Proceedings of SALT 35: 801–818, 2025

Bare singular and plural kinds*

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Abstract Languages with a singular-plural and mass-count distinction as well as overt definite and indefinite determiners are predicted not to allow bare singular kinds (Chierchia 1998; Dayal 2004). Ga (Kwa) is such a language (Campbell 2017; Renans 2016a,b, 2018, 2021) and yet both bare singular and plural count nouns can obtain a kind reading: while bare plural form is preferred for entities that are frequently encountered by Ga speakers, bare singular form is preferred for rarely encountered entities. Moreover, definite NPs can never obtain the kind reading. We propose that the Ga data point to a new mechanism of kind formation and to a previously unattested variation in kind formation across languages: while in languages like English the kind-forming operator makes use of the supremum (Chierchia 1998), in languages like Ga the kind-forming operator encodes a sum.

Keywords: kinds, bare nouns, Ga language

1 Theoretical Background & Puzzles

Languages with a singular-plural and mass-count distinction as well as overt definite and indefinite determiners, such as English, allow bare mass and bare plural kinds but crucially not bare singular kinds (e.g., Chierchia 1998; Dayal 2004), as illustrated in (1) below.

(1) a. Oxygen is widespread. — BARE MASS NOUN
b. Dinosaurs are extinct. — BARE PLURAL COUNT NOUN
c. *Dinosaur is extinct. — BARE SINGULAR COUNT NOUN

In prominent theories on kind formation available on the market (Chierchia 1998; Dayal 2004), mass nouns come out of the lexicon as kinds and therefore can

* We would like to thank Malte Zimmermann, Peter Sutton, the audience of SALT 35, ACAL 56, 'A Hitchhiker's Guide to Interpreting Bare Arguments': The Workshop, Potsdam Semantic Meeting, and Frankfurter Semantik Kolloquium for valuable comments and suggestions. We also gratefully acknowledge financial support from the German Research Foundation (DFG), project #493949122 *Definiteness across domains*. All remaining errors are ours.

	bare mass	**bare plural**	**bare singular**
kind-reading	available N is kind-denoting *Gold is rare.*	available $^{\cap}$ type shift *Dinosaurs are extinct.*	unavailable $^{\cap}$ undefined **Dinosaur is extinct.*

Table 1 Kind formation in languages with overt (in)definite determiners as well as a mass-count and singular-plural distinction.

straightforwardly obtain the kind reading. The kind reading of bare plural count nouns, on the other hand, is derived via the nominalization operation '$^{\cap}$' (*nom*), defined in (2):

(2) For any P and w, where P_w is the extension of P in w:

$$^{\cap}P = \left\{ \begin{array}{l} \lambda w.\iota x[P_w(x)], \text{if } \lambda w.\iota x[P_w(x)] \text{ is in K, the set of kinds} \\ \text{undefined, otherwise} \end{array} \right\}$$

Importantly, *nom* as defined in (2) makes a crucial use of the definite semantics (the ι-typeshift) in deriving the kind interpretation:

(3) the dinosaur kind: a function from worlds w to the maximal entity satisfying the dinosaur property in w: $\lambda w.\iota x[dog_w(x)]$

As one cannot form a kind out of the single occurrence of the given entity in the world, it explains why bare singular count nouns cannot obtain the kind reading. It is possible however to utter definite singulars to talk about the given subkinds, as in example (4) below.

(4) The dinosaur is extinct. DEFINITE SINGULAR NOUN

Definite singular kinds differ however from bare plural kinds. In particular, definite singular kinds (i) are collective/group individuals, (ii) they are restricted to well-established kinds, and (iii) do not occur in the rule or regulation type of characteristic statements. Moreover, Dayal (2004) puts forward a generalization regarding singular kind terms. She conjectures that deictic/anaphoric nouns and singular kind terms will agree in lexicalization: in a given language they will either both be bare or both definite. This in turn further underlines a strict connection between definite semantics and kind formation across languages.

Predictions regarding kind formation in languages with overt (in)definite determiners as well as a mass-count and singular-plural distinction are summarized in Table 1. In particular, such languages are predicted to allow bare mass, bare plural, and definite singular kinds but crucially not bare singular kinds (Chierchia 1998;

	English	Ga
BARE SG	*Dog is common here.	?**Gbee** yɛ biɛ waa.
BARE PL	Dogs are common here.	**Gbee-i** yɛ biɛ waaa.
DEF SG	The dog is common here.	***Gbee lɛ** yɛ biɛ waa.
DEF PL	The dogs are common here.	***Gbee-i lɛ** yɛ biɛ waaa.
BARE SG	*Turkey is common here.	**Klakuŋ** yɛ biɛ waa.
BARE PL	Turkeys are common here.	?**Klakuŋ-ji** yɛ biɛ waa.
DEF SG	The turkey is common here.	***Klakuŋ lɛ** yɛ biɛ waa.
DEF PL	The turkeys are common here.	***Klakuŋ-ji lɛ** yɛ biɛ waa.

