization, ${}^{\cap}(baccha[kukur - ra])$ yields the regular kind reading we get in (32b). In other words, the compositional route resorts to the nominalized form ${}^{\cap}(baccha[kukur - ra])$ in this case because a blocking effect by the bare form is not operative here.

This account retains Dayal (2012, 2014)'s core idea of treating *ra* as a classifier, which contrasts with Biswas (2016)'s analysis of *ra* as an associative plural, categorically different from classifiers. In Dayal (2014), *ra* is analyzed as an identity function defined on animate kinds. The account sketched here proposes the denotation of *ra* to be a function from singular kinds to instantiation sets, a number neutral property that includes both atoms and pluralities (which is closer to what was claimed in Dayal (2012); the technicalities differ since Dayal takes *ra* to operate on plural kind terms). As for the plurality of *ra*, I do not make any new claims: I agree with Dayal that the plural interpretation of *ra* arises as an implicature due to the availability of the unambiguously singular form *Ek-Ta-NP* ('one-CL-NP') (Dayal 2014: 76), as in (33), similar to the account for English bare plurals (Sauerland et al. 2005, Spector 2007, Zweig 2009).

(33) baire ek-ta bachha khelchhe.
outisde one-CLF_{ta} child play.PROG
'One/A child is playing outside.'

(34) baire bachha-ra khelchhe.
outisde child-CLF_{ta} play.PROG
'Children are playing outside.'

5. Conclusion

This paper illustrates that while Bangla is a kind-denoting language, it does not have the same types of kinds as we see in other classifier languages. I argue that bare nouns exclusively denote singular kinds in Bangla, and singular kinds are a primitive notion in the language. The extensive use of singular kind reference in Bangla is attributed to the presence a dedicated lexicalized type-shifter, which distinguishes it from English (no dedicated type-shifting operator from singular kinds to their property correlate) and Turkish (type-shifting possible as part of certain grammatical constructions only). In the current work, I have not explored the associative plural uses of *ra* and how it can be captured within the proposed account. I leave this for future research.

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