CROSS-CATEGORIAL DEFINITENESS/FAMILIARITY

By

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ABSTRACT OF THE DISSERTATION

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This dissertation examines definiteness in Akan, focusing specifically on the so-called definite determiner *nó*, which occurs in both the nominal and clausal domains. I argue that *nó* encodes the presupposition of familiarity across categories —it requires the existence of a discourse referent with the descriptive content of its complement in the discourse. The complement of *nó*, as a cross-categorial determiner, includes NP and TP (as well as additional propositional nodes, including NegP). As such, the dissertation contributes to the growing body of research about cross-categorial definite determiners (Renans, 2016, 2018; Korsah, 2017), Ewe, Fongbe (Lefebvre, 1998; Larson, 2003), as well as Haitian Creole (Lefebvre, 1998; Wespel, 2008). Concentrating first on the nominal determiner, I demonstrate that *nó* imposes two conditions on its nominal complement: it must be familiar in the discourse and have a non-unique denotation in the larger discourse. These two requirements, encoded in the lexical entry for *nó* as presuppositions, capture two essential components of the determiner. The familiarity presupposition captures the fact that *nó* has anaphoric and immediate situation uses, as defined by Hawkins (1978). The term "familiarity" as used here corresponds to Roberts's (2003) notion of "weak familiarity." The second presupposition, non-uniqueness, which is borrowed from Robinson (2005) and Dayal and Jiang (2020), accounts for the incompatible of *nó* with inherently unique nouns such as president and superlatives.

Moving to the clausal domain, I demonstrate that *nó* can be combined with declaratives where it takes a propositional argument. Thus, I argue that *nó*-clauses are definite propositions that have two semantic contributions: a presupposition of familiarity and an assertion. Additionally, it was demonstrated that, despite their status as definite propositions, *nó*-clauses in embedded context lack several of the characteristics associated with definite CPs in Hebrew (Kastner, 2015) and Greek Roussou (1991). For example, under non-factive predicates, *nó*-clauses do not elicit factive presuppositions. While clausal *nó* encodes familiarity, it cannot be used to reintroduce a proposition already present in the Common Ground. To account for this property, I adopt from Portner (2007) the idea that information is updated at two distinct levels during a conversation: the Common Propositional Space (CPS) and the Common Ground (CG). Each proposition uttered is stored in the CPS, while only asserted propositions are stored in the CG. Thus, prior to the utterance of a *nó*-clause, the information it encodes is contained only in the CPS. The *nó*-clause passes the information to the CG. As such, the study of clausal *nó* presented in this dissertation not only articulates the rather intriguing distributional properties of a clausal determiner, but also gives empirical evidence for a textured perspective of discourse structure.

The dissertation further examines the semantics of the Akan indefinite determiner, *bí*, with the goal of presenting a comprehensive view of the nominal space. *Bí* licenses exceptional wide-scope readings outside scope islands, transparent readings within the scope of intensional verbs, and referential uses similar to specific indefinites, but also permits narrow-scope readings within islands and opaque readings within the scope of intensional verbs similar to non-specific indefinites. On the basis of these properties, I propose that *bí* is an unambiguous choice function with an implicit skolemworld/situation variable. This analysis builds on Arkoh's (2011) analysis of *bí* in Akan. *Bí* is always skolemized to the situation of its argument, which means that both the choice function and the NP are always assessed relative to the same index. For the narrow-scope reading of *bí*, the situation pronoun may be bound locally in a conditional, and for the wide-scope reading, it may be bound by the matrix situation.

Remarkably, the definite and indefinite determiners may occur in two distinct orders in a DP: NP *bí nó*, which is understood as definite, and NP *nó bí*, which is interpreted as partitive.

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List of Abbreviations

1,2,3	first, second, third person
CD	clausal determiner
COMP	complementiser
CONJ	conjunction
EMPH	emphatic particle
DEF	definite determiner
DEM	demonstrative determiner
FOC	focus
FUT	future
INDEF	indefinite
NEG	negative
OBJ	object
PERF	perfective
PL	plural
PROG	progressive
PST	past
PRT	particle
REL	relativizer
SG	singular

Chapter 1

Introduction

1.1 Language information

Akan is a cluster of dialects within the Kwa branch of the Niger-Congo language family spoken in parts of Ghana and Côte d'Ivoire. In Ghana, approximately 47.5% of the population speak Akan as a native language (Ghana Statistical Service, 2010). There are at least eight dialects of Akan spoken in Ghana: Agona, Bono, Akuapem-Twi, Asante-Twi, Akyem, Dankyira, Fante, and Kwahu. The dialects are mutually intelligible. Out of the eight dialects, Akuapem Twi (spoken mainly in the Eastern Region of Ghana), Asante-Twi (spoken primarily in the Ashanti Region), and Fante (spoken in the Central Region and some parts of the Western Region) are studied in school. The data in this dissertation is primarily from the Asante-Twi dialect, though there will be some examples from the Fante dialect.

The basic word order in Akan is SVO, as shown in (1). DPs are, however, head-final (2); adjectival modifiers follow the noun and precede the determiner.

(1) Papa nó hu-u maame nó.
man DEF see-PST woman DEF
'The man saw the woman.'

(2) Kruwa ketewa kɔkɔɔ nó
cup small red DEF
'The small red cup '

Akan is a lexical tone language. The words pàpà 'man' and pápá 'good' only differ on tones; the word for 'man' has two low tones, and the word for 'good' has two high tones.

The data presented in this dissertation is from five consultants and the author's native speaker judgment. Of the five consultants, three are trained linguists, and two are mono-lingual

Akan speakers with no training in linguistics. Data from other sources will be explicitly stated.

1.2 The phenomena

Since Russell (1905), extensive work has been done on the definite determiner and definite descriptions in general. Most of these studies have focused on definiteness in the nominal domain. Recent studies on definiteness have begun to focus on definite descriptions of categories other than NPs. This dissertation contributes to the emerging literature on cross-categorial definite determiners—definite determiners that take NP and non-NP arguments.

The Akan definite determiner *nó* occurs in a typical DP as in (3), where it takes an NP complement. This DP functions as the object of the verb *eat*. It also occurs at the end of clauses in a construction such as (4), where it does not appear to be part of DP. There are two forms of the verb *eat*, the one in (3) is transitive while the one in (4) is intransitive. As such, the definite determiner in (4) cannot be argued to be a remnant of an elided DP. In the rest of the dissertation, I will refer to the definite determiner in example (3) as the nominal determiner and the determiner in example (4) as the clausal determiner.

(3) Kofi di-i aduane (**nó**).
Kofi eat-PST food DEF
'Kofi ate the food.' **nominal definite determiner**

(4) Kofi a-didi (**nó**).
Kofi PERF-eat DEF
'Kofi has eaten.' **clausal definite determiner**

In the nominal domain, the definite determiner is forms a natural class with the indefinite determiner *bí*. In certain contexts, the two determiners show contrasting properties as expected. For example, the indefinite determiner in example (5-a) can be used to introduce new discourse referents at the beginning of a story. In contrast, the definite determiner (5-b) cannot introduce new discourse referents.

(5) At the beginning of a story.

a. Kofi di-i aduane **bí**.
Kofi eat-PST food INDEF
'Kofi ate the food.' **indefinite determiner**

b. #Kofi di-i aduane **nó**.
Kofi eat-PST food DEF
'Kofi ate the food.' **definite determiner**

However, unlike in English, the two determiners can also co-occur as in (6). When they co-occur, the DP has the property of a definite, it cannot introduce new discourse referents.

(6) Kofi di-i aduane (**bí**) (**nó**).
Kofi eat-PST food INDEF DEF
Lit: 'Kofi ate that certain food.' **indefinite + definite determiner**

This dissertation provides a comprehensive understanding of the semantic contributions of the definite determiner *nó* in both nominal and clausal contexts, and also its ability to co-occur with the indefinite determiner. I propose that *nó* is a cross-categorial definite determiner. Specifically, I argue that it takes both NP and TP (and other clausal nodes, including NegP) complements.

1.3 The 3rd person object pronoun

Before we continue the discussion of definite determiners, it is important to distinguish the determiners under discussion from another form of the morpheme *no* that occurs as a third person object pronoun. The data below illustrates the use of *no* as a third person object noun.

(7) Kofi$_i$ ba-a sukuu. Me-hu-u **no**$_{i/j}$
Kofi come-PST school 3SG-see-PST 3SG.OBJ
Kofi came to school. I saw him.

(8) Kofi$_i$ kaé **no**$_{*i/j}$.
Kofi remembers 3SG.OBJ
'Kofi remembers him/her.'

Phonetic realization of the object pronouns is modulated by an animacy condition; pronouns

with animate antecedents are overt, pronouns of inanimate antecedents may be null.[1] Both pronouns in (7) and (8) have animate antecedents, as such they are overt. Only a covert pronoun is allowed in (9), where the antecedent is an inanimate noun *moon*.

(9) ɔsram a-yera, me-n-hu – bio.
moon PERF-be.lost 1SG-NEG-see again
'The moon has vanished, I see it no more.' (Korsah, 2017, p. 29)

The table below from Korsah (2017) summarizes the distribution of pronouns in Akan.

Table 1: Pronouns in Akan

NUMB	PERS	NOM	ACC
SG	1	*me-*	*me/-m*
	2	*wo-/i*	*wo/-w*
	3 (ANIM)	*ɔ-/no*	*no/-n*
	3 (INANIM)	*ɛ-no/ ɔ-no*	*(no/-n)*
PL	1	*yɛ-*	*yɛn/hɛn*
	2	*mo-/hom-*	*mo/hom*
	3 (ANIM)	*wɔ-*	*wɔn/hɔn*
	3 (INANIM)	*ɛ-(no)/ɔ-(no)*	*wɔn/hɔn*

The two determiner uses of *nó*, clausal and nominal, cannot co-occur, as illustrated in example (10). However, the personal pronoun may precede the clausal determiner, as example (11) illustrates.

(10) Kofi na ɔ-kyea-a papa (**nó**) (*__nó__).
Kofi FOC 3SG-greet-PST man DEF CD
'It was Kofi who greeted the man.'

(11) Kofi na ɔ-kyea-a (**no**) **nó**.
Kofi FOC 3SG-greet-PST 3SG.OBJ CD
'It was Kofi who greeted him/her.'

All occurrences of the morpheme, i.e., its determiner uses and pronominal uses are related, according to Arkoh and Matthewson (2013, p. 1); "they contribute the same core semantics". Although the relationship between the determiners and the pronoun is not the focus of this

[1] Certain contexts license overt pronouns for inanimate objects. See Osam (1996) and Korsah (2017) for discussion on the animacy condition in Akan and related languages.

dissertation, the unification analysis proposed in chapter 6 accounts for the pronominal use too.

1.4 Overview of dissertation

Chapter two advances a novel analysis of the nominal definite determiner *nó*. I propose that *nó* encodes two presuppositions: a familiarity presupposition and a non-uniqueness presupposition. The familiarity presupposition captures the determiner's use in Hawkins'(1978) anaphoric and immediate contexts as in (12) and (13), respectively. I adopt the notion of *weak familiarity* by Roberts (2003) to characterize the kind of familiarity encoded by *nó*. A entity is weakly familiar if its existence is entailed by the context, it does not need to have been evoked linguistically in the current discourse

(12) Ama hu-u ɔkyerekyereni bi ne sogyani bi. ɔ-kyea-a
Ama see-PST teacher INDEF CONJ soldier INDEF 3SG.SUBJ-greet-PST
sogyani **nó**.
soldier DEF
'Ama saw a teacher and soldier. He greeted the soldier. ' [2]

(13) Context: A man and a woman are arguing in the streets. Ama and Kwame are sitting in front of their house where they can see but not hear them. Kofi walks in and see them starring. He say oh...

Papa **nó** de maame **nó** ka.
man DEF owe woman DEF debt
'The man owes the woman money.'

The non-uniqueness presupposition captures the inability of the definite determiner to be licensed by inherently unique nouns in out-of-the-blue contexts (Robinson, 2005; Dayal and Jiang, 2020). Inherently unique nouns include nouns such as *sun*, *president*, and superlatives (14) whose intended referents are unique in the wider context.

(14) Context: A tour guide providing tourists with general information about Ghana

Bɛpɔ (#**nó**) aa ɛ-wa paa wɔ Ghana ne Afadjato.
mountain DEF REL 3SG-tall very be.located Ghana COP Afadjato

[2]This is a variation of the examples inArkoh and Matthewson, 2013.

'The tallest mountain in Ghana is Afadjato.'

Another innovation of this chapter is that *nó* is argued to be a non-saturating definite, a modifier of type $\langle\langle e, st\rangle, \langle e, st\rangle\rangle$. The analysis is influenced by Coppock and Beaver's (2015) analysis of English definite *the* and Etxeberria and Giannakidou's (2019) analysis of definite determiners that co-occur with quantifiers in Greek and Basque, although the motivation and implementation of the analysis differs from both accounts. In Akan, the non-saturating analysis of *nó* is motivated by the use of *nó* in the bipartite demonstrative *saa...nó*, illustrated in (15).

(15) (**Saa**) abofra **nó** nim adeɛ paa.
DEM child DEM know thing INT.
'That child is very intelligent.'

Demonstratives and definites have the same core semantics, identifying a salient unique referent in the context. However, the two differ in the domain relative to which uniqueness is computed: a definite NP is unique in the discourse, while a demonstrative NP denotes a unique referent in the immediately salient discourse (Hawkins, 1991; Roberts, 2002; Wolter, 2006). Since *nó* encodes both familiarity and non-uniqueness, I propose that the semantic contribution of *saa* in a demonstrative construction involves IOTA and a restriction concerning the domain where unique reference is achieved, a non-default situation (s_r). Extending the analysis to definite NPs, therefore, I argue that IOTA and the restriction concerning the domain where unique reference is achieved, is introduced by a null D. The situation variable associated with the null D is interpreted relative to the default context.

The chapter ends with a brief discussion of so-called bare definites in Akan. A small number of nouns in Akan are interpreted as definites when bare, including inherently unique nouns such as superlatives, and globally and communally unique nouns such as as *sun* and *president*, as illustrated in (16).

(16) Context: A newscaster in Ghana is talking about the Ghanaian president

ɔmanpanin be bleme obi.
president DEF FUT. blame someone
'The president will blame someone.'

Finally, I compare definiteness marking Akan to Akan to English and German, as summarized in the table below.

	Akan	German	English
Uniqueness definites	Bare nouns	Weak article	Def article
	*Def article	*Strong article	*Demonstrative
	*Demonstrative	*Demonstrative	
Anaphoric definite	*Bare nouns	*Weak article	Def article
	Def article	Strong article	Demonstrative
	Demonstrative	Demonstrative	

Chapter three continues the discussion of nominal determiners by investigating indefiniteness marking in Akan with the indefinite determiner *bí*. The indefinite determiner *bí* is typically translated as *a certain* in English, and characterized as a specific indefinite. *Bí*-indefinites are contrasted with bare nouns, which also encode indefiniteness in Akan. In contexts such as (17), *bí* indefinites are preferred to bare nouns.