Table 2 Kinds in English and Ga. The English sentences are translations of the Ga sentences.'*' means that a form is unattested in the given language as referring to kinds, a sentence without any diacritics means that the form is attested as referring to kinds, and '?' means that the form is attested but dispreferred as referring to kinds.

Dayal 2004).

The new data on kind formation in Ga pose serious challenges to these generalizations and the theories of kind formation available on the market. Importantly, Ga shares relevant properties with English, i.e., it is a language with a mass-count and a singular-plural distinction as well as with overt (in)definite determiners (Campbell 2017; Renans 2016a, 2018, 2021). Yet both bare singular and plural count nouns can obtain a kind reading, as illustrated in Table 2. While bare plural kinds are preferred for entities that are frequently encountered by the speakers, bare singular kinds are preferred for rarely encountered entities.[1] Crucially also, definite nouns can never obtain a kind interpretation in Ga.

To preview the analysis to come, we propose that accounting for the Ga data requires a new mechanism of kind formation, i.e., one that does not make crucial use of definite semantics. In particular, we propose that while in languages like English, the kind-forming operator makes use of supremum (as proposed for example in Chierchia 1998), in languages like Ga, kinds are formed without use of supremum but sums. Thus the data from Ga point to a previously unattested variation in kind formation across languages and extends in a non-trivial way our understanding of the semantics of bare nouns across languages.

The rest of the paper is organized as follows. Section 2 provides the basic relevant information on the Ga language. Section 3 discusses in detail the semantic

1 Note that dogs are encountered frequently in Accra, where Ga is spoken, whereas turkeys are encountered rarely in Accra.

properties of bare singular and plural nouns in Ga. The questionnaire study on kind formation in Ga and their results are presented in Section 4. The analysis of the data is presented in Section 5. Section 6 discusses kind formation in Ga in a broader, cross-linguistic perspective and Section 7 concludes.

2 Ga language

Ga (Kwa) is an under-researched language spoken in the Greater Accra Region in Ghana by about 700 000 speakers, see e.g., Dakubu (1992, 2004); Wentum (1997); Korsah (2016); Renans (2016a); Campbell (2017). Ga has two lexical tones: Low and High and its basic word order is SVO. The data presented in this paper stem from original data collection run in 2013–2023 in Accra with six Ga native speaker language consultants, students at the time of elicitation (four female) as well as from the introspection of two co-authors, native-speakers of Ga. The methodology follows Matthewson (2004); the tasks comprised mostly acceptability judgment tasks in context. In addition, we ran a questionnaire study with 30 Ga native speakers in October 2024. The details of this study are provided in Section 4.

In the rest of this section, we show that Ga shares the relevant properties with English, i.e., it is indeed a language with a mass-count distinction, singular-plural distinction, as well as overt (in)definite determiners. That Ga exhibits a mass-count distinction is demonstrated in examples (5) and (6) below. Example (5) shows that *yɔɔ* 'bean' exhibits typical properties of mass nouns: it cannot combine with numerals without classifiers, as shown in (5-a), and it does not take a morphological plural marker while referring to the plurality of the entities, as shown in (5-b). By contrast, *sɛbɛ* 'eggplant' is a count noun in Ga: it does combine directly with numerals, i.e., without classifiers, and it takes a morphological plural marker when referring to the plurality of entities, as demonstrated in (6).[2]

(5) a. *Kofi ye **yɔɔ** enyɔ nyɛ.
Kofi eat bean two yesterday.
'Kofi ate two beans yesterday.'

b. Kofi ye **yɔɔ** pii nyɛ.
Kofi eat bean many yesterday.
'Kofi ate a lot of beans yesterday.'

2 The following glosses are used in the paper: 1, 2, 3=1st, 2nd, 3rd person, DEF=definite determiner, INDEF=indefinite determiner, IMPF=imperfective, PFV=perfective, ITV=itive, NEG=negation, PERT=pertensive, PL=plural, SG=singular, PRT=particle. An example marked with '#' means that the example was judged to be unacceptable in the given context and we hypothesize that it is for semantic or pragmatic reasons; examples without any diacritics were judged as acceptable in the given context.

(6) Kofi ye **sɛbɛ-i** enyɔ nyɛ.
Kofi eat eggplant-PL two yesterday
'Kofi ate two eggplants yesterday.'

