

Yoruba Bare Nominals from a neo-Carlsonian Perspective

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Abstract This paper, in honor of my valued colleague and long-time friend, Professor Akinbiyi Akinlabi, seeks to understand a corner of Yoruba grammar from the perspective of a theory of cross-linguistic variation within the tradition of formal semantics, also known as Montague grammar. The empirical phenomenon it focuses on is the semantics of nominal phrases with no overt determiner. The generalizations regarding the range of interpretations available to them come from Ajiboye (2005). These generalizations are analyzed within the neo-Carlsonian approach of Chierchia (1998) and Dayal (2004) and shown to have a principled explanation within this theory. The paper ends by noting the implications and consequences of this approach to Yoruba bare nominals. Among the issues touched upon is the use of covert type shifts instead of null determiners in the analysis of bare nominals in Yoruba and other such languages. Another issue is the relationship between the expression of number in the nominal system, the structural position of the bare NP, and indefinite readings. It also plays out some predictions of the neo-Carlsonian approach with regard to possible interpretations of bare nominals across languages. In some sense, then, this paper also contains suggestions for further work in this domain. Two articles that elaborate on the methodology used in this analysis are mentioned as possible resources for further work on the interpretation of bare nominals. I hope that modest though my foray into Yoruba linguistics may be, this new perspective may pique the interest of those more knowledgeable about Yoruba grammar and encourage further work on the semantics of Yoruba and other African languages.

1. Some Generalizations about Yoruba Bare Nominals

In a detailed study of Yoruba noun phrases, Ajiboye (2005) shows that bare NPs, noun phrases without overt determiners, can have a range of readings. In particular, they can have definite readings, they can have generic readings and they can have indefinite readings. Of course, each of these readings is only possible if the construction in which the noun phrase occurs and the

context in which the sentence is used can support the relevant reading. I give below one example for each of these readings.¹

Definite Reading:

1. a) I told my friend that a snake and a spider entered my house yesterday. He asked what I did to them and I said I killed the spider. He went further to ask about the snake then I said [1b].
 b) Èrù ú bà mí láti pa ejò.
 Fear HTS catch 1sg to kill snake
 'I was afraid to kill the snake.'

Ajiboye (2005: 146)

Generic Reading:

2. Aǵá máa-ní pa ebi sùn.
 dog IMP seizes hunger sleep
 'Dogs sleep without food.'

Ajiboye (2005: 157)

Indefinite Reading:

3. Aǵá pa ebi sùn.
 dog seizes hunger sleep
 'A dog slept without food.'

Ajiboye (2005: 157)

As interesting as the range of available readings is, it is also interesting to note that there are some readings that Yoruba bare nominals do not have. Of particular interest to us will be the fact that though they can have indefinite readings, they cannot have specific indefinite readings. As (4) shows, a determiner-like element is needed to obtain specificity:

4. Ó n wá [àga kan].
 3sg Prog search chair spec
 'He is looking for a certain chair that he sits on.'

Ajiboye (2005: 189)

Ajiboye translates *kan* as a specificity marker like *certain* but also notes that it is homophonous with the numeral 'one'. While this issue is interesting in its own right, I will not explore it further in this paper. The important point for us is the fact that a determiner is needed at all. One final point that is relevant is the fact that Yoruba bare nominals can be interpreted as singular or plural, at least in object position:

¹For the earlier work reported on here, I am indebted to many people who have responded to my ideas over the years. For what is new here, I thank Doug Pulleyblank for pointing me to Ajiboye (2005) and to my class at the African Linguistics School 3 in Ibadan (Nigeria) for helping me understand Yoruba nominals better. Finally, I am grateful to Jesse Law for feedback as well as for editorial help in getting this paper ready for publication. It goes without saying that all remaining inadequacies are my responsibility.

¹The example for the definite reading is from a footnote on pg. 146, which is minimally different from the one in the body of the text.

5. Moji rí [ejò] lónà oko.
 M. see snake on-path farm
 (i) 'Moji saw a snake on her way to farm.'
 (ii) 'Moji saw snakes on her way to farm.'

Ajiboye (2005: 224)

No doubt there is a lot more to be said about the data given above, but I am restricting myself to the facts reported in Ajiboye (2005) and setting aside other work on the topic. My goal in this paper is to provide a framework within which the generalizations listed above have a principled explanation. Section 2 introduces a theory of cross-linguistic variation, as presented in Dayal (2013).