(17) Context: At the beginning of a story.

a. Papa **bí** te akyire hɔ.
man INDEF stay back there
'A (certain) man stays at the back of the house.'

b. #Papa te akyire hɔ.
man stay back there
'A man stays at the back of the house.'

That said, a careful look at the properties of *bí*-indefinites, especially its scope properties in conditionals and when embedded under intensional verbs reveal that *bí*-indefinites have mixed properties. The determiner allows exceptional wide-scope readings outside scope islands, has transparent readings in the scope of intensional verbs, and is used referentially, as expected for specific indefinites, but it also allows non wide-scope readings in islands and opaque readings in intentional contexts, similar to non-specific indefinites. To account for its mixed properties, I propose that *bí*-indefinites are unambiguous choice functions with implicit skolem world/situation variables, an analysis similar to Mirrazi (2019), which can be bound or remain

free. The proposal improves upon Arkoh's (2011) choice function analysis so that it can now account for the non-wide scope readings of indefinites in scope islands and also opaque readings in intensional contexts; the world variable gets bound on the opaque reading and remains free on the transparent reading. Additionally, *bí*-indefinites are associated with an ignorance inference (Owusu, 2019). The use of *bí*-indefinites signal that the speaker has a particular referent in mind, but is ignorant of important identifying characteristics about the referent.

The chapter ends with a discussion of examples such as (18) and (19), which involve the stacking of the definite and indefinite determiners. Akan violates the co-occurrence restriction that is observed in many languages. Determiner stacking can occur in both orders; the definite determiner may precede the indefinite determiner *NP bí nó* (18), or the indefinite determiner may precede the definite determiner *NP nó bí* (19).

(18) Papa **bí** **nó** bisa me me nɔma.
man INDEF DEF ask-PST 1SG 1SG.POSS number
After the party, that certain man asked me for my number. (Bombi et al., 2019, p. 187)

(19) Nkorofɔ **nó** **bí** ka-a sɛ ɔ-re-m-pene.
people DEF INDEF say-PST COMP 3PL-PROG-NEG-agree
'Some of the people said they will not agree.' (Amfo, 2010, p. 1796)

Each order results in a different interpretation. The *bí nó* order is argued to be definite (Amfo, 2010), while the order *nó bí* receives a partitive reading.

Chapter four moves the discussion to the non-nominal domain. The chapter investigates the nature and meaning of the clausal determiner in contexts such as (20). In (20), the determiner cannot be construed to be part of the object DP as proper names in Akan do not typically take definite determiners.

(20) **Context:** Kwasi is having problems with Linguistics and his parents have been trying to get him to see their neighbor, Dr. Abrefa who teaches linguistics at UCC. They have been asking for him to do this for two weeks now and have already given up on it. Out of the blue, today Kwasi informs his mother that he has gone to see Dr. Abrefa. His mom reports to his father...

Kofi a-nya a-kɔ hu Dr. Abrefa **nó**.
Kofi PERF-get. CONS-go see Mr. Abrefa CD

Kofi has gone to see Dr. Abrefa.'

Compared to the vast literature on nominal definites, the literature on non-nominal definiteness is minimal. Proposals such as Baker and Travis (1997) and Hole (2011) argue that certain mood markers and other syntactic constructions in the verbal domain encode a uniqueness or familiarity presupposition similar to the meaning of the English definite. The Mohawk factual mood prefix *wa-* and Chinese *shí ... de* cleft constructions encode existence and uniqueness and uniqueness and familiarity respectively. But instead of nominals, these markers presuppose the existence of a unique/familiar event. Then, there are languages such as Akan (Saah, 2010; Arkoh and Matthewson, 2013), Ga (Renans, 2016, 2018; Korsah, 2017), Ewe, Fongbe (Lefebvre, 1998; Larson, 2003), Haitian Creole (Lefebvre, 1998; Wespel, 2008), and Ngamo (Grubic, 2015), where a form similar to the nominal definite determiner is shown to encode uniqueness/familiarity of non-nominal entities such as events and topic situations. In this chapter, I provide evidence that the clausal *nó* in Akan takes propositional arguments and denotes a proposition. I claim that *nó*-clauses are definite propositions, where definiteness corresponds to a familiarity presupposition. A proposition is familiar if it has a suitable antecedent in the context.

Chapter five investigates the distribution of determiners in DP-headed relative clauses, a structure that straddles the nominal and clausal domains. Because DP-headed relative clauses are DPs, they license the nominal determiner. Simultaneously, since relative clauses are clauses, they also license the clausal determiner. DP-headed relatives thus present us with a context where the nominal and clausal determiner interact.

DP-headed relative clauses in Akan have two determiner positions, and the definite determiner can occur in both slots as shown in example (21). The linear schema for determiners in NP-headed relative clauses is given in (22).

(21) Abofra **nó** [$_{CP}$ áà [$_{TP_1}$ [$_{TP_1}$ Kofi hu-u no] **nó**]] a-ba.
child DEF REL Kofi see-PST 3SG CD PERF-come
'The child whom Kofi saw has come.' (Saah, 2010, p. 94)

(22) NP (+DET) + Relative Clause (+DET)

In this chapter, I provide a list of the various possible determiner combinations possible in Akan and conclude that all three nominal determiners, definite, indefinite, and *bi+nó* can occupy the first determiner position. The second determiner position can only host the definite determiner. Based on the type of determiners licensed in the two positions, I conclude pace Bombi et al. (2019) that the definite determiner after the head noun is the clausal determiner. Finally, I provide the semantics of the relative clauses with the definite determiners in different positions, paying attention to the restrictive vs. non-restrictive uses of relative clauses.

Chapter six connects the semantics of the two definite determiners in the nominal and clausal domain. As evident from chapters 2 and 3, the two determiners have the same overt form, and both encode a familiarity presupposition. Syntactically too, the two forms show similar distribution by occurring at the right edge of the constituent they head. I argue that *nó* is a cross-categorial definite determiner, i.e. it can attach to different categories. I advance that though absent in English and other well-studied languages, the presence of cross-categorial definite determiners in natural language is expected when we compare anaphoric definites to pronouns/pro-forms. My proposal relates the distribution of the definite determiner in Akan to other cross-categorial definite determiners such as *la* in Ga (Renans, 2016, 2019) and *an* in Haitian Creole (Wespel, 2008). In all three languages, the determiners take non-nominal and nominal complements, but their core meaning remains the same across domains.

Chapter 2

The Nominal Definite Determiner in Akan

2.1 Overview of the chapter

This chapter examines the distribution and meaning of the Akan determiner *nó* in the post-nominal position as in (1) and forms part of the bipartite demonstrative in (2).

(1) Papa **nó** ba-a ha.
man DEF come-PST here
'The man came here.'

(2) **Saa** papa **nó** ba-a ha.
DEM man DEF come-PST here
'That man came here.'

On the empirical side, the chapter provides an elaborate description of the uses of *nó* by employing Hawkins' (1978) classification of definite determiner uses as diagnostics for definite determiners. *Nó* has three of the four uses of definites discussed by Hawkins (1978). The uses include anaphoric, immediate situation, and associative anaphoric uses. *Nó* is generally not licensed in larger situation uses. I also elaborate on the use of *nó* as a demonstrative.

The central claim of the chapter is that *nó* is a non-saturating definite. NP+*nó* encodes the information that the NP property has an antecedent discourse referent in the context (**familiarity**) and that the cardinality of the NP property outside the current situation is greater than one (**non-uniqueness**). The familiarity presupposition is motivated by the anaphoric and immediate situation uses of *nó*. I differentiate definite determiners such as the German 'strong' definite article that is licensed by linguistic antecedents from definites whose antecedent is entailed in the context. Using the terminology from Roberts (2003), the first kind of definites are considered as *strong familiarity*, and the latter are classified as *weak familiarity* definites. The term

anaphoric definites refers exclusively to definite determiners that require linguistic antecedents, and *familiar definites* for the other kind. As a familiarity analysis of *nó*, the analysis proposed in this chapter is preceded by Arkoh and Matthewson (2013). The non-uniqueness presupposition, on the other hand, is motivated by the determiner's incompatibility with inherently unique nouns such as *sun* and *moon* and nouns such as *president* which have unique referents in out-of-the-blue contexts.

As a non-saturating definite, the denotation of *nó* does not include IOTA. I show that an analysis of *nó* as non-saturating is key to understanding its function in the bipartite demonstrative *saa...nó* in (2). For *nó*-NPs, I argue that a covert determiner introduces IOTA in the syntax. In the demonstrative descriptions, the adnominal *saa* introduces IOTA. In both cases, IOTA comes with a restriction concerning the domain where unique reference is achieved. I encode this with a situation pronoun. The covert determiner is interpreted relative to the topic situation, while *saa* is interpreted relative to a non-default situation. As such, we have a compositional analysis for the demonstrative. The analysis thus captures the relationship between *nó* as a definite and as a demonstrative. The modifier analysis presented here enables us to provide a somewhat parallel analysis for the NP use of *nó* and the clausal use discussed in chapter 4.

The rest of the chapter is structured as follows: §2.2 serves as the empirical background of the chapter. This section discusses different contexts where the definite determiner is used following Hawkins' (1978) classification of definite determiner uses and also explores the use of *nó* as a demonstrative. In this section, I conclude that *nó* is not licensed in larger situation uses and shares some, but not all properties with demonstratives. In the next section, §2.3, I review the two main theories of definiteness in the literature, i.e., familiarity and uniqueness theories. First, I present them as competing theories proposed to account for the distribution of the English *the*. Then I show Schwarz's (2009) proposal that argues that across languages there are determiners that lexicalize familiarity denoting and uniqueness denoting definites. In other words, some languages have two determiners that encode familiarity and uniqueness respectively or just encode one. This section serves as the theoretical background of the chapter. In §2.4, I present two previous analyses of *nó*, Arkoh and Matthewson (2013) and Bombi (2018). Throughout the chapter, I compare these previous analyses to the present analysis. The

main analysis is presented in 2.5. I show how the analysis accounts for all the uses of the determiner discussed in the §2.3 and how it rules out the contexts where *nó* is not licensed. A summary of the chapter's main points is presented in §2.6.

2.2 The definite determiner and its uses

Since Christaller (1875), the morpheme *nó* in Akan noun phrases, such as (3-a) and (3-b), has been translated as a definite determiner. The determiner generally occurs in contexts where English will use *the*. The relationship between *nó* and *the* is explored by Amfo (2006, 2007), Fretheim and Amfo (2008), and Amfo (2010) who argue that *nó* has the same cognitive status as *the*, i.e, uniquely identifiable. The equivalence between English and Akan is, however, not perfect, as noted by Arkoh (2011) and Arkoh and Matthewson (2013). Consider example (4), for instance. The English translation must have the definite determiner, but the Akan sentence lacks it. In §2.4, we will see more contexts where the English determiner is obligatory, but *nó* is either optional or ungrammatical.

(3) a. Papa **nó** ba-a ha.
man DEF come-PST here
'The man came here.'

b. Kofi tɔ-ɔ pɛn. Na pɛn **nó** yɛ fitaa.
Kofi buy-PST pen PST pen DEF COP white
'Kofi bought a pen. The pen was white.'

(4) Kofi re-hwɛ ewia.
Kofi PROG-watch sun
'Kofi is looking at the sun.

The goal of this section is to establish the kinds of contexts that license the definite determiner *nó*. I adopt Hawkins' (1978) classification of definite determiner uses as it is compatible with the theory proposed in this chapter. According to Hawkins (1978), definite determiners have four uses: anaphoric, immediate situation, larger situation, and associative anaphoric uses. The English *the* has all four uses, but Schwarz (2009) shows that a definite determiner may not have all uses. For instance, German strong definite articles only have the anaphoric use. The kinds of contexts that license a definite determiner, therefore, offer insight into the semantics

of the determiner. In the rest of the section, I present Hawkins' (1978) classification, sometimes with examples from English to illustrate the use. For each context, we determine if *nó* is compatible with that use.

2.2.1 The anaphoric use

The use of the definite determiner depends on the presence of a previously mentioned NP. Example (5) illustrates an anaphoric use of the definite determiner.

(5) Mary read a book. The book was interesting.

First, we introduce a referent for *book* with the indefinite *a book* in the first clause. The definite description *the book* in the next clause indicates that we are talking about the previously mentioned book. Simply, the anaphoric use of the definite determiner means a definite determiner is used to refer back to an NP that has been linguistically introduced into the context. Roberts (2003) characterizes this as strong familiarity.

As illustrated in (6) and (7), *nó* has an anaphoric use. A *nó*-description can be used to refer back to an indefinite description introduced in the discourse. In (6), the indefinite, *sogyani bí* 'a soldier,' introduces a new discourse referent, and the definite description *sogyani nó* is used to refer back to it. In the same discourse, the indefinite and definite descriptions may be used across speakers, as illustrated in (7) from Arkoh and Matthewson (2013) modified to include multiple speakers. Speaker A mentions the orange for the first time with an indefinite and speaker B comments on it with the definite.

(6) Ama hu-u ɔkyerekyereni bi ne sogyani bi. ɔ-kyea-a
Ama see-PST teacher INDEF CONJ soldier INDEF 3SG.SUBJ-greet-PST
sogyani **nó**.
teacher DEF
'Ama saw a teacher and soldier. He greeted the soldier. ' [1]

(7) a. Speaker A: Me-tɔ-ɔ ekutu bí.
1SG.SUBJ-buy-PST orange INDEF
'I bought an orange'

[1] This is a variation of the examples in Arkoh and Matthewson (2013).

b. Speaker B: Ekutu **nó** yɛ dew deɛ.
orange DEF be nice so
'The orange is/was so nice.' **Fante**- (Arkoh, 2011, p. 54)

Sometimes the noun associated with the indefinite is different from the definite description used to refer back to it. Hawkins (1978) points out that this type of anaphoricity works only if the nouns are related and the discourse participants both know the relationship exists or it can be accomodated. In the English example (8), the anaphoric definite description, *the man*, is preceded by the indefinite, *a doctor*. Example (9) from Arkoh and Matthewson (2013) illustrates the same idea in Akan.

(8) John went to see a doctor today. The man was helpful.

(9) Ama to-o nsa frɛ-ɛ nnomahwɛfoɔ bí ba-a nkyerɛkyerɛ
Ama throw-PST hand call-PST birds.observer INDEF come-PST teaching.NOM
no asi. Me-n-nye papa **nó** n-ni ketekete.
3SG.POSS under 1SG.SUB-NEG-take man DEF NEG-eat small.RED
'Ama invited an ornithologist to the seminar. I don't trust the man in the least.'