That Ga shows a morphological singular-plural distinction has already been suggested in example (6) above and is further evidenced in (7):

(7) Mi-na **onufu/onufu-i**.
1SG-saw snake.SG/snake-PL
'I saw a snake/snakes.'

Ga also has a system of overt indefinite and definite determiners, as demonstrated in (8) and (9). While *ko* is an indefinite determiner (and *komei* is a plural indefinite determiner), *lɛ* is a definite determiner in Ga (see Renans 2016a,b, 2018, 2021 and Campbell 2017 for evidence).

(8) Mi-na **onufu ko/lɛ**.
1SG-saw snake.SG INDF/DEF
'I saw a/the snake.'

(9) Mi-na **onufu-i komɛi/lɛ**.
1SG-saw snake-PL INDF/DEF
'I saw some/the snakes.'

Thus the data above show that the Ga language indeed shares the relevant properties with English. In the next section, we will discuss in detail the semantic properties of bare singular and plural nouns in Ga, which are crucial for a development of the analysis of kind formation in Section 5.

3 Bare singular and plural count nouns in Ga

Both bare singular and plural count nouns in Ga can obtain an indefinite reading, as illustrated in (10) and (11). Example (10) shows that they can introduce a new discourse referent but they cannot be used to refer anaphorically to the previously mentioned entity (for that the definite determiner *lɛ* must be used). Further, example (11) shows that bare nouns can be used in non-uniqueness contexts.[3,4]

3 Tests in (10) and (11) are based on tests for indefiniteness discussed in Matthewson (1999).

4 Some nouns, like *tsɔɔlɔ* 'teacher' or *maŋtsɛ* 'chief', can be used bare in some contexts in Ga (Renans 2016a). It seems however that they are used as proper names in these contexts, see also Bombi, Grubic, Renans & Duah (2019) and Bombi & Mac-Arthur (2025) on quasi-names in Akan.

(10) context: beginning of the conversation

a. Mi-kane **wolo** nyɛ. Wolo *(lɛ) ŋɔɔ waa.
1SG-read book.SG yesterday book.SG DEF interesting very
'I read a book yesterday. The book was really interesting.'

b. Mi-kane **woji** nyɛ. Woji *(lɛ) ŋɔɔ waa.
1SG-read book.PL yesterday book.PL DEF interesting very
'I read books yesterday. The books were really interesting.'

(11) context: There is a tree outside the window. There are three birds on the tree.
Gbekɛ-bii hii lɛ fɛɛ na **loofɔlɔ**.
child-PL boy.PL DEF all see bird.SG
'All the boys saw a bird.'

Example (12) suggests that bare singulars in Ga are not number-neutral, i.e., morphologically singular nouns cannot refer to the collection of entities.[5]

(12) Henrietta kɛ Chickoletta ***wuɔ/wuɔ-i** ni.
Henrietta and Chickolletta chicken.SG/chicken-PL PRT
'Henrietta and Chickoletta are chickens.'

Another piece of evidence that bare singular nouns in Ga are not number-neutral come from the fact that they cannot occur with collective predicates, as shown in (13). If singular nouns were number neutral, their denotation would have contained plural individuals and they could have occurred with collective predicates, contrary to fact.

(13) a. ***Gbee** bua **shuɔ-i** a-he.
dog surround elephant-PL PERT-body
intended: 'Dogs surrounded elephants.'

b. **Gbe-i** bua **shuɔ-i** a-he.
dog-PL surround elephant-PL PERT-body
'Dogs surrounded elephants.'

That both bare singular and plural nouns can obtain a kind reading is demonstrated in (14) and (15) below:

5 There is a set of morphologically singular number-neutral nouns in Ga, mostly food terms, see e.g., Renans (2016b). We made sure that all morphologically singular nouns in this paper are not number-neutral.

(14) **Klakuŋ** bɛ Ga.
turkey.SG is.rare Accra
'Turkey is rare in Accra.'

(15) **Gbe-i** yɛ Ga waa.
dog-PL common Accra very
'Dogs are common in Accra.'

Importantly, neither is the use of bare singular nor plural count nouns restricted to well established kinds, as shown in (16) and (17):

(16) **Tɔ-i** diŋ yɛ fiaa
bottle-PL black be slender
'Black bottles are slender.'

(17) **Shia** agbo e-hi-ii
house.SG big NEG-be.good-NEG
'Big houses are not good.'

Both bare singular and plural count nouns can occur in generic statements, as shown in (18) and (19):

(18) **Shuɔ** yɛ lee.
elephant.SG have tail
'Elephants have tails.'