2. The Neo-Carlsonian Theory of Cross-linguistic Variation

Chierchia (1998) put on the research agenda the goal of developing a theory of cross-linguistic variation in the domain of noun phrases. The response to this paper has transformed the empirical landscape, informing and deepening our understanding of the interpretive possibilities available across languages. This section presents the key ingredients of the theory.

The basic premise of the neo-Carlsonian position is that bare plurals refer to kinds, not only in the case of predicates that refer to the species as a whole but also in the case of object-level predication where ordinary individuals are required, as originally proposed in Carlson (1977). Their quantificational force, however, is governed by the same principles that Lewis (1975), Kamp (1981) and Heim (1982) demonstrated govern the quantificational force of regular indefinites.² In a generic statement, for example, a bare plural can have either (quasi) \forall force or \exists force, depending on whether it is interpreted in the restrictor or the nuclear scope. In an episodic statement, which does not have a tripartite logical structure, bare plurals are necessarily mapped into the nuclear scope and so have \exists force.

Chierchia takes this general approach a step further and proposes a cross-linguistic theory of noun phrase variation. Within the general perspective of flexible types (Partee 1986), he admits three basic operations for turning an NP with a predicative meaning (type $\langle e, t \rangle$) into an argument (type $\langle e \rangle$ or $\langle \langle e, t \rangle, t \rangle$), *nom*, *iota* and \exists :

6. a) *iota*: $\lambda P_t P_s$, if there exists a unique maximal entity in P ,
 Undefined otherwise.
 (Chierchia 1998: 346)
- b) *nom*⁽ⁿ⁾: For any property P and world/situation s ,
 $= \lambda s t P_s$, if $\lambda s t P_s$ is in K , undefined otherwise,
 where P_s is the extension of P in s and K is the set of kinds.
 (Chierchia 1998: 350-351)
- c) \exists : $\lambda P \lambda Q \exists x [P(x) \wedge Q(x)]$
 (Chierchia 1998: 359)

Of these, Chierchia considers the first two meaning preserving, in the sense that they map a predicate into an entity without introducing quantificational complexity. The first is *iota* which picks out the unique maximal entity in the extension of the predicate at the relevant situation, if there is one, and is undefined otherwise (Sharvy 1980). In English, this shift has a lexical exponent *the*, but in many languages it is a covert type shift. *Nom*, the kind forming operator of Chierchia (1984), 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 defined to yield falsity rather than presupposition failure at indices where the extension of the predicate is empty. It is, however, a partial function because it is undefined for predicates that do not fit the concept of a kind: “not all individual concepts are going to be kinds. Only those that identify classes of objects with a sufficiently regular function and/or behaviour will qualify. Moreover, kinds...will generally have a plurality of instances (even though sometimes they may have just one or none). But something that is necessarily instantiated by just one individual (e.g., the individual concept or transworld line associated with Gennaro Chierchia) would *not* qualify as a kind” (Chierchia 1998: 350). The third type-shift \exists , from Partee (1986), not only turns a predicative expression into an argument, it also introduces \exists quantificational force. Since this yields an expression of the generalized quantifier type, it can interact scopally with other scopal expressions. Unlike the first two operations, \exists is a total function. In Chierchia's system, these possibilities are constrained by two principles specific to type shifts (7a,b).³

²Chierchia's stance on the ranking of covert type shifts has to be gleaned from two separate discussions. The distinction between languages with and without determiners leads him to rank *iota* and \exists at par (Chierchia 1998: 360-61). The distinction between English kind denoting and non-kind denoting bare plurals leads him to rank *nom* above \exists (Chierchia 1998: 374). The two positions are actually inconsistent, as pointed out in Dayal (1999, 2004). Some of the arguments from there are used to motivate the revision of (7a) in (18).

³Proponents of the ambiguity approach (Wilkinson 1991, Gerstner-Link and Krifka 1993, Kratzer 1995 and Diesing 1992, among others) take bare plurals to refer to kinds when they serve as arguments of kind-level predicates and to ordinary individuals when they serve as arguments of object-level predicates. The ambiguity approach and the neo-Carlsonian approach converge, however, on the need for a flexible mapping of noun phrases into the logical structure. For a comparison of the two approaches, see Krifka et al. (1995) and Dayal (2011a), in addition to the references mentioned here.