Fante-(Arkoh and Matthewson, 2013, p. 16).

(9) is felicitous if both discourse participants know that the ornithologist is a man or the context is such that the addressee can accommodate it.

2.2.2 The immediate situation use

The immediate situation use requires that the referent is in the utterance situation. Unlike the anaphoric use, the referent need not be mentioned or have a linguistic antecedent. For instance, looking at a dog, one can utter *the dog is barking* without having said anything previously about the dog. According to Hawkins (1978), the referent has to uniquely satisfy the descriptive content of the definite description in the situation. Thus, in the dog example, if there are two dogs in the context *the dog is barking* is infelicitous. *Nó* is used in similar contexts. Noticing that Ama and Kwame are staring at two people fighting in the street licenses Kofi's use of the definite description in (10).

(10) Context: A man and a woman are arguing in the street. Ama and Kwame are sitting in

front of their house where they can see but not hear them. Kofi walks in and sees them staring. He says oh...

Papa **nó** de maame **nó** ka.
man DEF owe woman DEF debt
'The man owes the woman money.'

The definite determiner is also used in contexts where the referent is not even visible in the immediate context. For instance, a zoo can have a sign at the front gate that says *don't feed the lion*. The lion is not visible at the entrance, but the sign is felicitous. When the referent is not visible, the felicitous use of the definite determiner depends on the discourse participants' shared knowledge of the context. The example from Bombi (2018) shows that *nó* also has this use. In the context of a school, the existence of a unique principal is assumed, thus licensing *nó*.

(11) Context: There is a new teacher at a school. A colleague is explaining to him how everything works. This is the beginning of the conversation, and the colleague explains to the new teacher:

Headmaster **nó** bɛ-ma wo timetable.
headmaster DEF FUT-give 2SG timetable
'The headmaster will give you a timetable.' (Bombi, 2018, p. 149)

2.2.3 The larger situation use

The felicitous use of the definite determiner in the larger situation uses depends on the shared knowledge or accommodation of shared knowledge between the speaker and addressee. The use of the English definite determiner with nouns such as *sun*, *moon*, and *president* are considered larger situation uses. The sun and moon are part of the shared knowledge of discourse participants because their referents are global. A referent may also be part of the shared experience of two people because they live in the same community or country. Unlike the immediate situation uses, the referent of the definite description need not be in the immediate discourse context. One can talk about *the sun* even if you have been locked in a room with no window

for a year. Similarly, the use of *the president* is not limited to contexts where the referent is in the immediate context. We find this use in news articles and regular conversations about a country's president. The example in (12) is from a news article in an American magazine.[2]

(12) The president will try to blame someone else —but in this case the "someone else" is a virus.

Whereas *the* is obligatory in (12), *nó* is infelicitous in (13) with the noun *president*. Pace Bombi, 2018, the context described in (14) does not license the definite determiner. The noun *president* is obligatorily bare. [3]

(13) Context: A newscaster in Ghana is talking about the Ghanaian president

ɔmanpanin (***nó**) be bleme obi.
president DEF FUT. blame someone
'The president will blame someone.'

(14) Context: Yesterday was the Ghanaian national day and there were a lot of celebrations in Accra, which were visited by one president and many ministers. You go back to your village and talk to your friend about how beautiful the celebration was (but you don't talk about who was there). Your friend asks you whether you saw anyone famous. You say:

Me-hu-u ɔmanpanin (***nó**).
1SG-see-PST president DEF
'I saw the president.' (Bombi, 2018, p. 149)

With globally unique nouns such as *sun*, there appears to be optionality: they may or may not take *nó*. First, Bombi (2018) points out that the optionality in (15) is not forced by salience, i.e. whether the addressee is attending to the referent or not. *Nó* and the bare noun are equally accepted in contexts (15-a) and (15-b).

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[2]Wehner, Peter. "The President Is Trapped-Trump is utterly unsuited to deal with this crisis, either intellectually or temperamentally." MARCH 25, 2020. `https://www.theatlantic.com/ideas/archive/2020/03/presidents-character-unequal-task/608743/`

[3]Bombi (2018) claims that *nó* is compatible with the noun *president* in (14), but all my language consultants rejected it in this context.

(15) Awia (**nó**) re-bɔ ɛnnɛ.
sun DEF PROG-hit today
'The sun is shining today.' (Bombi, 2018, p. 150)

a. Context 1 (SALIENCE): Afia is on a bus, when a woman she doesn't know sits down beside her. The woman draws the window shade, letting in the sunlight. The woman says (15)

b. Context 2 (NO SALIENCE): Afia is on a bus, when a woman she doesn't know sits down beside her. The woman says. . . (Bombi, 2018, p. 155)

The apparent optionality in (15), however, disappears in a context such as (16-a). *Nó* in this context patterns with the president examples in (14); *nó* is infelicitous, the bare noun is obligatory. Compare (16-a) to (16-b) where *nó* is optional as in (15). In (16-a), the referent of *sun* is necessarily the single sun of the solar system. If *nó* is licensed here, it has a larger situation use. However, in (16-b), we have two possible referents: the sun in the book and the sun of the solar system. If *sun* in (16-b) refers to the sun of the solar system, the bare noun is required as in (16-a), but if it is interpreted as sun in the book, an immediate situation use, *nó* is felicitous.

(16) Awia (**nó**) yɛ nsoroma.
sun DEF COP star
'The sun is a star. '

a. Context 1: The beginning of a documentary on the solar system ....

⇒ **nó** = *infelicitous* bare = *felicitous*

b. Context 2: A parent is showing a child a book on the solar system. They open a page with a picture of the sun...

⇒ **nó** = *felicitous* bare = *felicitous*

The optionality in (16-b) stems from the availability of two referents for the definite description. We can separate the two referents in (17). The sentence is false if we interpret *sun* as the unique sun of the solar system, but is true if it refers to the sun on TV. In Akan, the use of the definite determiner or bare noun influences the preferred reading of (17). With the definite determiner, the referent is the sun in the book, but the bare noun forces the referent to be the earth's unique sun.

(17) Context: There is a children's show on TV about colors. They have a picture of the sun but it is painted green. A parent points to the sun on the TV and says...

Awia (**nó**) yɛ green.
sun DEF COP green

'The sun is green. '

a. Bare ⇒ False! Interpreted as a statement about the sun in the world.

b. Definite determiner ⇒ True! Interpreted as a statement about the sun in the book.

So far, the data is consistent with the initial claim that *nó* does not allow larger situation uses. It appears optional in contexts that allow both a larger situation use and an immediate situation of the noun. Let us go back to Bombi's (2018) example in (15). The bare noun and the definite determiner are not optional in this context. Considered together with (16), we can draw the inference that a bare noun is licensed if a context favors the unique referent interpretation. The definite determiner is only licensed if the context supports the possibility of there being other referents. I do not want to make specific claims about the definiteness of bare nouns. I revisit the larger situation use of bare nouns later in the chapter.

2.2.4 Associative anaphora

Finally, definite determiners have a use that Hawkins refers to as *associative anaphora uses* and Clark (1975) as *bridging* uses. This use involves an indirect relation between the individuals introduced by the indefinite expression and the definite description. In (18), for instance, the definite description *the steering wheel* is understood as the steering wheel of the car John bought. The indirect anaphoric relationship is between the car and its part. Schwarz (2009) characterizes this kind of bridging as *part-whole* bridging. There is another kind of bridging relation between a product and its producer called *relational* bridging (Schwarz, 2009). The definite description in (19), *the author* is intended as the author of the *new book we read today*.

(18) John bought an old car. The steering wheel was no good.

(19) We read a new book today. The author was from Ghana.

According to Schwarz (2009), part-whole bridging involves uniqueness whereas relational bridging involves anaphoric relation. In English, the definite determiner is used in both bridging contexts as we saw in the examples above. But in German, a language with two forms of definite determiners: a strong form for anaphoric uses and a weak form for uniqueness uses, relational bridging licenses the strong determiner (20) and part-whole bridging licenses the weak definite (21).

(20) Das Theaterstück missfiel dem Kritiker so sehr, dass er in seiner Besprechung
the play displeased the critic so much that he in his review
kein gutes Haar #am/**an** **dem** Autor lieb
no good hair #on-the$_{weak}$/on the$_{strong}$ author left
The play displeased the critic so much that he tore the author into pieces in his review.

(Schwarz, 2009:53)

(21) Wi foom a sark uun a maden faan't taarep. **A** törem stän wat
we found the church in the middle of-the village the$_{weak}$ tower stood a-little
skiaf
crooked
'We found the church in the middle of the village. The tower was a little crooked.'

(Schwarz, 2009, p. 52) from (Ebert, 1971, p. 118)

Arkoh and Matthewson (2013) note that, like the strong determiner in German, *nó* is only licensed in relational bridging contexts (22); the bare noun is used in part-whole bridging contexts (23). In (22), the definite description *leader-drummer* is understood as the lead-drummer of the dance group mentioned earlier. *Roof* in (23) is interpreted as roof of the old building located in the village.

(22) Asa **nó** yɛ-ɛ ɔ-hene **nó** fɛ ara ma ɔ-kyɛ-ɛ ayiribɔfoɔ
dance DEF do-PST chief DEF beautiful just COMP 3SG.SUBJ-give-PST drummer
panin **nó** adeɛ.
leader DEF thing
'The dance was so beautiful that the chief gave a lead drummer a gift. '

(Arkoh and Matthewson, 2013, p. 15)

(23) Ye-hu-u dan dadaw bí wɔ ekurasi hɔ ne nkyɛnsedan (***nó**)
3PL-see-PST building old INDEF be.located village there POSS roof DEF

e-hodwow.
PERF-worn.out
'We saw an old building in the village; its roof was worn out.' (Arkoh, 2011, p. 80)

2.2.5 *Nó* as a demonstrative

Boadi (2005) characterizes *nó* as a distal demonstrative, which has definite uses in some contexts. The distal demonstrative contrasts with the proximal demonstrative *yi*. Both determiners optionally co-occur with another pre-nominal demonstrative form *saa* as in (24) for demonstrative uses.

(24) a. (**Saa**) abofra **yi** nim adeɛ paa.
DEM child DEM know thing INT.
'This child is very intelligent.' Amfo, 2010, p. 185

b. (**Saa**) abofra **nó** nim adeɛ paa.
DEM child DEM know thing INT.
'That child is very intelligent.'

Independently, *saa* is a demonstrative pronoun as shown in (25), but when it occurs as an adnominal, it always requires one of the demonstrative determiners in (24).

(25) Kofi pɛ **saa**.
Kofi likes DEM
'Kofi likes that.'

The (*saa*)...*yi/nó* constructions display properties associated with demonstratives. A characteristic property of demonstrative NPs is their ability to combine with a predicate and its negation (Löbner, 1985); definites do not have this property. The predicate of a definite description applies to the referent as a whole, so it does not tolerate splits such as (26). We interpret the definite description as referring to the same car hence the contradiction. Demonstrative NPs, on the other hand, allow such splits referents. There is, therefore, no contradiction in (27). As shown in example (28), (*saa*)...*nó* patterns with demonstratives, (28) is not a contradiction.

(26) #I like the car but I do not like the car.

(27) I like that car but I do not like that car.

(28) **Saa** abofra **nó** nim adeɛ paa ɛna **saa** abofra **nó** abɔn.
DEM child DEM know thing INT. CONJ DEM child DEM not.smart
'That child is very intelligent and that child is not smart.'

Demonstratives are also generally incompatible with nouns whose number of possible referents is restricted to one. Such nouns are considered inherently unique or semantically unique. They include globally unique nouns such as *moon* and *sun* and communally unique nouns such as *president of Ghana*, and also superlatives (Löbner, 1985). The inability to co-occur with these nouns is attributed to a non-uniqueness presupposition that demonstratives have (Wolter, 2003; Robinson, 2005; Wolter, 2006; Dayal and Jiang, 2020). The English demonstrative is infelicitous in both examples in (29); only the definite is licensed. Similarly, *(saa)...nó* is incompatible with inherently unique nouns. It is incompatible with the sun as shown in (30-a) and superlatives as shown in (30-b).

(29) a. **#That/The** sun is bright.

b. **#That/the** highest mountain in the world is Everest.

(30) a. #**Saa** ewia **nó** re-bɔ.
DEM sun DEM PROG.-shine
'That sun is shining.'

b. #(**Saa**) Bepɔ (**nó**) a ɛ-wa paa wɔ Ghana ne Afadjato.
DEM mountain DEM REL 3SG-tall very be.located Ghana COP Afadjato
'That tallest mountain in Ghana is Afadjato.'

What happens when *nó* occurs by itself as a demonstrative? Without *saa*, *nó* can be accompanied by the pointing gesture for a deictic use (Amfo, 2010). Despite the felicity of (31), *nó* unlike *saa...nó*, cannot combine with predicate and its negation without resulting in a contradiction. Both (32-a) and (32-b) are contradictory, as such *nó* patterns with the definite determiner in this context.

(31) Me-pɛ car **nó** n-yɛ car **yi**.
1PL-want car DEM NEG-COP car DEM
'I like that car [pointing at Audi] but not this car [pointing at Renault].'

(32) a. #Abofra **nó** nim adeɛ paa ɛna abofra **nó** abɔn.
child DEF know thing INT. CONJ child DEF not.smart

‘The child is very intelligent and the child is not smart.’

b. #Me-pɛ car **nó** nanso me-m-pɛ car **nó** .
1SG-like car DEF but 1SG-NEG-like car DEF
‘I like that car [pointing at Audi] but I don’t like that car [pointing at Renault].’

(Bombi, 2018, p. 152)

Recall that in §2.2.3, we saw that *nó* does not have larger situation uses. The determiner is not licensed with *sun*, when the referent is the unique sun of the solar system, and also with *president of Ghana*. This property is comparable to the incompatibility of demonstrative with inherently unique nouns. In addition to the examples in §2.2.3, (33) illustrate that *nó* is also not compatible with superlatives, same as demonstratives

(33) Context: Tour guide giving general information about tourist sites in Ghana

Bepɔ (**#nó**) a ɛ-wa paa wɔ Ghana ne Afadjato.
mountain DEF REL 3SG-tall very be.located Ghana COP Afadjato

‘The tallest mountain in Ghana is Afadjato.’

Thus, on the one hand, *nó* patterns with definite determiners, not demonstratives, in not being compatible with a predicate and its negation. On the other hand, it patterns with demonstratives, not definites, in being incompatible with inherently unique nouns.