(19) **Gbe-i** bolɔ-ɔ waa.
dog-PL bark-IMPF very
'Dogs bark a lot.'

As well as in rule or regulation type of characteristic statements, as presented in (20) below:

(20) **Oblanuu/Oblahii** bu-ɔ fai.
gentleman.sg/gentleman.pl wear-IMPF hat
'Gentlemen wear hats.'

Bare singular and plural nouns in Ga invariably obtain a narrow scope interpretation, both in Subject and in DO position, as exemplified in (21) and (22), respectively.[6]

6 We use 'narrow scope interpretation' as a convenient label for the observed empirical effect. In Section 5 we will argue however that this effect is actually not due to scope.

(21) **Gbee/Gbe-i** bolɔ-ɔɔ.
dog.SG/dog-PL bark-IMPF.NEG
'No dog barks'. ⇒ the only possible interpretation

(22) Mi-kane-ko **wolo/woji**.
1.SG-read-PFV.NEG book.SG/book.PL
'I have read no book' ⇒ the only possible interpretation

Both bare singular and plural nouns in DO position can also obtain a differentiated scope reading, as demonstrated in (23). Both with singular and plural bare nouns (23) obtains the interpretation that Kofi kept killing different mosquitoes until the morning. This reading is not available for nouns marked with indefinites, i.e., the only possible interpretation for (24) is that Kofi kept killing the same set of mosquitoes till the morning, which is pragmatically implausible.

(23) Nyɛ gbɛkɛ lɛ Kofi gbe **tɔŋtɔŋ/tɔŋtɔŋ-i** kɛ-ya-shi
yesterday night TOP Kofi kill mosquito.SG/mosquito-PL take-ITV-hit
leebi.
morning
'Yesterday night, Kofi killed mosquitoes until the morning.'

(24) INDEFINITE:
#Nyɛ gbɛkɛ lɛ Kofi gbe **tɔŋtɔŋ-i** **komei** kɛ-ya-shi leebi.
yesterday night TOP Kofi kill mosquito-PL INDEF take-ITV-hit morning
'Yesterday night, Kofi killed some mosquitoes until the morning.'

Due to agreement with the verb, it is impossible to test differentiated scope reading of singular bare nouns in Subject position, as demonstrated in (25-a):

(25) a. *__Too__ ka he **amɛ**-ŋ-fɔ aharabata be lɛ mli fɛɛ.
goat lie body 3PL-PROG-give.birth harmattan time DEF inside all
'Goat kept giving birth all harmattan season.'

b. **Too-i** ka he **amɛ**-ŋ-fɔ aharabata be lɛ mli
goat-PL lie body 3PL-PROG-give.birth harmattan time DEF inside
fɛɛ.
all
'Goats kept giving birth all harmattan season.'

An immediate question that arises in this moment is whether singular bare nouns in Ga are (pseudo)-incorporated. The answer is no. Signature semantic properties of (pseudo)-incorporation comprise (i) number-neutrality, (ii) obligatory narrow scope, and (iii) nameworthiness, i.e., the combination of a pseudo-incorporated argument

and the event should yield a canonical (nameworthy) even type, see Mithun (1984); Dayal (2011); Sağ, Demirok & Bal (2025), among others.[7] While Ga bare nouns invariably give rise to narrow scope, they are not number-neutral, as it has been demonstrated in (12) and (13). They also do not show a nameworthiness requirement, i.e., both bare singular and plural nouns in Ga occur both in nameworthy and non-nameworthy event types, unlike for example pseudo-incorporated nouns in Turkish. Sağ et al. (2025) identify two criteria for classifying an event as a nameworthy even type: (i) the typicality or frequency of the event and (ii) the significance of the event, i.e., whether the event 'matters' and is worthy of mention due to its potential impact. Example (26) is modeled after an example in Sağ et al. (2025). Sağ et al. (2025: 2886) explain that 'being robbed by a fat thief or thieves does not, in any obvious way, contribute to the name-worthiness of the situation'. By contrast, *notorious* is a nameworthy property as it 'creates a situation where the type of thieves involved in a robbery matters' (Sağ et al. 2025).[8] As illustrated below, bare nouns in Ga do not show a contrast with respect to name-worthiness.

(26) a. Julɔ kpanaku ya-ju amɛ.
thief notorious ITV-steal 3PL
'A notorious thief robbed them'

b. Julɔ tɔfuu ya-ju amɛ.
thief fat ITV-steal 3PL
'A fat thief robbed them.'