7. a) **Ranking:** $\text{nom} > \{\text{iota}, \exists\}$ to be revised (cf. 18)
 b) **Blocking Principle:** ('Type Shifting as Last Resort'): For any type shifting operation τ and any $X:*\tau(X)$ if there is a determiner D such that for any set X in its domain, $D(X) = \tau(X)$.
 (Chierchia 1998: 360)

Finally, there is the rule of DKP which mediates between a kind denoting term and a predicate of objects, a repair operation of sorts (8). It first takes the extension of the kind at an index, defined as in (9), converts it into a predicate of objects, and \exists binds into this predicate (8). Since this \exists is introduced at the point where the sort adjustment is required, it ensures obligatory narrow scope for its operand:

8. **Derived Kind Predication Rule (DKP):**
 If P applies to objects and k denotes a kind, then $P(k) = \exists x [\text{U}k(x) \wedge P(x)]$
 (Chierchia 1998: 364)
9. **PRED (U):** $\text{U}k = \int \lambda x [x \leq k_s]$ if k_s is defined, $\lambda x[\text{FALSE}]$, otherwise where k_s is the plural individual that comprises all of the atomic members of the kind k .
 (Chierchia 1998: 350)

With this much background, we can demonstrate how the theory captures the core facts related to bare plurals in two languages, English and Hindi. These two languages share the property of encoding number sensitivity in the nominal system while differing on the existence of determiners.⁴ Let us start with English, and consider bare plurals that are conceptually kinds:

10. a) Dogs have evolved from wolves.
 b) Typhoons arise in this part of the pacific.
 c) Dogs are barking.
11. a) $\text{evolve-from}(\text{Udogs}, \text{Uwolves})$
 b) $\text{GEN } s \times [\text{U}^n\text{typhoons}(s)(x) \wedge C(s)] [\text{arise}(s)(x) \wedge (\text{in-this-part-of-the-P})(s)(x)]$

⁴ I am leaving out of this discussion an important aspect of Chierchia's proposal, the *Nominal Mapping Parameter*. Hindi and English have the same parameter setting [+arg, +pred], unlike Chinese which has the [+arg, -pred] setting and French which has [-arg, +pred] setting. These distinctions do not directly bear on the generalizations this paper focuses on. However, number specification in Yoruba nominals is quite complex and is critical in determining its status with respect to the *Nominal Mapping Parameter*. See section 4 for a very brief discussion of this issue.

- b') $\text{GEN } s \times [\text{this-part-of-the-P}(s)(x) \wedge C(s)] [\text{arise-in-}x(s)(\text{U}^n\text{typhoons})] = \text{DKP} \Rightarrow \text{GEN } s \times [\text{this-part-of-the-P}(s)(x) \wedge C(s)] \exists y [\text{U}^n\text{typhoons}(s)(y) \wedge \text{arise-in-}x(s)(y)]$
 c) $\exists [\text{are-barking}(s)(\text{U}^n\text{dogs})] = \text{DKP} \Rightarrow \exists x [\text{U}^n\text{dogs}(s)(x) \wedge \text{are-barking}(s)(x)]^5$

Since *evolve* 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. In the case of *arise*, which is an object-level predicate in a characterizing sentence, we have a tripartite structure and depending on what goes into the restrictor of the GEN operator, we get distinct truth conditions for the bare plural. (11b) uses PRED to shift the type of the bare plural from kind to predicate and generically bind it. It says of typhoons in general that they arise in this part of the Pacific. In (11b') the bare plural is mapped into the nuclear scope and serves as the argument of the verb *arise*. Since *arise* cannot hold of the kind, only of instantiations of the kind, DKP comes into play. (11b') says that it is generally true of all contextually relevant situations involving this part of the Pacific, situations in which the climactic conditions are conducive, that there are typhoons that arise. Similarly, in the case of the episodic statement in (10c), DKP negotiates the relationship between an object-level predicate and a kind level argument, as shown in (11c).