2.2.6 Summary

In terms of Hawkins’(1978) classification, *nó* is accepted in a subset of the contexts where the English definite determiner is. *Nó* has anaphoric uses, which means that its intended referent has been introduced in the linguistic context. It also has immediate situation uses, where the antecedent is in the physical context. Finally, *nó* has associative anaphora or bridging uses, but only relational bridging uses. As we saw in §2.2.3, *nó* does not have larger situation uses; it is incompatible with nouns such as *president*, and when used with nouns such as *sun*, it is only accepted if the intended referent is not the unique sun of the solar system. Finally, combined with the adnominal *saa*, *nó* is a distal demonstrative.

2.3 Theories of definiteness

The goal of this section is to situate the analysis of *nó* in the broader literature of definiteness. We review the two main analyses of definiteness, i.e., familiarity and uniqueness. The familiarity theory argues that definite descriptions are used to refer to entities in the interlocutor's common ground (see Christophersen, 1939; Prince, 1981; Prince, 1992; Heim, 1982; Roberts, 2003 a.o.). The uniqueness account, on the other hand, argues that the meaning of a definite is the unique entity with the relevant property, (see Frege, 1892; Russell, 1905; Strawson, 1950; Abbott, 2003). Schwarz (2009, 2013) adds that both theories are needed since different lexical determiners are found across languages that are amenable to the two different types of theories.

2.3.1 Uniqueness theory of definiteness

The uniqueness analysis stems from Russell's(1905) classic work on denoting expressions. According to Russell, the meaning of *the* strictly involves uniqueness. The definite description *the king of France*, for instance, asserts that x has some relation to France and also that no one else has this relation. In Russell's system, a sentence with the indefinite determiner such as (34-a) has the logical form (34-b) while a sentence such as (35-a) with the definite determiner *the* has the logical form in (35-b). The difference between (34-b) and (35-b) is the uniqueness assertion underlined in (35-b).

(34) a. A F is G

b. $\exists x[F(x) \wedge G(x)]$

(35) a. The F is G

b. $\exists x[F(x) \wedge \forall \underline{y[F(y) \rightarrow x = y)}] \wedge G(x)]$

To illustrate, the sentence in (36-a) has the logical form in (36-b). The logical form has three main components listed in (36-ai) to (36-aiii).

(36) a. The king of France is bald.

b. $\exists x[\mathsf{KoF}(x) \wedge \forall y[\mathsf{KoF}(y) \rightarrow x = y] \wedge \mathsf{bald}(x)]$

(i) There is an entity who is the King of France. This is introduced by the existential quantifier $\exists x[...]$

(ii) The uniqueness restriction is introduced by the universal quantification in connection with the identity requirement. $\forall y[\mathsf{KoF}(y) \leftrightarrow x = y]$

(iii) The predicate *bald* is true of this unique KoF.

Example (36) is true if there exists exactly one King of France and this king is bald. It is false under three conditions: there is no King of France, there are multiple Kings of France, or the King of France is not bald.

Strawson (1950), following earlier work done by Frege (1892), objects to Russell's claim that (36) is false if there is no KoF (no existence) or there are multiple KoFs (no uniqueness). He argues that intuitively, in those cases, the sentence is neither true or false, it is infelicitous. Existence and uniqueness are treated as presuppositions; they are conditions that must be satisfied in a context for a felicitous use of the definite determiner. As characteristic of presuppositions, existence and uniqueness associated with the definite determiner project under negation.[4] Example (37) like (36) presupposes that there exists a unique KoF, and as such if there is no unique KoF, the presupposition is not satisfied and the sentence is undefined.

(37) The King of France is not bald.

The presuppositional analysis is often referred to as the Frege/Strawson account. Under this analysis, the definite determiner *the* has the logical form in (38); the Frege/Strawson account treats definite descriptions as denoting entities of type e.[5] Example (36) now has the logical form in (39). Information after the (:) and before the (.) are presuppositions. Presuppositions are also underlined for clarity.

(38) $[\![\text{The}]\!] = \lambda P : \underline{\exists! x(P(x))}.\ \iota x[(P(x)]$

(39) $[\![(36)]\!] = \text{bald}(\ \underline{\exists! x(\mathsf{KoF}(x))}.\ \iota x[\ \text{KoF}(x)]\ )$

[4]Presuppositions survive in certain environments where asserted content is lost. The family of S include questions, negation, and antecedent of conditions —(Chierchia and McConnell-Ginet, 2000).

[5]The colon (:) and period (.) is used by Heim and Kratzer (1998) to demarcate presuppositions

Example (39) is defined if and only if there is a unique King of France, and the unique King of France is bald. It is undefined if there is no King of France or there are multiple Kings of France. The only condition under which (39) is false is if there exist a unique KoF who is not bald.

Uniqueness is relativized to the context of utterance, not the world, otherwise only nouns that have global uniqueness such as *sun* and *moon* would be compatible with the definite determiner. Example (40) is felicitous, though it does not assert that there is a unique table in the world. For (40) to be felicitous, there should be a unique table in the particular context (40) is uttered.

(40) My book is on the table.

We can represent this in the theory by assuming that sentences are evaluated with respect to a situation not the whole world. This view is expounded by Kratzer (1995). (See Schwarz (2009) for an analysis of the definite determiner involving situations).

Finally, the uniqueness analyses discussed above were proposed to account singular definites, i.e. when the definite determiner takes a singular noun. What about plural definites such as *the books* in (41)? The problem with a plural definite description like *the books* is that every context that (41) is uttered in contains multiple books and thus there is no unique entity with the property book.

(41) The books are here.

Sharvy (1980) proposed that plural definite descriptions designate the sum of all entities that satisfy the predicate of the NP. Therefore, *the books* in (41) designates the sum of all the books in the salient context. Assuming that the relevant books in this context include textbooks and novels, *the books* will require totaling all the *textbooks* and *novels*. Russell's (1905) uniqueness condition is now recast in terms of totality/maximality. The plural definite maps to the maximal plural individual, which all other individuals are a part of. Sharvy's (1980) proposal

is combined with Link (1983), who enriches the domain of individuals to include plural individuals. In the domain of individuals, there are now atomic individuals and plural individuals. He assumes that plural morphology signals the presence of a pluralization operation *, which generates all the individual sums of members of the extension of a predicate. Plural entities are closed under the join operation $\langle E, \oplus \rangle$, where $\oplus$ is the individual sum of *a* and *b*.

To see how this works, consider a context with three books, *a*, *b*, and *c*. The extension of the plural books includes the single atomic individuals *a*, *b*, and *c*; it also includes the plural entities ($a \oplus b$), ($a \oplus c$), and ($b \oplus c$), and ($a \oplus b \oplus c$). The extension of *books is illustrated in (42).

(42)

$$[\![\text{*books}]\!] = \left\{ \begin{array}{l} (a \oplus b \oplus c) \\ (a \oplus b), (a \oplus c), (b \oplus c) \\ a,\ b,\ c \end{array} \right\}$$

According to Sharvy (1980), then, the plural definite will designate the plural individual ($a \oplus b \oplus$ c), which is a sum of all the individuals that satisfy the predicate book. All the other individuals in the extension of *books* are a part of this maximal individual. Russell's (1905) denotation of the definite determiner in (35) is modified in (43) to include plural definite descriptions; $\leq$ indicates a part-whole relation.

(43) a. The F is/are G

b. $\exists x[F(x) \wedge \forall y[F(y) \rightarrow y \leq x)] \wedge G(x)]$

x is a plurality with property F and anything else with property F is part of x. The x, therefore, denotes the totality of entities with property P.

For singular definites, the atom is also the maximal individual, but there are no subparts of this individual. The singular definite, *the King of France*, for instance, is an atomic individual. There are no subparts of this individual which have the property of being a King of France. Thus, the atomic individual is also the maximal individual in this context.

The plural version of *The* in a Frege/Strawson analysis is captured by the σ-formula in

(44-a), where uniqueness is coupled with the maximality theory of definiteness.

(44) a. $[\![\text{The}]\!] = \lambda P.\ \sigma x[P(x)]$

takes a property (P) and returns the maximal individual with property P .[6]

b. $[\![\text{The books}]\!] = \sigma x.\ books(x)$

The books in (44-b) denotes the maximal plural entity that satisfies the description *books*.

2.3.2 Familiarity theories of definiteness

The main competitor for the uniqueness theory is the familiarity theory. The central thesis of the familiarity theories is captured in the quote below by Christophersen (1939).

> "Now the speaker must always be supposed to know which individual he is thinking of; the interesting thing is that the *the-form* supposes that the hearer knows it too... A condition of the use of *the* is that there is a basis of understanding between speaker and hearer. This basis comprises the subjects and things known by both parties... " (Christophersen, 1939, p. 28)

On this view, definite descriptions denote entities that are known to the speaker and the addressee. Recent developments of the familiarity theory began with dynamic theories such as Heim's (1982) *File Change Semantics*, and Kamp's (1981) *Discourse Representation Structure*. In a dynamic system, the meaning of a sentence is its capacity to change context; a sentence updates context with its content. A sentence with an indefinite determiner updates the context by introducing a discourse referent for the indefinite.[7] Any new discourse is now interpreted in this new updated context. The definite determiner does not introduce new discourse referents, it updates information about already established discourse referents. The referents of the definite description can therefore only be determined in context. Building on Christophersen (1939), Heim (1982) argues that definites and indefinites introduce variables which are represented as indices on the NP. The difference between the two determiners are captured by Heim's (1982)

[6]The plural definite also has an existence presupposition captured by σ

[7]The term discourse referents was introduced by Karttunen (1976).

Novelty/Familiarity Condition in (45). For felicitous update of a context c with a proposition p:

(45) The Novelty/Familiarity Condition

$c + p$ is only defined if for every NP_i that p contains,

if NP_i is definite, then $x_i \in Dom(c)$, and

if NP_i is indefinite, then $x_i \notin Dom(c)$. (Heim, 1982, p. 369)

Briefly, (45-b) states that the index introduced by a definite determiner must already be contained in the context, while the index introduced by the indefinite must be new. Basically, definites must have an established antecedent. The use of the definite NP signals that there is discourse referent that has the descriptive content of the definite NP already in the discourse. In example (46), for instance, the definite *the*$_1$ *glass* is felicitous because the indefinite *a*$_1$ *glass* introduced a discourse referent for it.

(46) A$_1$ wine glass broke last night. The$_1$ glass had been very expensive. (Roberts, 2003, p. 296)

Roberts (2003) distinguishes between two types of familiarity, *strong familiarity* and *weak familiarity* as listed in (47). Strongly familiar definites are introduced by linguistic antecedents. Weak familiarity subsumes strong familiarity, so the anaphoric uses and all other non-anaphoric uses discussed by Hawkins (1978) will count as weak familiarity. Since the English definite determiner is licensed in all these contexts, we will claim that it encodes a weak familiarity presupposition.

(47) Taxonomy of familiarity:

a. strong familiarity: the NP has as antecedent a discourse referent introduced via the utterance of a (usually) preceding NP

b. weak familiarity:

(i) the entity referred to is perceptually accessible to the interlocutors

(ii) the entity referred to is globally familiar in the general culture or at least

among the participants in the discourse, although not mentioned in the immediate discourse

(iii) introduction of the NP's discourse referent is licensed solely by contextual existence entailments (Roberts, 2003, p. 204)

The distinction between strong and weak familiarity is similar to the distinction between *hearer-old* entities vs *discourse-old* entities by Prince (1992). A hearer-old entity is one for which the speaker presumes the hearer already has a mental representation of, while a discourse-old entity has been evoked linguistically in the current discourse.

2.3.3 Two types of definites

From the viewpoint of English, we would consider the two theories as competing theories. Both theories are proposed to account for the description of *the*, arguing whether *the* is a uniqueness encoding definite or a familiarity encoding definite. However, cross-linguistic evidence points to the existence of two types of definite determiners (Schwarz, 2009, 2013). According to Schwarz (2009), some German dialects such as the Ferring dialect (Ebert, 1971) and standard German dialect have two definite forms: an anaphoric definite and uniqueness denoting definite. For example, in Standard German, the definite article denoting uniqueness, the weak definite, contracts with the preposition as in (48-a). This is the form used with nouns such as *mayor* in (48-a) and also *sun* and *moon*. Then the language uses a non-contracting form of the determiner in anaphoric contexts, as in (48-b). The anaphoric form is referred to as the strong definite article. The strong definite determiner in German requires a linguistic antecedent, thus based on Roberts' (2003) classification, its encodes strong familiarity.

(48) a. Der Empfang wurde **vom/ #von dem** **Bürgermeister** eröffnet
the reception was by-the$_{weak}$/ by the$_{strong}$ mayor opened
'The reception was opened by the mayor.'

b. Hans hat einen Schriftsteller und einen Politiker interviewt. Er hat
Hans has a writer and a politician interviewed He has
#vom/ von dem **Politiker** keine interessanten Antworten
from-the$_{weak}$/ from the$_{strong}$ politician no interesting answers
bekommen.
gotten

'Hans interviewed a writer and a politician. He didn't get any interesting answers from the politician.' German (Schwarz, 2009, p. 24)

Based on the distinction made in German, Schwarz (2009) proposes two lexical semantic entries for definite determiners, each encoding one type of definiteness. (49) and (50) are the semantic denotations of the weak and strong definite articles, respectively.

(49) $[\![\text{D}_{\text{weak}}]\!] = \lambda s\ \lambda P : \underline{\exists! x P(x)(s)}.\ \iota x P(x)(s)$

Takes two arguments, a situation and an NP property and returns the unique individual in the situation.

(50) $[\![\text{D}_{\text{y strong}}]\!]^g = \lambda s\ \lambda P : \underline{\exists! x[P(x)(s) \wedge x = g(y)]}.\ \iota x[P(x)(s) \wedge x = g(y)]$

The determiner is subscripted with a referential index y, and takes two arguments, a situation argument, and an NP property. It then returns the unique individual that is identical to the value of y assigned by the assignment function in the situation.

The meaning of the strong determiner consists of the meaning of the weak determiner plus a referential index and an identity relation between x and the value of the index assigned by the assignment function. The referential index is interpreted parallel to pronouns; it receives its value via the assignment function g, the same way as free variables do, by the Traces and Pronouns rule in (51).

(51) Pronouns Rule: If α is a pronoun or a trace, g is a variable assignment, and $i \in \text{dom}(g)$ is defined, then $[\![\alpha_i]\!]^g = g(i)$ (Schwarz, 2009, p. 49)[8]

Using the denotations given in (49) and (50), the German weak and anaphoric examples in (48) have the interpretation in (52) and (53) respectively.