To sum up, both singular and plural nouns in Ga obtain indefinite and kind reading (and they are not restricted to well-established kinds), occur in generic statements and in rule or regulation type of characteristic statements. They both obtain only a narrow scope interpretation and give rise to differentiated scope reading. Finally, they are not pseudo-incorporated. As singular and plural kinds in Ga show very similar properties, the question that arises immediately is what regulates their insertion. We turn to this issue in the next Section.

4 Singular and plural kinds: Questionnaire study

We hypothesize that the choice between singular vs. plural kind in Ga is regulated by the encounter-frequency of the given entity by Ga native speakers, as suggested by examples in Table 2. While for entities that are frequently encountered in Accra, such as *gbee* 'dog', the plural form is preferred, for entities that are rarely encountered in Accra, such as *klakuŋ* 'turkey', a singular form is preferred. We designed a

7 For syntactic tests for pseudo-incorporation, see Driemel (2023).

8 In Sağ et al.'s (2025) original example it was a *fat thief* vs. *master thief*.

questionnaire study to test this hypothesis.

4.1 Participants and procedure

We tested 30 adult Ga native speakers living in Accra, Ghana. The study was in the form of a mixed pen-and-paper questionnaire and interview/direct elicitation. The participants were presented with questionnaire questions in a paper form and asked to perform a questionnaire task. The researcher was however present the whole time while participants filled in the questionnaire. The researcher's role was to ask clarification questions and in particular to make sure that the participants obtained the kind reading of the tested bare nouns. Each participant was tested individually and obtained a monetary reimbursement for their time.

4.2 Materials

The participants were presented with fourteen sentences with kind taking predicates: either *yɛ Ga waa* 'is common in Accra' or *bɛ Ga* 'is rare in Accra'. The sentences were matched with frequently and rarely encountered animals in plural and singular form. The participants' task was to choose a form they prefer. Examples of the test sentences together with the nouns to choose from are presented in (27) and (28) below.

(27) ... yɛ Ga waa.
common Accra very
'... is common in Accra.'

☐ *wuɔ* ('chicken') SINGULAR FORM
☐ *wuɔi* ('chickens') PLURAL FORM

(28) ... bɛ Ga.
rare Accra
'... is rare in Accra.'

☐ *klakuŋ* ('turkey') SINGULAR FORM
☐ *klakuŋji* ('turkeys') PLURAL FORM

A list of seven frequently encountered animals in Accra included: (1) *alɔnte* 'cat', (2) *wuɔ* 'chicken', (3) *gbee* 'dog', (4) *adɔdɔŋ* 'house fly', (5) *too* 'goat', (6) *tɔŋtɔŋ* 'mosquito', (7) *kwakwe* 'mouse' and a list of seven rarely encountered animals in Accra consisted of: (1) *shuɔ* 'elephant', (2) *ŋmoo* 'lice', (3) *jata* 'lion',

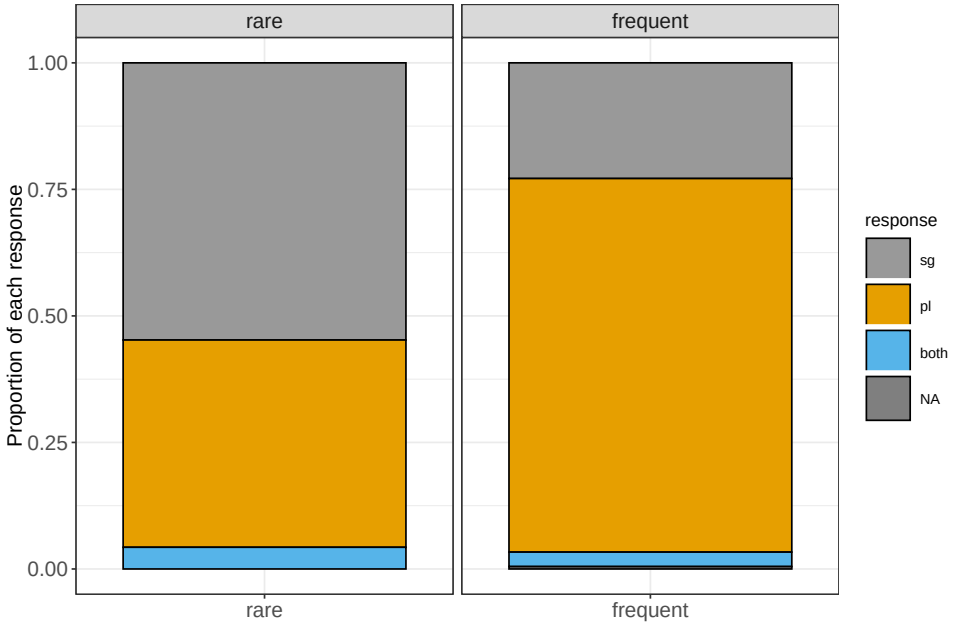

Figure 1 Proportion of singular form and plural form choice for sentences with rarely and frequently encountered animals.