It is worth noting that the truth conditions associated with (11c) are the same as those of a corresponding statement with an overt indefinite. However, a difference shows up in scopal contexts. Take, for example, the negative statements in (12), under the LF where the bare plural/indefinite outscopes negation (see Dayal, 2011b for differences between narrow scope readings for kind terms and incorporation):

12. a) Dogs are not barking.
 b) Some dogs are not barking.
13. a) $[\text{dogs}_i [\text{not } [t_i \text{ are barking}]]]$
 b) $\lambda x_i [\text{not } [x_i \text{ are barking}]](\text{U}^n\text{dogs})$
 $\Rightarrow \neg \text{are-barking}(s)(\text{U}^n\text{dogs})$
 $= \text{DKP} \Rightarrow \neg \exists x [\text{U}^n\text{dogs}(s)(x) \wedge \text{are-barking}(s)(x)]$
14. a) $[\text{Some dogs}_i [\text{not } [t_i \text{ are barking}]]]$
 b) $[\text{some dogs}] (\lambda x_i [\text{not } [x_i \text{ are barking}]])$
 $\Rightarrow \lambda Q \exists x [\text{dogs}(s)(x) \wedge Q(x)] (\lambda x_i [\neg \text{are-barking}(s)(x_i)])$
 $\Rightarrow \exists x [\text{dogs}(s)(x) \wedge \neg \text{are-barking}(s)(x)]$

⁵ I assume that the situation variable in episodic statements is indexical, rather than existentially bound, though nothing of relevance to the issues discussed here rides on this.

Since the bare plural is individual denoting (type $\langle s, e \rangle$), it gets lowered into the argument position of the negative predicate. When DKP adjusts the mismatch between *barking* and \cap *dogs*, \exists enters into the derivation necessarily below negation. The regular indefinite, on the other hand, is a generalized quantifier, which means that it enters into an operator-variable relation with its trace and therefore can have scope over negation. Appealing to reference to kinds for bare plurals and to a generalized quantifier meaning for indefinites thus yields the radically different truth conditions observed in such cases.

Chierchia's basic system preserves the original insights of Carlson's account, accommodating for advances in our understanding of external sources of quantificational force for indefinites (see also Carlson 1989 on this). Briefly put, the key insight is that the semantic *type* of the bare plural ensures that it will always be interpreted closest to the verb, but its *sort* forces \exists to be introduced at the level of the mismatch, i.e. at V, below any other operator.

We now turn to those aspects of interpretation that are specific to Chierchia's system: namely the *blocking principle* and *ranking* (cf. 7). We start with the fact that bare plurals in English do not admit definite readings (15a), while those in Hindi do (15b):

15. a) Some children_i came in. Children_i sat down.
 b) kuch bacce_i andar aaye. bacce_i baiTh gaye.⁶
 Some children inside came children sit went
 'Some children came in. The children sat down.'

The explanation for this difference follows straightforwardly from *blocking*. Since *iota* is lexicalized in English, the definite plural must be used in this context and covert type shift for the bare plural via *iota* is ruled out. Since Hindi does not have a lexical determiner, the bare plural is free to shift via *iota*. This seems to be generally representative of languages with and without determiners and thus seems to be a welcome prediction of the theory.

The ranking of type shifts becomes important when we turn to English bare plurals that do not denote kinds. They differ from kind terms in allowing wide scope over negation:

16. a) Parts of this machine are not new.
 b) $\exists x$ [parts-of-this-machine(s)(x) \wedge \neg new(s)(x)]

Carlson (1977) notes that such bare plurals refer "to a FINITE set of things, things that must exist at a certain time in a given world" (*emphasis his*

- pg. 196). As such, they do not display the kind of intensionality associated with kind terms. For Chierchia, this means that such bare plurals are not in the domain of *nom*. Since *iota* is lexically blocked by *the*, the bare plural now shifts via the low-ranked \exists type shift and predictably displays the same scopal flexibility that characterizes regular indefinites (see Dayal 2013 for further discussion).⁷

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. For example, it is predicted by the ranking in (7a) that the definite reading of bare plurals in languages like Hindi would not be available because of the availability of the higher ranked *nom*. But the ground reality is that *nom* and *iota* do not compete – Hindi bare plurals are acceptable with kind level predicates, in addition to having definite readings.⁸ There is a further problem noted there with respect to the indefinite readings of bare plurals in languages without determiners. The scopal properties of such bare plurals are precisely those of English bare plurals – they obligatorily take narrowest scope. In other words, bare plurals can have definite readings or DKP-based narrow scope \exists readings, but they do not have the wide scope readings associated with \exists type shift:⁹

17. vahaaNbaccenahiiNhaiN¹⁰
 There children not be
 'There are no children there.' or 'The children are not there.'
 NOT 'Some children are not there.'