(52) Der Empfang wurde **vom/** **#von dem** **Bürgermeister** eröffnet
the reception was by-the$_{weak}$/ by the$_{strong}$ mayor opened
'The reception was opened by the mayor.' German (Schwarz, 2009, p. 24)

[8] Slightly modified version of (Heim and Kratzer, 1998, p. 110)

a. $[\![[[the_{\text{weak}} s]$ mayor$]\,]\!]$

b. (i) $[\![the_{\text{weak}} s]\!] = [\lambda s\ \lambda P : \underline{\exists!x[P(x)(s)]}.\ \iota x[P(x)(s)]\ ]\ (s)$

$\lambda P : \underline{\exists!x[P(x)(s)]}.\ \iota x[P(x)(s)]$

(ii) $[\![[[the_{\text{weak}} s]$mayor$]\,]\!] = [\lambda P : \underline{\exists!x[P(x)(s)]}.\ \iota x[P(x)(s)]\ ]\ ([\![$mayor$]\!])$

$\underline{\exists!x[\text{mayor}(x)(s)]}.\ \iota x[\text{mayor}(x)(s)] \approx$ the unique individual x such that x is a mayor in situation s.

(53) Hans hat einen Schriftsteller und einen Politiker interviewt. Er hat **#vom/**
Hans has a writer and a politician interviewed He has from-the$_{weak}$/
von dem Politiker keine interessanten Antworten bekommen.
from the$_{strong}$ politician no interesting answers gotten
'Hans interviewed a writer and a politician. He didn't get any interesting answers from the politician.' German (Schwarz, 2009, p. 24)

a. $[\![[[the_{\text{y strong}} s]$ politician$]\,]\!]^g$

b. (i) $[\![the_{\text{y strong}} s]\!]^g = [\lambda s\ \lambda P : \underline{\exists!x[P(x)(s) \wedge x = g(y)\ ]}.\ \iota x[P(x)(s_r) \wedge x = g(y)]\ ]\ (s)$

$\lambda P : \underline{\exists!x[P(x)(s) \wedge x = g(y)]}.\iota x[P(x)(s) \wedge x = g(y)]$

(ii) $[\![[[the_{\text{strong}} s]$ politician$]\,]\!]^g = [\lambda P : \underline{\exists!x[P(x)(s) \wedge x = g(y)]}.\ \iota x[P(x)(s) \wedge x = g(y)]\ ]\ ([\![$politician$]\!])$

$\underline{\exists!x[\text{politician}(x)(s) \wedge x = g(y)\ ]}.\ \iota x[\text{politician}(x)(s) \wedge x = g(y)] \approx$ the unique individual x such that x is a politician in situation s and x is identical to the value of y assigned by g

The correct interpretation of the (53) requires that the assignment function picks out the individual introduced by the indefinite in the preceding clause.

Beyond German, Schwarz (2013) notes that many other languages display similar internal variation in strategies of definiteness marking. For instance, Lakhota and Hausa have two distinct types of definite articles, which they also associate with either uniqueness or familiarity. Other languages display the same variation, but mark only one strategy morphologically, usually familiarity. These include languages such as Mauritian Creole, and according to Arkoh and Matthewson (2013) Akan.

2.4 Previous analyses of *nó*

2.4.1 Only familiarity:Arkoh and Matthewson (2013)

The familiarity analysis of the Akan *nó* was originally proposed by Arkoh and Matthewson (2013), which is also the first formal account of *nó*. They argued that *nó* parallels the German 'strong' definite and thus they assign it the same meaning in (49) repeated in (54).

(54) To be revised

$[\![\text{nó}_y]\!]^g = \lambda s\ \lambda P : \underline{\exists! x[P(x)(s) \wedge x = g(y)]}.\ \iota x[P(x)(s) \wedge x = g(y)]$

Unlike the German 'strong' definite, however, anaphoricity cannot be understood strictly, i.e., licensed by a linguistic antecedent. As observed in §2.2, *nó* is licensed in situational uses, where the antecedent is not introduced linguistically. The notion of familiarity relevant for *nó* is therefore Roberts' (2003) *weak familiarity*. Akan does not have an equivalent of the 'weak' definite that is used in larger situations, the bare noun is used in those contexts.

Empirically, the analysis captures the use of the definite determiner in anaphoric and situational uses. To see how the semantics in (54) captures the anaphoric uses, consider the examples below. In (6) repeated here as (55), an indefinite *a soldier* introduces a discourse referent, which is the antecedent of the definite description, *the soldier*. The referential index is interpreted via the assignment function, which maps the index to familiar entities. As long as we ensure that the assignment function picks out the discourse referent introduced by the indefinite, *a soldier*, as the value of the index, the definite description is felicitous.

(55) Ama hu-u ɔkyerekyereni bi ne sogyani bi. ɔ-kyea-a
Ama see-PST teacher INDEF CONJ soldier INDEF 3SG.SUBJ-greet-PST
sogyani **nó**.
soldier DEF
'Ama saw a teacher and soldier. He greeted the soldier. '

a. $[\![[_{\text{DP}}[_{\text{D}'}\ \text{nó}_y\ s]\ [_{\text{NP}}\ \text{soldier}]]\ ]\!]^g$

b. (i) $[\![\text{D' } s]\!] = \lambda P : \underline{\exists! x[P(x)(s) \wedge x = g(y)]}.\iota x[P(x)(s) \wedge x = g(y)]$

(ii) $[\![\text{soldier}]\!] = \lambda x \lambda s.\text{soldier}(s)(x)$

(iii) $[\![\text{(55-a)}]\!]^g = [\lambda P : \underline{\exists! x[P(x)(s) \wedge x = g(y)]}.\ \iota x[P(x)(s) \wedge x = g(y)]\ ]\ ([\![\text{soldier}]\!])$

$\underline{\exists!x[\text{soldier}(x)(s) \wedge x = g(y)]}$. $\iota x[\text{soldier}(x)(s) \wedge x = g(y)] \approx$ the unique individual x such that x is a soldier in situation s and x is identical to the value of y assigned by g.

The immediate situation use in (10) repeated here as (56) differs from (55) only in how the antecedent discourse referent is introduced. Again, as long as we ensure that the assignment function picks out the discourse referent introduced by the indefinite *a man* as the value of the index, the definite description is felicitous.

(56) Context: A man and a woman are arguing in the street. Ama and Kwame are sitting in front of their house where they can see but not hear them. Kofi walks in and sees them staring. He says oh...

Papa **nó** de maame **nó** ka.
man DEF owe woman DEF debt
'The man owes the woman money.'

a. $[\![_{\text{DP}}[[_{\text{D}'}\ \text{nó}_y\ s][_{\text{NP}}\ \text{man}]]\ ]\!]^g$

b. (i) $[\![\text{D'}\ s]\!] = \lambda P : \underline{\exists!x[P(x)(s) \wedge x = g(y)]}.\ \iota x[P(x)(s) \wedge x = g(y)]$

(ii) $[\![\text{man}]\!] = \lambda x \lambda s.\text{man}(s)(x)$

(iii) $[\![\text{(56-a)}]\!]^g = [\lambda P : \underline{\exists!x[P(x)(s) \wedge x = g(y)]}.\ \iota x[P(x)(s) \wedge x = g(y)]\ ]\ ([\![\text{man}]\!])$
$\underline{\exists!x(\text{man}(x)(s) \wedge x = g(y))}.\ \iota x(\text{man}(x)(s) \wedge x = g(y)) \approx$ the unique individual x such that x is a man in situation s and x is identical to the value of y assigned by g.

While Arkoh and Matthewson are right about the anaphoric and situational uses of *nó*, they do not discuss how their analysis will exclude the larger situation uses of *nó*. By adopting the more inclusive notion of *weak familiarity*, the semantic entry in (54) does not exclude the larger situation uses of *nó*. For both Hawkins (1978, 2015) and Roberts (2003), the larger situation uses also appeal to discourse participants' knowledge of entities, albeit in the larger context. It is difficult to imagine that *sun* or *moon* is not part of the CG of discourse participants in any given discourse situation. Similarly, discourse participants in Ghana are expected to be mutually aware of Ghana's president, however these nouns still do not license the definite

determiner in out-of-the-blue contexts. Further, the lexical entry in (54) cannot distinguish between (57-a) and (57-b), where there are linguistic antecedents for both definites, but the *nó* is only licensed in (57-b). The discourse referents for both Kwame's mother and Kwame's brother are introduced linguistically in (57), but only sibling is able to license *nó* in (57-b).

(57) Kwame maame ne ne nua ba-a ha...
Kwame mother CONJ 3SG.POSS sibling come-PST here
'Kwame's mother and his sister/brother came here.'

a. Na ne maame (***nó**) yɛ tumtum.
PRT 3SG.POSS mother DEF COP. dark.skin
'Kwame's mother came here. His mother was dark-skinned.'

b. Na ne nua **nó** yɛ tumtum.
PRT 3SG.POSS sibling DEF COP. dark.skin
'Kwame's mother came here. His sibling dark-skinned.'

Arkoh and Matthewson's (2013) theory, as it stands, is incomplete. It does not explain the infelicity of *nó* in larger situation uses, and also its demonstrative uses. However, their theory is a good starting point for the analysis I propose in §2.3.

2.4.2 A uniqueness-based analysis

Uniqueness-based analyses of Akan *nó* include Amfo (2007) and Bombi (2018). The main tenet of uniqueness analyses can be summarized in this quote from Amfo (2007) "the intended referent can be identified on the basis of the nominal alone. ... familiarity is not required if the nominal contains enough descriptive content" (Amfo, 2007, p. 142). In other words, what is required for the felicitous use of *nó* is that the descriptive content of the noun characterizes a unique entity in the discourse. According to Bombi (2018), the meaning of *nó* is captured by Schwarz's lexical entry for the 'weak' definite in German (49), as shown in (58).

(58) $[\![\text{nó}]\!]^g = \lambda s\ \lambda P : \underline{\exists! x P(x)(s)}.\iota x P(x)(s)$

The notion of uniqueness is extended here to cover anaphoric uses. In (59), for instance, the definite description *ataadeɛ nó*, according to Bombi (2018) introduces the requirement that there is a unique contextually salient dress.

(59) a. Me-tɔ-ɔ ataadeɛ nnora. Ataadeɛ **nó** yɛ fɛ.
1SG-buy-PST dress yesterday dress DEF COP nice
'I bought a dress yesterday. The dress is nice.' (Bombi, 2018, p. 153)

b. $[\![[_{\text{DP}}\ [_{\text{D}}\ \text{nó}_y\ s]\ [_{\text{NP}}\text{dress}]]\ ]\!]^g$

(i) $[\![\text{dress}]\!] = \lambda x \lambda s.\text{dress}(s)(x)$

(ii) $[\![\text{(59-b)}]\!]^g = [\lambda P : \underline{\exists! x P(x)(s)}.\ \iota x P(x)(s)]([\![\text{dress}]\!])$

$\underline{\exists! x[\text{dress}(x)(s)]}.\ \iota x[\text{dress}(x)(s)] \approx$ the unique individual x such that x is a dress in situation s

Uniqueness in this case is evaluated relative to the informational state of the discourse referent, not the world, what Roberts (2003) refers to as *informational uniqueness*. Bombi's analysis is motivated by the infelicity of the definite determiner in contexts such as (60). Since there are multiple ministers in Ghana, the uniqueness presupposition of the definite determiner is not satisfied in (60) and we correctly predict that the definite determiner is infelicitous.

(60) Context: Yesterday was the Ghanaian Independence day and there were a lot of celebrations in Accra, which were visited by the president of the country and many ministers. You go back to your village and talk to your friend about how beautiful the celebration was (but you don't talk about who was there). Your friend asks you whether you saw anyone famous. You say:

#ɔsoafoɔ **#nó** ba-e .
minister DEF come-PST
Intended 'The minister came.' (Bombi, 2018, p. 149)

Uniqueness-based analyses, however, also do not adequately account for all the empirical uses of *nó*. The main problem for these analyses is the infelicity of the definite determiner in larger situation uses, where uniqueness is satisfied. I set aside the sun and president cases for now and look at other inherently unique ones. First, consider superlatives such as the ones in examples (61) and (62). Superlatives are inherently unique, i.e., the descriptive content of these nouns, independent of context, guarantees uniqueness; there is only one tallest mountain in Ghana and one biggest book in the world. Since the lexical meaning of these nouns alone satisfy informational uniqueness, the uniqueness analyses predict that they require the definite

determiner. Yet, the empirical evidence does not support this prediction. In fact, the definite determiner is incompatible with superlatives as illustrated in (61) and (62).

(61) Context: A tour guide providing tourists with general information about Ghana

Bepɔ (#**nó**) áa ɛ-wa paa wɔ Ghana ne Afadjato.
mountain DEF REL 3SG-tall very be.located Ghana COP Afadjato
'The tallest mountain in Ghana is Afadjato.'

(62) Context: A librarian telling students about some of the important books in the library.

Nhoma keseɛ paa (#**nó**) áa ɛ-wɔ wiase wɔ library ha.
book big very DEF REL. be.located world. be.located library here
'The biggest book in the world is in this library.'

Relational nouns such as *mother, father, wife, and husband* are similar to superlatives, as they are also inherently unique.[9] These nouns, according to Löbner (1985) have functional meanings and refer unambiguously. In out-of-the-blue contexts, contrary to what the uniqueness analyses predict, *nó* is incompatible with these nouns. The example in (64) illustrates that the definite determiner is not generally incompatible with relational nouns. Both sets of data are left unexplained by the uniqueness analysis.

(63) a. Abofra **nó** maame (#**nó**) ba-a ha.
child DEF mother DEF come-PST here
'The child's mother came here.'[10]

b. Abofra **nó** papa (#**nó**) ba-a ha.
child DEF father DEF come-PST here
'The child's father came here.'

c. Abrantie **nó** yere (#**nó**) ba-a ha.
child DEF wife DEF come-PST here
'The man's wife came here.'

(64) Abofra **nó** nua baa (**nó**) ba-a ha.
child DEF sibling woman DEF come-PST here
'The child's sister came here.'

[9] I mean biological mother and father. Culturally one can have many mothers or fathers. Your biological mother's sisters are considered your mothers, not aunties, and your biological father's brothers are your fathers not uncles.

[10] This is felicitous if mother here is not the biological mother.

Based on the above arguments, the uniqueness-based analyses do not adequately account for the data. Also, the demonstrative use of *nó* and its associated non-uniqueness presupposition militates against a purely uniqueness-based analysis of *nó*.

2.5 The Analysis

2.5.1 Familiarity and non-uniqueness presuppositions

We established in §2.2 that *nó* is licensed only in contexts where its index has an antecedent discourse referent i.e., it is familiar. The antecedent can be introduced linguistically, as in the anaphoric uses, or non-linguistically, as in the immediate situation uses. It was also established that *nó* is generally infelicitous in larger situation uses. This second property it shares with demonstratives. In the previous section, we saw that neither Bombi's nor Arkoh and Matthewson's analyses account for this property of *nó*. The anaphoric and immediate situation uses can be captured by a familiarity presupposition, but we need an additional property to capture its incompatibility with larger situation uses.