(4) *aduŋ* 'monkey', (5) *obishi* 'rat', (6) *onufu* 'snake', (7) *klakuŋ* 'turkey.' The lists of the animals were created based on our world-knowledge of which animals are frequently and rarely encountered in Accra. We made sure that all nouns in the sample are count and all of them have morphological plural forms.

In order not to confuse the language consultants we aimed at creating true sentences. For that frequently encountered animals were matched with the predicate *yɛ Ga waa* 'is common in Accra' and rarely encountered animals were matched with the predicate *bɛ Ga* 'is rare in Accra.' In sum, the participants were presented with 14 items: 7 with frequently encountered animals and the predicate *yɛ Ga waa* 'is common in Accra' and 7 with rarely encountered animal and the predicate *bɛ Ga* 'is rare in Accra.'

4.3 Results

The results are presented in Figure 1. The plot shows that while in the case of sentences with rarely encountered animals, the participants preferred a singular form, in the case of sentences with frequently encountered animals, a plural form was preferred.

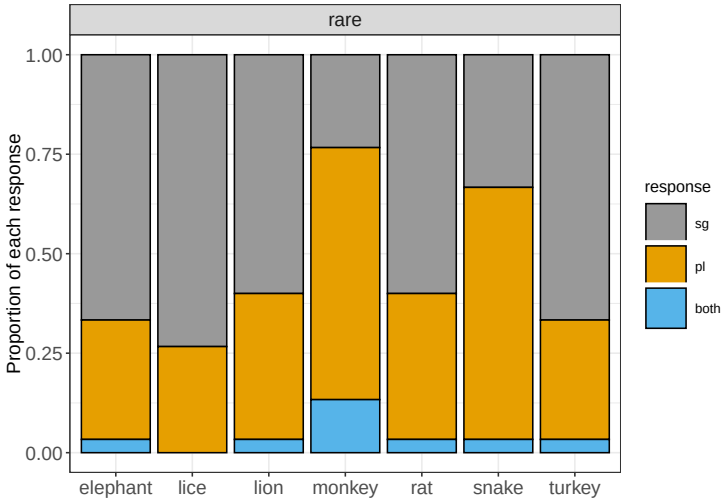

Figure 2 Proportion of singular form and plural form choice across targets with rarely encountered animals.

The by-items results are presented in Figures 2 and 3. The plot in Figure 2 shows that in the case of rarely-encountered animals, indeed the singular form is preferred in kind formation. There are two exceptions: *aduŋ* 'monkey' and *onufu* 'snake'. As for *aduŋ* 'monkey', we propose that even though one rarely encounters monkeys in Accra, they are extremely widespread in folktales, songs etc. and therefore they might actually be perceived as frequently encountered animals. As for *onufu* 'snake', we conjecture that plural form might be chosen by older Ga speakers. That is, snakes were common in Accra. Now, due to urbanization they are not and hence the frequency experience can differ across the participants from different age groups.

The plot in Figure 3 shows that in the case of frequently encountered animals, a plural form is preferred. An exception is *tɔŋtɔŋ* 'mosquito' (and to a lesser degree *adɔŋdɔŋ* 'house fly'). The language consultants' comments revealed however that even though there is a plural form for *tɔŋtɔŋ* 'mosquito' and *adɔŋdɔŋ* 'house fly' in Ga, some of the language consultants were not aware of the plural form for these nouns and therefore they chose a singular form.

These exceptional cases show also that a type of the predicate, i.e., *yɛ Ga waa* 'is common in Accra' vs. *bɛ Ga* 'is rare in Accra' does not regulate the choice of the singular vs. plural kind. Namely, the predicate *yɛ Ga waa* 'is common in Accra' does not require a plural kind, and the predicate *bɛ Ga* 'is rare in Accra' does not require a singular kind. For example, the language consultants chose mostly a plural form for monkey-kind and snake-kind, even though they were matched with the predicate *bɛ Ga* 'is rare in Accra.'