This point is worth emphasizing. The popular view that bare plurals in languages without determiners can be definite or indefinite is simply not supported empirically. What this means for the theory is that we do not want bare plurals in such languages to be able to access \exists type shift. This is accomplished by revising the ranking in the following way:

18. $\{nom, iota\} > \exists$ (Dayal 2004: 419)

⁷Chierchia argues that *some* is not a lexical exponent of \exists , unlike *a*, which is. Thus it does not block the application of \exists here. Bare singulars are ruled out because they are not in the domain of *nom*, and *iota* and \exists are lexically blocked. Crucial to the distinction between *some* and *a* is that only the latter lends itself to binding by a generic operator.

⁸The idea that Hindi bare nominals are ambiguous between kind terms and definites, not true indefinites, was first proposed in a joint paper (Porterfield and Srivastav 1988). The facts generalize beyond Hindi to other typologically unrelated languages such as Russian and Chinese. On the latter, see also Yang (2001).

⁹The two available readings may have different intonational contours and might need different contexts to make them salient. Neither intonation nor context can make available a wide scope \exists reading, a reading in which the predication only applies to some of the relevant individuals. An overt indefinite *kuch bacce* 'some kids' or *ek baccaa* 'one kid' would have to be used to convey the intended meaning.

¹⁰N indicates nasalization of the immediately preceding vowel.

⁶T is a retroflex voiceless stop, d is a dental stop, h following a stop indicates aspiration.

In this section, I have presented the details of Chierchia's system at work, in preparation for the discussion to follow. I now return to Yoruba and look at the generalizations noted in section 1 from the neo-Carlsonian perspective.

3. The Yoruba Generalizations Revisited

Ajiboye (2005) does not tell us whether Yoruba bare nominals are kind terms. However, given that it lacks determiners and nouns are number neutral, we can assume that they are acceptable as arguments of predicates that apply only to the species as a whole, such as *evolve* or *be extinct*. Making this simple assumption, we now proceed to show how each of the available readings would be derived and the unavailable reading ruled out.

On the present account, the bare NP has a property level meaning and can undergo either of the two higher ranked type shifts, *nom* or *iota*, since there is no overt determiner in the language and the bare nominal occurs in argument position. We first analyze the definite reading in (1). We have the derivation in (19) if *iota* is used:¹¹

19. [Èrù ùbà mílátì pa ejò]
 = $\lambda x \lambda y [\text{afraid-to-kill}(y)(x)] (\lambda z \text{snake}(z)) (I)$ *lexical meanings*
 = $\lambda y [\text{afraid-to-kill}(y)(I)] (\lambda z \text{snake}(z))$ *lambda conversion: subject term*
 = $\lambda y [\text{afraid-to-kill}(I)(y)] (\text{iota}(\lambda z \text{snake}(z)))$ *type repair: iota*
 = $\text{afraid-to-kill}(\text{tsnake})(I)$ *lambda conversion: object term*

The other two readings can be derived if the bare nominal undergoes the *nom* type shift, followed by either generic binding or DKP-based \exists binding. In both cases, the predicate applies not to the kind as a whole but to ordinary individuals. This requires the mediation of the operation *pred* which yields the set of instantiations of the kind at the relevant index. The generic reading in (2) is derived as shown below:

20. [Ajá [máa-ní pa ebisùn]]
 = $\lambda x [\text{sleep-without-food}(x)] (\lambda z \text{dogs}(z))$ *lexical meanings*
 = $\lambda x [\text{sleep-without-food}(x)] (\text{nom}(\lambda z \text{dogs}(z)))$ *type repair: nom*
 = $\lambda x [\text{sleep-without-food}(x)] (\cap \text{dogs})$ *lambda conversion*
 = $\text{sleep-without-food}(\cap \text{dogs})$

¹¹ Yang (2001) uses *nom* to derive the definite reading for Mandarin bare nouns. See Dayal (2011a) for discussion.