We can derive the incompatibility with larger situation uses by including a non-uniqueness presupposition into the meaning of *nó*, as proposed for demonstratives by Robinson (2005) and Dayal and Jiang (2020). Doing this will not only explain this property of *nó* but also its use as a demonstrative, and thus the relationship between *nó* and *saa...nó*. Robinson (2005) proposes that demonstratives encode a non-uniqueness presupposition, explained in (65), that accounts for the inability to co-occur with nouns such as *sun*.

(65) *Non-uniqueness*:

> The demonstrative may not be used when its referent is known to be the only entity which fits its descriptive content in the domain of reference. (Robinson, 2005, p. 50).

According to (65), the demonstrative is infelicitous in (66) because the referent of *sun* is known to be the only entity which fits its descriptive content in the domain of reference. Simply, the demonstrative is infelicitous in (66) because there is only one sun in our world. The definite determiner in English, on the other hand, no has such presuppositions and is thus compatible

with such nouns.

(66) The/#That sun is beautiful.

The non-uniqueness presupposition is formularized as the underlined part in the lexical entry for demonstratives proposed by Dayal and Jiang (2020) in (67).

(67) $[\![\text{Dem}_y]\!]^g = \lambda s \lambda P : \underline{\exists s' s \leq s' | P(s')| > 1}.\ \iota x[P(x)(s) \wedge x = g(y)]$[11]

(Dayal and Jiang, 2020, p. 14).

the demonstrative denotes a unique individual that is identical to the value of y assigned by the assignment function in the situation under discussion and presupposes that the cardinality of P in an extended situation (s') is greater than 1.

The cardinality of the noun set is not checked in the situation the sentence is interpreted relative to, but in some extended situation. The non-uniqueness presupposition is modeled on Kadmon and Landman's (1993) notion of domain widening. By checking the cardinality of the noun set in the extended situation, we do not rule out anaphoric/deictic uses of the demonstrative such as (68). In (68), the context has only one woman. Suppose we required the non-uniqueness presupposition to be satisfied in the current context, (68) will be infelicitous because there is only one woman in the context. But because the checking occurs in the extended situation, which opens up the possibility of having other women in it, (68) is felicitous.

(68) A woman and a man came into the room. **That woman** sat down.

The incompatibility of the demonstrative with *sun* is now derived. Unlike a noun such as *woman*, the lexical semantics of *sun* guarantees uniqueness in the world, the widest situation possible. Thus, no matter how big we make our situation, the cardinality of *sun* is 1.

(69) #**That sun** is hot.

[11] The lexical entry proposed in Dayal and Jiang (2020) is modified here to include the referential index on the demonstrative

But imagine you are Luke Skywalker and your home planet Tatooine has two suns.[12] In this context (70) is acceptable because it is possible to extend the situation to one such that the cardinality of *sun* is more than one.

Now that we know how to encode the non-uniqueness presupposition, we can combine it with the semantics of *nó* proposed by Arkoh and Matthewson, 2013 in (54). The new denotation of *nó* is given in (70); it combines the familiarity presupposition and a non-uniqueness presupposition.

(70) **Initial Proposal**

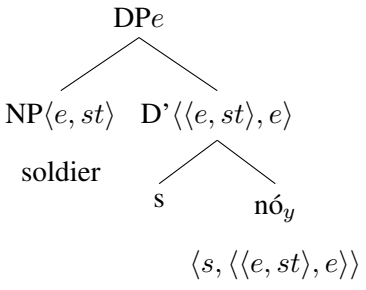
$[\![\text{nó}_y]\!]^g = \lambda s \lambda P : \underline{\exists! x[P(x)(s) \wedge x = g(y)] \wedge \exists s' s \leq s' | \{x \mid P(x)(s')\}| > 1}. \iota x[P(x)(s) \wedge x = g(y)]$

Presuppose that x is familiar and that the cardinality of P in an extended situation (s') is greater than 1.

Given (70), we can see how it works for the anaphoric and immediate situation uses, and rules out larger situation uses. For illustration, the derivation of the the definite description *sogyani nó* in the anaphoric example (71) is presented in (72).

(71) a. Ama hu-u ɔkyerekyereni bi ne sogyani bi. ɔ-kyea-a
Ama see-PST teacher INDEF CONJ soldier INDEF 3SG.SUBJ-greet-PST
sogyani **nó**.
teacher DEF
'Ama saw a teacher and soldier. He greeted the soldier. '

b.



[12] Skywalker is a fictional character from the original Stars Wars movie, A New Hope.

(72) a. $[\![\text{D'}]\!] = \lambda P : \underline{\exists! x[P(x)(s) \wedge x = g(y)] \wedge \exists s' s \leq s' | \{x \mid P(x)(s)\}| > 1.}\ \iota x[P(x)(s) \wedge x = g(y)]$

b. $[\![\text{NP}]\!] = \lambda x.\lambda s.\text{soldier}(x)(s)$

c. $[\![\text{(71-b)}]\!]^g = [\lambda P : \underline{\exists! x[P(x)(s) \wedge x = g(y)] \wedge \exists s' s \leq s' | \{x \mid P(x)(s)\}| > 1.}\ \iota x[P(x)(s) \wedge x = g(y)]\ ]\ ([\![\text{soldier}]\!])$

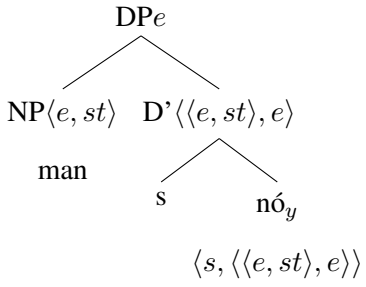
$\underline{\exists! x[\text{soldier}(x)(s) \wedge x = g(y)] \wedge \exists s' s \leq s' | \{x \mid \text{soldier}(x)(s)\}| > 1.}\iota x(\text{soldier}(x)(s) \wedge x = g(y)) \approx$ the unique individual x such that x is a soldier in situation s and x is identical to the value of y assigned by the assignment and the cardinality of P is in an extended situation is greater than 1.

The immediate situation use in (73) differs from (72) only in how the antecedent discourse referent is introduced. Again, as long as we ensure that the assignment function picks out the discourse referent introduced by the indefinite *a man* as the value of the index, the definite description is felicitous.

(73) a. Context: A man and a woman are arguing in the street. Ama and Kwame are sitting in front of their house where they can see but not hear them. Kofi walks in and sees them staring. He says oh...

Papa **nó** de maame **nó** ka.
man DEF owe woman DEF debt
'The man owes the woman money.'

b.



(74) a. $[\![\text{D'}]\!]^g = \lambda P : \underline{\exists! x[P(x)(s) \wedge x = g(y)] \wedge \exists s' s \leq s' | \{x \mid P(x)(s)\}| > 1.}\ \iota x[P(x)(s) \wedge x = g(y)]$

b. $[\![\text{NP}]\!] = \lambda x.\lambda s.\text{man}(x)(s)$

c. $[\![\text{(73-b)}]\!]^g = [\lambda P : \underline{\exists! x[P(x)(s) \wedge x = g(y)] \wedge \exists s' s \leq s' | \{x \mid P(x)(s)\}| > 1.}\ \iota x[P(x)(s) \wedge x = g(y)]([\![\text{man}]\!])$

$\underline{\exists! x(\text{man}(x)(s) \wedge x = g(y)) \wedge \exists s' s \leq s' | \{x | \text{man}(x)(s)\}| > 1.}\ \iota x(\text{man}(x)(s) \wedge x = g(y)) \approx$ the unique individual x such that x is a man in situation s and x is identical to the value of y assigned by g and the cardinality of P is in the extended situation is greater than 1.

Under this analysis, we can account for the difference between (75-a) and (75-b). The anaphoric presupposition is satisfied in both cases, the nouns are introduced in the preceding discourse, but *nó* is blocked in (75-a) but not in (75-b). The noun in (75-a) is a functional relational noun, which is inherently unique. As such, it does not satisfy the non-uniqueness presupposition requirement of *nó*. The noun in (75-b), sibling, although a relational noun is not inherently unique. People can have more than one sibling. Thus even without knowing the number of siblings Kwame has, it is still possible to imagine a situation where he has more than one sibling.

(75) Kwame maame ne ne nua ba-a ha...
Kwame mother CONJ 3SG.POSS sibling come-PST here
'Kwame's mother and his sister/brother came here.'

a. Na ne maame (*__nó__) yɛ tumtum.
PRT 3SG.POSS mother DEF COP. dark.skin
'Kwame's mother came here. His mother was dark-skinned.'

b. Na ne nua **nó** yɛ tumtum.
PRT 3SG.POSS sibling DEF COP. dark.skin
'Kwame's mother came here. His sibling dark-skinned.'

Following the logic in (75-a), we can account for the incompatibility of *nó* with *president* in example (76). World knowledge shows that there is just one *president (of Ghana)*, therefore, the non-uniqueness presupposition of *nó* is not satisfied.

(76) Context: A newscaster in Ghana is talking about the Ghanaian president

ɔmanpanin (*__nó__) be-bleme obi.
president DEF FUT. blame someone

'The president will blame someone.'

Coming back to globally unique nouns such as *sun* in Akan, recall that there are contexts where *nó* is felicitous and contexts where it is not. Let us begin with the contexts where it is not licensed. In (77), world knowledge tells us there is only one sun in our solar system. *Nó* is infelicitous in this context is because the non-uniqueness presupposition is not satisfied.

(77) The beginning of a documentary on the solar system ...

Awia (*__nó__) yɛ nsoroma.
sun DEF COP star

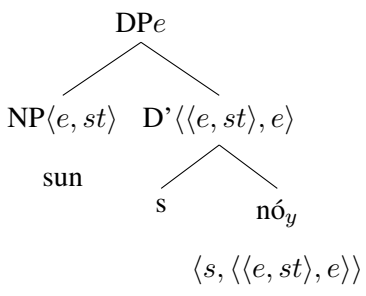
'The sun is a star.

Concerning (78) where *nó* is optional, I have already shown that the referent of *sun* is ambiguous. It can refer to the sun of the solar system or the sun in the book. The preferred reading of (78) with *nó* is the one that treats the referent of *sun* as the sun in the book. Therefore, in this context, it is theoretically possible to imagine that there are more suns in the book or that there are more books with a sun. The non-uniqueness presupposition is satisfied in this context, and *nó* is felicitous as expected.

(78) A parent is showing a child a book on the solar system. They open a page with a picture of the sun...

Awia (__nó__) yɛ nsoroma.
sun DEF COP star

'The sun is a star.



(79) a. $[\![\text{D'}]\!]^g = \lambda P : \underline{\exists!x[P(x)(s) \wedge x = g(y)] \wedge \exists s' s \leq s' | \{x \mid P(x)(s')\}| > 1.}\ \iota x[P(x)(s) \wedge x = g(y)]$

b. $[\![\text{sun}]\!] = \lambda x \lambda s.\ \text{sun}(x)(s)$

c. $[\![(78)]\!]^g = [\lambda P : \underline{\exists!x[P(x)(s) \wedge x = g(y)] \wedge \exists s' s \leq s' | \{x \mid P(x)(s)\}| > 1.}\ \iota x[P(x)(s) \wedge x = g(y)\ ]\ ([\![sun]\!])$

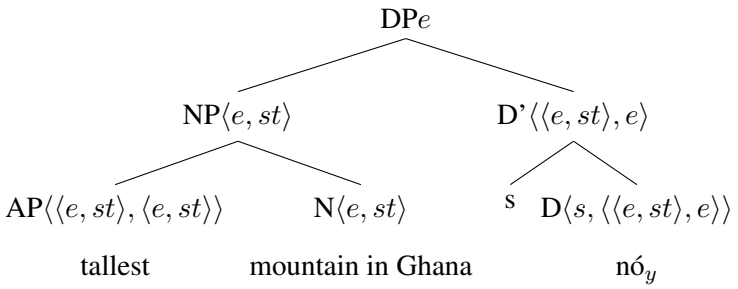
$\underline{\exists!x[\text{sun}(x)(s) \wedge x = g(y)] \wedge \exists s' s \leq s' | \{x \mid \text{sun}(x)(s)\}| > 1.}\ \iota x[\text{sun}(x)(s) \wedge x = g(y)] \approx$ the unique individual x such that x is a sun in situation s and x is identical to the value of y assigned by g and the cardinality of P is in the extended situation is greater than 1.

Finally, let us look at *nó* with superlatives. Superlatives, as shown in (80) do not license *nó*. I assume the denotation for *tallest* given in Schwarz (2009), which builds on Stanley (2002) and interprets *-est* in-situ. The problem with superlatives as with *sun* and *president* above is that it does not satisfy the non-uniqueness presupposition. There may be many tall mountains in Ghana, but there is only one mountain that has the label, *tallest mountain in Ghana*.

(80) Context: Tour guide giving general information about tourist sites in Ghana

Bepɔ (**#nó**) a ɛ-wa paa wɔ Ghana ne Afadjato.
mountain DEF REL 3SG-tall very be.located Ghana COP Afadjato
'The tallest mountain in Ghana is Afadjato.'

(81)



(82) a. $[\![\text{N}]\!]^g = \lambda x \lambda s : x$ is a mountain in Ghana (s)

b. $[\![\text{AP}]\!] = \lambda P \lambda x \lambda s' : x$ is the tallest$\{z \mid P(z)(s')\}$

c. $[\![\text{NP}]\!]^g = \lambda x \lambda s' : x$ is the tallest$\{z \mid \text{mountain in Ghana}(z)(s')\}$

d. $[\![\text{DP}]\!]^g = \lambda P \lambda s \lambda y : \underline{\exists! x[P(x)(s) \wedge x = g(y)] \wedge \exists s' s \leq s' | \{x \mid P(x)(s)\}| > 1}. \iota x[P(x)(s) \wedge x = g(y)]$

e. $[\![\text{DP}]\!]^g =$ Undefined

The analysis proposed in this section accounts for all the contexts that license *nó*. And in addition, provides an explanation for the contexts where it is not licensed. By incorporating non-uniqueness, a property of demonstratives, into the denotation of *nó*, we are also able to explain its use as a demonstrative as discussed in §2.2.5 and repeated below in example (83).

(83) (**Saa**) abofra **nó** nim adeɛ paa.
DEM child DEM know thing INT.
'That child is very intelligent.'

The analysis of Akan *nó* in the this section adapted the meaning of the German 'strong' definite and modified it with the non-uniqueness presupposition proposed by Robinson (2005) and Dayal and Jiang (2020) for demonstratives. Most importantly, the *nó*-DP is assumed to be referential, type e, i.e., it denotes the unique/maximal individual with the NP property.