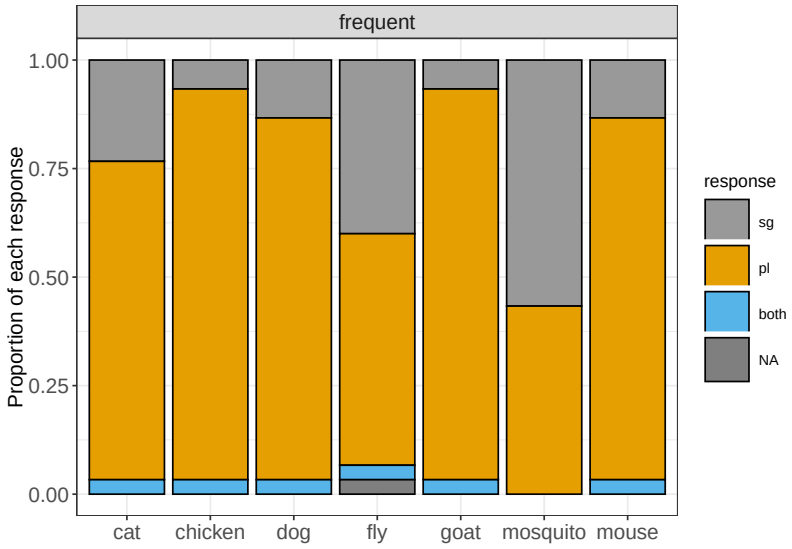

Figure 3 Proportion of singular form and plural form choice across targets with frequently encountered animals.

Looking at both plots together, there is a telling difference between the responses chosen for *wuɔ* 'chicken' (a frequently encountered animal in Accra) and *klakuŋ* 'turkey' (a rarely encountered animal in Accra). For a sentence *Wuɔ/wuɔ-i yɛ Ga waa.* 'Chicken is common in Accra' almost 100% of the participants chose a plural form, while for sentence *Klakuŋ/klakuŋji bɛ Ga.* 'Turkey is rare in Accra' almost 75% of the language consultants chose a singular form. It is a telling example, because both chicken and turkey are birds of similar sizes. Therefore, it suggests that neither animacy nor size play a role in the choice of the singular vs. plural form in kind formation in Ga.

To sum up, any analysis of kind formation in Ga (and for that matter any general theory of kind formation across languages) would have to account for the empirical generalizations discussed in this paper. That is, that even though Ga is a language with overt (in)definite determiners as well as a mass-count and singular-plural distinction: (1) both bare singular and bare plural count nouns can obtain the kind reading, showing very similar properties; the choice between both forms is regulated by the encounter frequency of the given entity, and (2) definite NPs can never obtain the kind reading. An analysis that addresses these issues is presented in the next section.

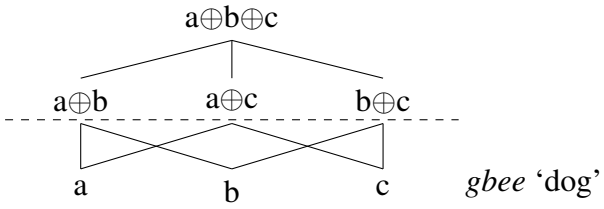

Figure 4 Denotation of singular count nouns in Ga.

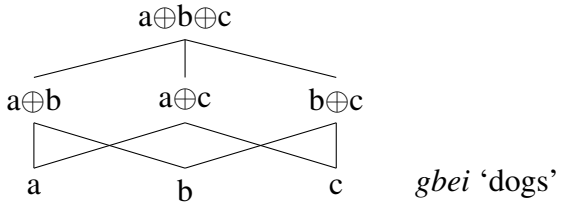

Figure 5 Denotation of plural count nouns in Ga.

5 Analysis

We propose that the Ga data should be taken at face value and tells us that (i) kind formation should be defined for both singular and plural nouns and that (ii) definiteness (ι-type shift) is not involved in kind formation. The analysis we developed comprises these postulates.

Before we dive into the analysis of kind readings in Ga, let us start by fleshing out our assumptions regarding the denotation of singular and plural count nouns. We assume that while the denotation of singular count nouns comprises atomic individuals only, the denotation of plural count nouns comprises both all atomic individuals and all the plural individuals formed out of them, as illustrated below in Figure 4 for a singular count noun *gbee* ‘dog’, and in Figure 5 for a plural count noun *gbei* ‘dogs’.

Bare plural and singular count nouns are of type $\langle s, \langle e, t \rangle \rangle$. In contexts yielding a kind-interpretation, they invariably obtain the kind reading. As both bare singular and plural kinds are attested in Ga, kinds cannot be derived by Chierchia’s (1998) *nom* ‘$\cap$’ operator, which is only defined for plural count nouns. As discussed in Section 1, ‘$\cap$’ makes crucial use of definiteness-semantics in kind formation, e.g., the kind *dog* is a function from worlds w to the maximal entity satisfying the dog property in w: $\lambda w.\iota x[dog_w(x)]$. For that, it is undefined for singular count nouns.