- = $\text{GEN } s \times [\cap \text{dog}(s)(x) \wedge C(s)] [\text{sleep-without-food}(s)(x)]$ *sort-adjustment*
via pred, followed by binding by GEN

The generic operator in (20) is contributed by a combination of the lexical properties of the predicate and the aspectual specification on the predicate. The indefinite reading in (3) comes about because it is an episodic statement, where the aspectual specification triggers the rule of DKP:

21. [Ajá [pa ebisùn]]
 = $\lambda x [\text{slept-without-food}(x)] (\lambda z \text{dogs}(z))$ *lexical meanings*
 = $\lambda x [\text{slept-without-food}(x)] (\text{nom}(\lambda z \text{dogs}(z)))$ *type repair: nom*
 = $\lambda x [\text{slept-without-food}(x)] (\cap \text{dogs})$ *lambda conversion*
 = $\text{slept-without-food}(\cap \text{dogs})$ *lambda conversion*
 = $\exists x [\cap \text{dogs}(x) \wedge \text{slept-without-food}(x)]$ *sort adjustment via pred*
and \exists binding via DKP

The formulas representing the generic and indefinite readings of Yoruba bare nominals in (20)-(21) closely mirror the formulas for these sentences given by Ajiboye (2005), but for the fact that bare NPs are treated as kind denoting. The difference lies in the fact that the neo-Carlsonian approach makes a prediction about non-specific vs. specific readings of bare nominals. Kind denoting terms can have indefinite readings, but such readings are necessarily narrow scope readings. The \exists -type shift that would have made wide scope readings possible does not come into play, being lower ranked than *iota* and *nom*. This explains the fact that in (4) an overt determiner-like expression *kan* is needed to derive specificity. The theory also explains why definite readings as well as narrow scope \exists are available for bare nominals in the language.

4. Some Further Issues

We have seen how some generalizations about the interpretations of Yoruba bare nominals can be explained when they are viewed through a neo-Carlsonian lens. In this last section, I will look at three issues that remain open.

I have analyzed the bare nominal as an NP which becomes an argument through covert type-shifting, rather than a DP with a null determiner as Ajiboye (2005) does. I believe the essentials of the neo-Carlsonian analysis can transfer over to approaches that posit null determiners but only if the principles of *blocking* and *ranking* are revised to make reference to null determiners, instead of covert type-shifts, as it currently does. For example, *blocking* would have to apply to the

interpretation of null vs. overt determiners and *ranking* would have to state that the lexical meanings of null determiners follow the hierarchy in (18). I leave it to the reader to decide if these modifications lead to a theory that is preferable to what we have sketched out in sections 2 and 3.

The second open issue pertains to the status of number specification in the bare nominal. The example in (5), showing that Yoruba nominals are number neutral has the bare nominal in direct object position. Dayal (2017 and forthcoming) emphasizes the need to study bare nominals in a range of argument positions before drawing conclusions. This is important because the direct object position lends itself readily to pseudo-incorporation and complex predicate formation and there may well be effects noted with direct objects that are not replicated in other positions. One might ask, of course, why this should be important. In determiner-less languages like Hindi or Turkish (see Sag forthcoming on the latter), singular terms are not as readily interpreted as indefinite as plural terms, except in direct object position. The reason for this is that there is a difference between singular kind terms and plural kind terms, such that DKP-based indefinite readings are not possible for the former (Dayal 2004).¹² If Yoruba bare nominals are like singular terms, they should not lend themselves to indefinite interpretation generally. But we see that the Yoruba subject bare nominal in (3) is translated as an indefinite. The explanation we have proposed relies on utilizing DKP so it is crucial to come to a determination about the status of the bare NP. If it turns out to be a singular term we must go back to the drawing board since *nom*, and therefore *DKP*, will not apply. If it is a plural term, on the other hand, the analysis given in section 3 can be maintained. I should also add that I have not ascertained that Yoruba bare nominals are in fact kind denoting terms. I have simply shown that taking them to be plural kind terms provides a simple and straightforward account of the observed facts. The discussion in Ajiboye (2005) makes it abundantly clear that number specification in Yoruba is fairly complex and if the ideas outlined in section 2 and 3 are to be pursued, some further work is needed.