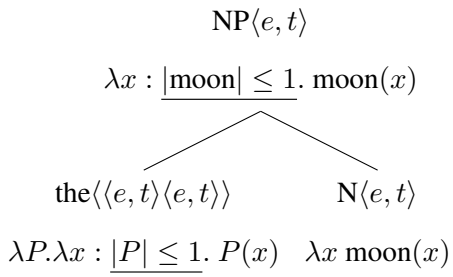
2.5.2 Nó as a modifier

Having captured the restriction against the co-occurence of globally unique nouns with *nó*, let us turn now to the uniqueness requirement encoded by IOTA. Though referential analyses of definite determiners dominate the literature, there are a few analyses such as Etxeberria and Giannakidou (2010, 2019) and Coppock and Beaver (2015) who argue that some definite determiners are non-referential, i.e., they do not encode IOTA.

Taking definite descriptions to be fundamentally predicative, Coppock and Beaver (2015) propose they are type $\langle e, t \rangle$, as shown in (84). They argue that *the* presupposes uniqueness, but not existence; referential closure is introduced by a covert type-shifting mechanism (Partee and Rooth, 1983; Chierchia, 1998).

(84) a. $[\![\text{the}]\!] = \lambda P. \lambda x : \underline{|P| \leq 1}. P(x)$ (adapted from Coppock and Beaver (2015))

b. $[\![\text{the moon }]\!] = \lambda x : \underline{|\text{moon}| \leq 1}. \text{moon}(x)$



They argue that uniqueness rather than existence is relevant for licensing the definite determiner. Consider examples (85-a) and (85-b) in the context below. Given world knowledge, the expectation is that if iguanas have a heart, there will be only one heart; the uniqueness presupposition is satisfied in (84-a). Existence, however is not, since we don't know if the heart exists. (85-b) is infelicitous because iguanas presumably have multiple bones, uniqueness is, therefore, not satisfied.

(85) Context: dissecting an iguana in science class

a. I don't know if iguanas have hearts, but is that the heart?

b. #I don't know if iguanas have bones, but is that the bone? (Coppock and Beaver, 2015, p. 393)

Further evidence supporting the view that the definite determiner does not presuppose existence involves NPs that give rise to what Coppock and Beaver (2015) call the 'anti-uniqueness effects.' The sentence in example (86) has two possible readings illustrated in (86-a) and (86-b). The second reading is what is of interest here. Even though it is referred to as an anti-uniqueness reading, it implies that there is no entity with the referent 'only goal'. As in the iguana context discussed above, existence is not presupposed but it does not fail to license the definite determiner.

(86) Mary did not score the only goal. (Coppock and Beaver, 2015, p. 407)

a. There is one goal and Mary did not score it.

b. *Anti-uniqueness reading*: There was more than one goal (one of which Mary scored)

(87) Sue and Jane both scored goals, so Jane didn't score [the only goal]$_i$. # It$_i$ wasn't a bicycle-kick, either.

The definite description in example (87) has a similar anti-uniqueness reading. The inability of the pronoun to refer back to the definite description confirms that the definite description fails to set up a referent.

Considering data from Greek and Basque, Etxeberria and Giannakidou (2019) also propose that we separate referentiality from the core meaning of the definite determiner. Etxeberria and Giannakidou's (2010; 2019) analysis is motivated by the co-occurrence of definite determiners with quantifiers in Greek and Basque (88) and multiple definite determiners in Greek (89).

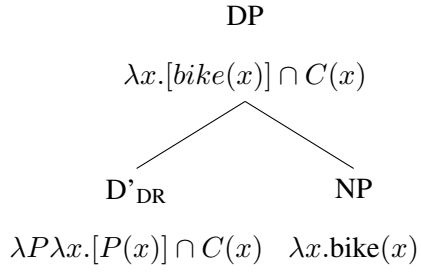
(88) a. o kathe fititis
DEF.SG every student
each student — Greek (Giannakidou, 2004, 32b)

b. mutil guzti-ak // mutil bakoitz-a
boy all-DEF.PL // boy each-DEF.SG — Basque (Etxeberria, 2005, p. 37)

(89) to kalo to paidi
DEF good DEF child — Greek (Etxeberria and Giannakidou, 2019, p. 424)

They propose that the definite determiners in both contexts are modifiers, introducing domain restriction via the context set variable C as illustrated in (90).

(90)



The two analyses discussed above differ on what they consider to be the core properties

of definite descriptions; Coppock and Beaver (2015) consider uniqueness as the core property, while Etxeberria and Giannakidou (2010, 2019) consider familiarity as the core property.

Coming back to Akan, I propose that *nó* is also a non-saturating definite, a modifier comparable to the Basque and Greek definite determiners and Coppock and Beaver's analysis of English *the*. I argue that an analysis of *nó* as non-saturating is key to understanding its function in the demonstrative construction *saa...nó* in (91). My proposal is that referentiality, which is encoded by IOTA, is not introduced by *nó* but by *saa* in these cases. The modifier analysis also enables us to provide a somewhat parallel analysis for the NP use of *nó* and the clausal use in (92). The differences and similarities between the two determiners will be further discussed in chapter 4.

(91) (**Saa**) abofra **nó** nim adeɛ paa.
DEM child DEF know thing INT.
'That child is very intelligent.'

(92) Kofi a-nya a-kɔ hu Dr. Abrefa **nó**.
Kofi PERF-get. CONS-go see Dr. Abrefa DEF
Kofi has gone to see Dr. Abrefa.'

My analysis is closely related to Etxeberria and Giannakidou's (2010; 2019) in assuming that core property of the determiner is anaphoricity. The new lexical entry is minimally different from the one proposed in the previous section. The main difference being that (93) does not include IOTA.

(93) **Final Proposal**

$[\![\text{nó}_y]\!]^g = \lambda P \lambda x \lambda s : \underline{x = g(y)} \wedge \underline{\underline{\exists s' s \leq s' | \{x \mid P(x)(s')\}| > 1.}}\ P(x)(s)$

Presupposes that x is familiar and that the cardinality of P in an extended situation (s') is greater than 1.[13]

Observe that even in the absence of *iota*, uniqueness and existence are implicitly present in (93). Familiarity is predicated on the availability of a discourse referent, and uniqueness can

[13]For clarity, the familiarity presupposition is underlined once, and the non-uniqueness presupposition is underlined twice here, but they are combined in subsequent places.

be derived from the referential index and general concept of reference resolution. If there is more than one suitable antecedent, then the definite description will be ambiguous and therefore infelicitous. The familiarity presupposition thus relativizes uniqueness to the intended antecedent, as in Schwarz's (2009) analysis. If we take a look at the equivalent of the iguana contexts from Coppock and Beaver (2015) in Akan, the definite description is infelicitous in both contexts, although the two sentences appear to be infelicitous for different reasons. The definite is infelicitous in (94-a) because *heart* is one of the inherently unique nouns that are not compatible with the anti-uniqueness presupposition of the Akan definite determiner; frogs can only possibly have one heart. (94-b) is infelicitous because there are multiple bones, and violates the familiarity requirement.

(94) Context: dissecting an iguana in science class

a. Me-n-tumi hu sɛ mponkyereni wɔ akuma aa, nanso wei ne
1SG-NEG-be.able.to see COMP frog have heart PART but DEM COP
no akuma (**#nó**)?
3SG.POSSS heart DEF?
'I don't know if frogs have hearts, but is that the heart?'

b. Me-n-tumi hu sɛ mponkyereni wɔ dompe aa, nanso wei ne
1SG-NEG-be.able.to see COMP frog have bone PART but DEM COP
no dompe (**#nó**)?
3SG.POSSS bone DEF?
'I don't know if frogs have bones, but is that the bones?'

Also supporting the familiarity analysis is the fact that *nó*-definite descriptions do not have anti-uniqueness effects. The structure of these NP differs in Akan because it involves relative clauses, but the meanings are related. Unlike in English however, the definite description *goo baako pɛ* in (95-a) does not have an anti-uniqueness reading, where there are multiple goals scored, and the description of *goo baako pɛ* has an empty extension. The only available interpretation is that there is a unique goal that was scored, i.e., a referent for the NP *goo baako pɛ*. This referent is available for anaphora, as exemplified by the continuation in (95-b).

(95) a. ɛ-n-yɛ Kofi na ɔ-hyɛ-ɛ [goo baako pɛ **nó** aa
3SG-NEG-COP Kofi FOC. 3SG-score-PST goal one only DEF REL.

ɛ-ba-e nó]$_i$.
3SG-come-PST CD
'Kofi did not score the only goal.'

b. Na ɛ$_i$-yɛ bicycle-kick.

PART 3SG-COP bicycle-kick

'It was a bicycle-kick'

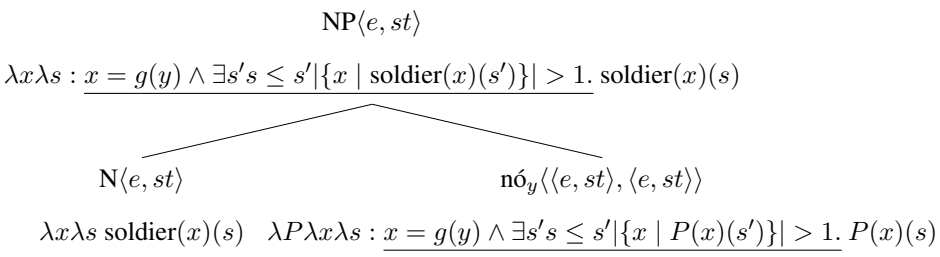
Consequently, in this system, the main role of IOTA is to fix the type mismatch between the definite description and the verb when the definite description occurs in an argument position.

The presuppositions of the determiner remain unchanged, so we can proceed to account for the data. I illustrate in example (96) below how the new lexical entry derives the anaphoric use.

(96) a. Ama hu-u ɔkyerekyereni bi ne sogyani bi. ɔ-kyea-a
Ama see-PST teacher INDEF CONJ soldier INDEF 3SG.SUBJ-greet-PST
sogyani **nó**.
soldier DEF
'Ama saw a teacher and soldier. He greeted the soldier.'

b. $[\![\text{soldier nó}_y]\!]^g = \lambda x \lambda s : \underline{x = g(y) \wedge \exists s' s \leq s' | \{x \mid \text{soldier}(x)(s')\}| > 1}. \text{soldier}(x)(s)$

$\approx$ the property of being a soldier, defined if only x is familiar and there is more than one soldier in an extended situation



At this point, the correct interpretation of (96-b) relies on the assignment function picking out the individual introduced by the indefinite as the value of the index. Similar assumptions are needed for the felicity of *nó* in the immediate situation use in (97).

(97) Context: A man and a woman are arguing in the street. Ama and Kwame are sitting in front of their house where they can see but not hear them. Kofi walks in and sees them

staring. He says oh...

Papa **nó** de maame **nó** ka.
man DEF owe woman DEF debt

'The man owes the woman money.'

The modifier analysis proposed in this section makes the same prediction, as the earlier proposal, concerning larger situation uses with nouns such as *president (of Ghana)*. These nouns do not satisfy the non-uniqueness presupposition of *nó*, and are thus predicted to be infelicitous in (98).

(98) Context: A newscaster in Ghana is talking about the Ghanaian president

ɔmanpanin (***nó**) bɛ bleme obi.
president DEF FUT. blame someone

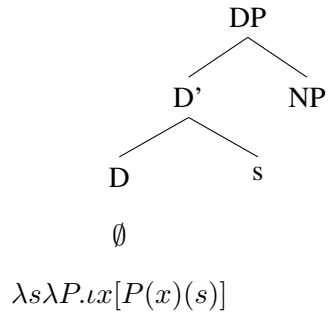
'The president will blame someone.'

Putting back IOTA

Since we have been treating NPs as predicates of type $\langle e, st\rangle$, and *nó* as a modifier, NP-*nó* is also of type $\langle e, st\rangle$. This type becomes a problem when NP-*nó* occurs in argument positions. NPs in argument positions need to be either individuals (type e) or generalized quantifiers (type $\langle\langle e, st\rangle\langle st\rangle\rangle$) in order to combine with VPs, which are typically type $\langle e, st\rangle$. For our purpose, we want the resulting NP to be type of e. There are two ways to resolve this type mismatch: by type-shifting or through a covert determiner in the syntax. For Akan, I assume the latter; I propose that there is a covert determiner in the syntax that introduces IOTA

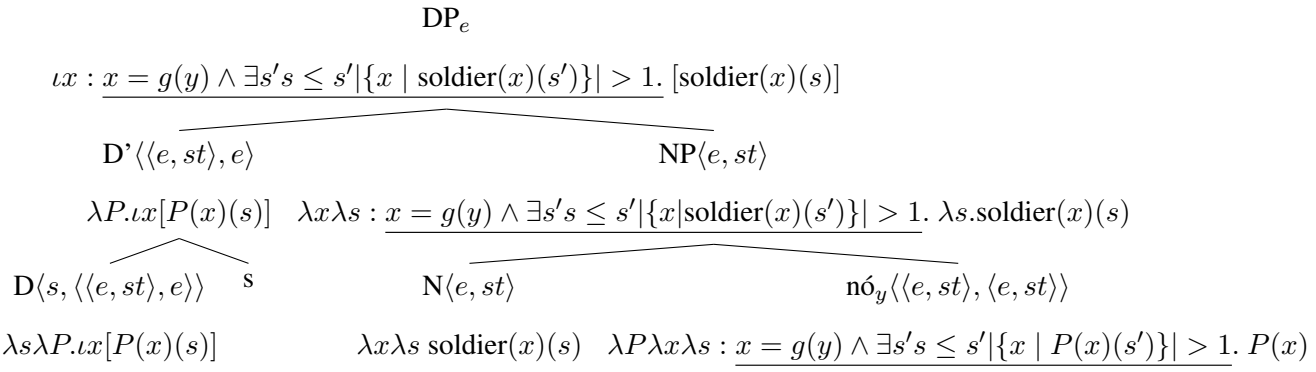
The idea of an empty D is partly motivated by the claim by Szabolcsi (1987), Stowell (1991), and Longobardi (1994) that only DPs can function as arguments. I argue in the next section that the null D is in complementary distribution with the adnominal demonstrative *saa*. The null D has the denotation in (99).

(99)



The syntactically represented situation pronoun introduced the situation with reference to which the NP denotation is interpreted. In this case, it is the situation the main predicate of the utterance is interpreted relative to, the default situation. Combining *nó*-NP with the null D results in the referential DP in (100).

(100) $[\![\text{soldier nó}_y]\!]^g = \iota x : \underline{x = g(y) \wedge \exists s' s \leq s' | \{x \mid \text{soldier}(x)(s')\}| > 1.}\ [\text{soldier}(x)(s)]$



Once IOTA is added back to the derivation, both the saturating analysis and modifier analysis make the same predictions. However, as we will see in the next section, the modifier analysis is essential in accounting for its co-occurence with the demonstrative *saa*.