We propose that kinds in Ga are derived with the kind forming operator that does not encode supremum but a generalized sum, i.e., it does not make crucial use

of the definiteness semantics. In particular, we put forward that the dog-kind is a function from worlds to the sum of all the entities satisfying the property in *w*. The kind forming operator *k* is defined in (29):

(29) For any P and w, where P is the extension in w

$$^{k}P = \left\{ \begin{array}{l} \lambda w.\oplus P_w(x), \text{if } \lambda w.\oplus P_w(x) \text{ is in K, the set of kinds} \\ \text{undefined, otherwise} \end{array} \right\}$$

(30) the dog kind: a function from worlds *w* to the sum of all entities satisfying the dog property in *w*: $\lambda w.\text{SUM}dog_w(x)$.

Importantly, both singular and plural kinds give rise to the same empirical effects: they are not restricted to well-established kinds, they can occur in rule or regulation type of characteristic statements, they can obtain a differential scope reading, and they show narrow-scope effects. Let us look briefly at the scope effects that have already been presented in example (22) above and are repeated for convenience below:

(31) Mi-kane-ko **wolo/woji**.
1.SG-read-NEG book.SG/book.PL
'I have read no book(s) ' ⇒ the only possible interpretation

We argue that the obligatory narrow-scope interpretation for both singular and plural kinds is due to the fact that kinds in Ga are formed via sum. Therefore the only interpretation for (31), irrespective of the actual scope relation between the bare noun and negation, is that there is no book that I read.

This approach also explains straightforwardly why the definite determiner is never involved in (sub)-kind formation in Ga. Namely, the definite NPs marked with the definite determiner *lɛ NP* cannot obtain the kind interpretation as kinds in Ga are not derived via ι.

We propose that the choice between singular and plural kinds is regulated by pragmatics (whether an entity is encountered frequently or not). Delegating this to pragmatics correctly predicts the variation in judgments between speakers. That is, it is subject to variation based on which entity is encountered frequently and which is not, depending on the life-experience of the interlocutors. For example, even though one does not encounter lions in Accra (except in the zoo), a zoologist working in Accra zoo might encounter lions frequently and therefore we predict that a plural form for a lion-kind would be preferred. By contrast, a linguistics professor working at the University of Ghana in Accra would encounter lions rarely and thus would prefer a singular form for a lion-kind.

Finally, note that the kind-interpretation seems to be a default option for bare

nouns in Ga. It is evidenced for example by the infelicity of the singular bare nouns *too* 'goat' in (32) below and the language consultants' comments that the bare noun *too* is too general to use in this context; the language consultants prefer the use of the indefinite determiner in (32).

(32) #Too yɛ nakai gɔŋ lɛ nɔ
goat loc DEM mountain DEF on
intended: 'There is a goat on this mountain.

The existential reading can however be forced in some episodic contexts.

6 Cross-linguistic picture

There are other languages that are English-like (i.e., they exhibit a singular-plural, mass-count distinction and have a system of overt (in)definite determiners) and yet they have been reported in the previous literature to allow bare singular kinds. All of them, however, differ in theoretically interesting ways from Ga. In particular, Brazilian Portuguese is famously cited as a language that allows for bare singular kinds. However, unlike singular bare nouns in Ga, bare nouns in Brazilian Portuguese are claimed to be number-neutral or mass, see Schmitt & Munn (1999) or de Oliveira & Rothstein 2011, respectively. Another language that has been observed to allow for bare singular kinds is Hebrew (Doron 2003). However in Hebrew, unlike in Ga, also definite singular and plural count nouns can obtain the kind interpretation. Further, it seems that bare nouns in Akan (Kwa) show very similar properties to bare nouns in Ga; albeit kind-formation in Akan has not been the main focus of previous research and it requires further detailed investigation (see however Bombi et al. 2019; Owusu 2022; Philipp 2022).

7 Summary & outlook

The new data show that even though Ga is a language with a singular-plural and mass-count distinction as well as a system of overt (in)definite determiners, both singular kind terms as well as bare plural kind terms are attested. The choice between them is governed by a pragmatic process that favors singular form for rarely encountered entities and plural form for frequently encountered entities. We propose that kind-formation is subject to cross-linguistic variation. While in English, kinds are formed via the $\cap$ operator that crucially makes use of definiteness semantics (ι type shift), in Ga, kinds are formed via the k-operator which makes use of a generalized sum. This in turn puts a long-standing discussion on kind-formation across languages in a completely new light. The next steps of this project include the investigation of kind formation in other languages of the region.

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