Let us end with one final point. One clear advantage of the neo-Carlsonian approach to bare nominals is that it makes predictions about what we might expect to find in different languages. In the absence of this theory, for example, we may expect to find a language minimally different from Yoruba, say Yoruba', in which bare NPs have both non-specific and specific indefinite readings. Or we may find a third language, say Yoruba'', in which bare NPs have specific indefinite readings but not non-specific indefinite readings. I submit to you that the fact that we have Yoruba and not

¹² Singular kind terms in languages with determiners tend to be definite: *the dinosaur is extinct*. In languages without determiners the difference between singular and plural kind terms is somewhat harder to nail down.

Yoruba' or Yoruba'' is not an accident. The theory of cross-linguistic variation predicts that languages like Yoruba'' will not exist and that even languages like Yoruba' are quite unlikely. In order to get Yoruba' the language would have to lack any ranking but in order to get Yoruba'' the language would have to rank \exists above *nom*. This goes against the basis for the ranking of type-shifts discussed in section 2. A consequence of such a ranking would be that Yoruba'' could not use bare nominals for kind reference. Lacking definite determiners, it is unclear how reference to kinds would work in such a language, as natural languages seem to lack dedicated kind-referring determiners (see Dayal 2004). Yoruba'' would be the first language to either lack noun phrases that refer to kinds or the first language to have a special determiner for this purpose.

If the idea that we can make cross-linguistic predictions about the range of possible interpretations is appealing, I would hope that it would prompt further work on Yoruba and other languages that are under-studied from the perspective of formal semantics. Two short articles that might be helpful in this connection are Dayal (2017 and forthcoming) as they provide explicit diagnostics for deciding whether a language has articles corresponding to English *the* and *a* and for determining which readings bare NPs can have.

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Actual Clauses in Lubukusu

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Abstract
In this chapter* we show that the inventory of clause-types in Lubukusu (Bantu, Luyia) includes a clause type that, so far as we know, has not yet been described as present in any other language. Lubukusu has *actual clauses*, a morphologically distinctive form of subordinate clause which entails that the utterer is committed not only to the truth of the proposition described by the clause, but that the event or state described by the proposition cannot be unrealized at the moment of utterance. We argue that the actual clause is tenseless (distributionally and semantically) and that it is subjunctive-like insofar as it introduces sets of “accessible” possible worlds where the truth of the proposition can be evaluated, based on the predicate that introduces the actual clause as a complement. Actuals depart from subjunctives, however, insofar as the actual world of the speaker must always be one of the possible worlds accessible to the predicate’s attitude-holder, and since the proposition must be true in the speaker’s world to be well-formed, it is not hypothetical, but, in effect, anti-subjunctive. After we have established the fixity of actual clause meaning and shown the contrasting flexibility of interpretation for infinitives (verbs bearing a class 15 prefix), we show that the rigidity of the actual clause reveals an interesting interaction between the inventory of clause types in Lubukusu and the classes of predicates that select clauses as complements.

1.0 Some Basic Properties of Actual Clauses

The most striking feature of the actual clause is that it must be interpreted as making a statement about events or states known to be true by the utterer (UTT) at the time of utterance, and cannot describe any event or state that has not already happened or verifiable at the moment of speech. Except for a few contexts which we note and put aside, actual clauses are always embedded,

* This work was based on work supported by NSF BCS-0919086 and BCS-1324404 which funds the Afranaph Project, <http://www.africananaphora.rutgers.edu/>. In particular we would like to thank Akin Akinlabi for bringing an African linguistics focus to Rutgers and sustaining it over these many years, as well as directly influencing Ken Safir to found the Afranaph Project. This in turn supported Prof. Sikuku during his visit to Rutgers, without which, our collaboration would not have been possible. We would also like to thank Veneeta Dayal, Rose-Marie Déchaine, Valentine Hacquard, Chris Hsieh, Augustina Owusu and Roger Schwarzschild for helpful discussion as well as the audience at WOCAL 7. This paper is a version of a manuscript that was originally written and reviewed for the WOCAL 7 proceedings, which were never published. The manuscript was posted in 2012 as Technical Report #5 of the Afranaph Project. This is a revised version of the posted technical report, though the differences are relatively small, mostly in the direction of clarification and updated references.