2.5.3 The demonstrative Saa...nó

Recall that in §2.2.5, I showed that the bipartite *saa...nó* is a distal demonstrative, contrasting with the proximal demonstrative *saa...yí*. The relevant examples are repeated in (101).

(101) a. (**Saa**) abofra **yi** nim adeɛ paa.
DEM child DEM know thing INT.
'This child is very intelligent.' (Amfo, 2010, p. 185)

b. (**Saa**) abofra **nó** nim adeɛ paa.
DEM child DEM know thing INT.
'That child is very intelligent.'

I showed that (*saa*)...*yi/nó* have both properties Löbner (1985) associates with demonstratives: the ability to combine with a predicate and its negation (102), and the inability to combine with inherently unique nouns (103) (Löbner, 1985)

(102) **Saa** abofra **nó** nim adeɛ paa ɛna **saa** abofra **nó** abɔn.
DEM child DEM know thing INT. CONJ DEM child DEM not.smart
'That child is very intelligent and that child is not smart.'

(103) a. #**Saa** ewia **nó** re-bɔ.
DEM sun DEM PROG.-shine
'That sun is shining.'

b. #(**Saa**) Bepɔ (**nó**) a ɛ-wa paa wɔ Ghana ne Afadjato.
DEM mountain DEM REL 3SG-tall very be.located Ghana COP Afadjato
'That tallest mountain in Ghana is Afadjato.'

Demonstratives and definite descriptions have been shown in the literature to be closely related. For instance, Roberts (2002), Wolter (2003), Wolter (2006), and Robinson (2005) assume that definite and demonstratives have the same central presuppositions, but differ in the domain in which uniqueness is computed. The definite description *the book* denotes the unique book in the utterance situation, while demonstrative descriptive *that book* denotes the unique book in the immediately salient situation. Similar sentiments are shared by Elbourne (2009) who argues that a DP headed by a demonstrative is an individual same as DPs headed by a definite.

Empirically, demonstratives and definites share certain uses. Demonstratives like definites can be used to refer to something in the physical context of utterance, its deictic use, which is similar Hawkins' (1978) immediate situation use of definite determiners. This use is exemplified in English (104) and Akan (105).

(104) In a room with one car

a. The car is a Toyota.

b. That/This is a Toyota.

(105) a. Car **nó** yɛ Toyota .
car DEF COP Toyota
'The car is a Toyota.'

b. **Saa** car **nó** yɛ Toyota .
DEM car DEF COP Toyota
'That car is a Toyota.'

For the deictic use, the descriptive content of the definite description must be satisfied by a unique referent in the context. The demonstrative, however, is sensitive to other factors such as salience and demonstration by the speaker, which may be a pointing gesture or a glance towards the referent.

Like definites, demonstratives also have anaphoric uses, where the referent is introduced by a linguistic antecedent as in (106) and (107).

(106) A man$_i$ walked in. That/this man$_i$ waved at another man. (Wolter, 2006)

(107) Abrantie bí ba-a dan nó mu. **Saa** abrantie **nó** yɛ-ɛ abrantie
man INDEF come-PST room DEF in DEM man DEM do-PST man
foforo bi bye-bye
new INDEF bye
'A man$_i$ walked in. That man$_i$ waved at another man. '

Previous approaches to demonstratives have appealed to different mechanisms to derive the demonstrative meaning. Kaplan (1977) analyzes demonstratives as *directly referential*, where its referent is determined by context and speaker's expression. His approach mainly accounts for deictic uses of demonstrative where it picks out a referent in the physical context and is accompanied by a pointing gesture or some other speaker expression. Roberts (2003) and King (2001) both propose that demonstrative determiners have an extra argument saturated by a possibly abstract speaker demonstration and speaker intention respectively.

Wolter (2006), on the other hand, argues that the main difference between definites and

demonstratives relates to the context of interpretation of the NP. Definites are interpreted relative to the default situation, which can be deemed as the topic situation, while demonstratives are interpreted to a non-default situation(contextually salient situation).

Concerning the analysis of *saa..nó*, I adopt Wolter's (2006) analysis, as it is the most compatible with the analysis of the null D proposed in the previous section. The adnominal *saa* encodes IOTA and a restriction concerning the domain where unique reference is achieved, in this case a non-default situation (s_r). The lexical entry for *saa* is provided in (108).

(108) $[\![\text{saa}]\!] = \lambda s_r \lambda P.\iota x[P(x)(s_r)]$

By adopting the denotation above, I suppose that *saa* by itself does not encode any of the usual properties associated with demonstratives, especially the non-uniqueness presupposition. Evidence that *saa* does not contribute the demonstrative properties in the bipartite structure is the fact that *saa* by itself cannot combine with a DP for demonstrative reading. For instance, example (109) is infelicitous without *nó*.

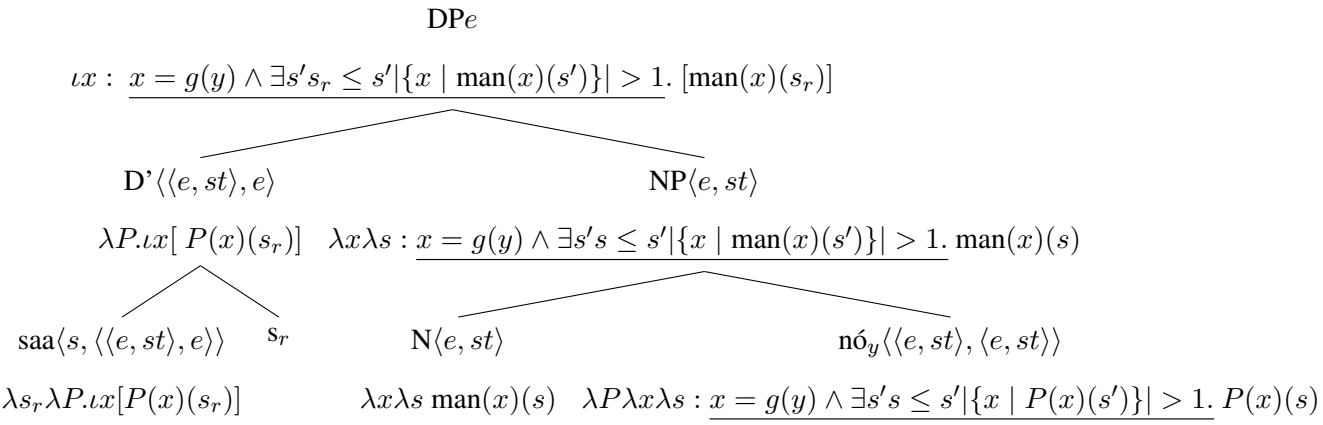
(109) *__Saa__ abofra nim adeɛ paa.
DEM child know thing INT.
Intended meaning: 'That child is smart.'

Now, we can also account for why *nó* has a non-uniqueness presupposition though it is generally assumed to be a definite determiner, and thus, the incompatibility with inherently unique nouns. In the bipartite demonstrative, different demonstrative properties are distributed between the two morphemes. *Nó* introduces the non-uniqueness presupposition and *saa*, the domain restriction. When we combine the two interpretations, we correctly predict the distribution of the demonstrative.

For the anaphoric demonstrative use in (110), the interpretation proceeds as it would for *nó* by itself. The assignment function picks out the discourse referent introduced by the indefinite, *a man*, as the value of the index, and therefore, the demonstrative description is felicitous. The composition and the final denotation is given in (110-b).

(110) a. Abrantie bí ba-a dan nó mu. **Saa** abrantie **nó** yɛ-ɛ abrantie
man INDEF come-PST room DEF in DEM man DEM do-PST man
foforo bi bye-bye
new INDEF bye
'A man$_i$ walked in. That man$_i$ waved at another man. '

b. $[\![\text{Saa abranteɛ nó}]\!]^g = \iota x : \underline{x = g(y) \wedge \exists s' s_r \leq s' | \{x \mid \text{man}(x)(s')\}| > 1.}\ [\text{man}(x)(s_r)]$



For the deictic use in (111), for instance, the contextually salient situation can be determined by the pointing gesture. The grammaticality of (111) results from the fact that contextually salient situations differ for each DP and uniqueness only needs to be satisfied in the respective situations. In the case of the definite description in (112-b), both DPs are interpreted relative to the same topic situation and uniqueness has to be satisfied in this situation.

(111) Pointing to a car

Saa car **nó** yɛ Toyota .
DEM car DEF COP Toyota

'That car is a Toyota.'

(112) a. Me-pɛ **saa** car **nó** n-yɛ **saa** car **nó**.
1PL-want DEF car DEM NEG-COP DEM car DEF
'I like that car [pointing at Toyota] but not that car [pointing at Renault].'

b. #Me-pɛ car **nó** n-yɛ car **nó**.
1PL-want car DEM NEG-COP car DEF
'I like that car [pointing at Toyota] but not that car [pointing at Renault].'

Finally, inherently unique nouns in (113) are predicted to be infelicitous because they do

not satisfy the non-uniqueness presupposition of *nó*.

(113) a. **#Saa** ewia **nó** re-bɔ.
DEM sun DEM PROG.-shine
'That sun is shining.'

b. #(**Saa**) Bepɔ (**nó**) a ɛ-wa paa wɔ Ghana ne Afadjato.
DEM mountain DEM REL 3SG-tall very be.located Ghana COP Afadjato
'That tallest mountain in Ghana is Afadjato.'

Before moving on to the next section, I compare the analysis of *saa...nó* discussed in this section to an analysis presented in Bombi (2018). Bombi (2018) propose that *saa...nó* has the denotation of the 'strong' definite repeated in (114). Recall that Bombi's (2018) denotation for *nó* alone is the 'weak' definite. The presupposition of familiarity is met by a linguistic antecedent or in deictic use, a deictic antecedent.

(114) $[\![\text{D}_{\text{y strong}}]\!]^g = \lambda s\ \lambda P : \underline{\exists! x[P(x)(s) \wedge x = g(y).}\ \iota x[P(x)(s) \wedge x = g(y)]$

Though the analysis presented is not compositional, it is not difficult to see how it can be made compositional. Since the main difference between *nó* and *saa...nó* is the referential index, one can assume that that is the semantic construction of *saa*. The main issue with (114) is that it has nothing to say about the infelicity of the demonstrative in (113), an important characteristic of demonstratives. Encoding non-uniqueness as part of the meaning of a demonstrative is independent of the *nó* possessing the same property. Non-uniqueness, has been noted to be the property that hold cross-linguistically for demonstratives (Löbner, 1985; Robinson, 2005; Wolter, 2006; Dayal and Jiang, 2020).

2.5.4 Definite bare nouns

Throughout this chapter, it has been established that some bare nouns in Akan have definite readings. These nouns belong to the class of nouns classified as inherently unique nouns, which include globally unique nouns such as *sun* and *moon*, functional relational nouns such as *mother* and *father*, and superlatives. Not all nouns in Akan have the ability to function as bare definites, however. They can also be interpreted as indefinite, as illustrated by the first

sentences in examples (115-a) and (115-b). It is also worth noting that bare nouns cannot have anaphoric readings, as illustrated by the second sentences in examples (115-a) and (115-b).

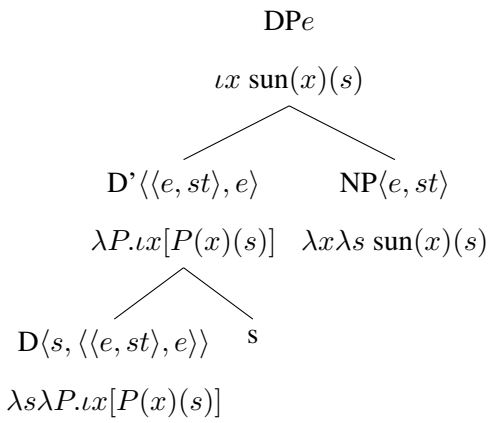
(115) a. Kofi tɔ-ɔ **aponkye**. **Aponkye** #(**nó**) boɔ yɛ den.
Kofi buy-PST goat goat DEF price COP expensive
'Kofi bought a goat. The goat is expensive.'

b. Kofi kyɛ-ɛ Ama **dua**. **Dua** #(**nó**) ho n-ni mfasoɔ.
Kofi give-PST Ama stick stick DEF body NEG-COP useful
'Kofi gave Ama a stick. The stick is useless.'

In this section, I account for why only inherently unique nouns in Akan are able to function as bare definites. I leave the indefinite readings of bare nouns for future research.

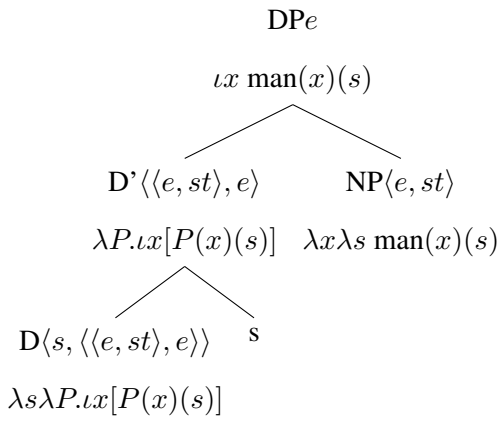
From the discussion in §2.5.2, we know that two things are required for definite interpretation in Akan, the definite determiner *nó* and the null D that introduces IOTA. Since the null D is proposed as a typical D head, which has no special relation with *nó*, it should be possible to combine it with other NPs. However, IOTA shift can only be applied when uniqueness holds in the context. For inherently unique nouns, this requirement is always satisfied independently of context. As such, we correctly predict that the null D can combine with these nouns for definite readings. This is illustrated with *sun* in example (116). We can extend this to all the nouns that fall under this group, including superlatives.

(116) $[\![\text{the sun}]\!] = \iota x.\ \text{sun}(x)(s)$
the unique sun in the situation



As mentioned before, the null D, in principal, can combine with any NP. The derivation in (117) does not crash, as long as there is a unique man in the context. Nevertheless, as we have seen, the bare nouns in (115) cannot function as definites.

(117) $[\![\text{the man}]\!] = \iota x\ \text{man}(x)(s)$



I propose that the interpretation of non-inherently unique as definites is constrained by the pragmatic principle, *Maximize Presupposition* (MP) (Heim, 1991).[14] MP states, roughly, that given two contextually equivalent lexical items, speakers must use the alternative whose presuppositions are stronger and happen to be met in the context of use. Consider the pair of sentences in (118) and (119).

(118) a. **#A** sun is shining.
b. **The** sun is shinning. (Singh, 2011, p. 150)

(119) a. **#All** of Mary's eyes are red.
b. **Both** of Mary's eyes are red. (Singh, 2011, p. 150)

Since it is common knowledge that there is exactly one sun, it is odd to say 'a sun is shining,'. In the same way, since humans have two eyes, *both* blocks the use of *all* resulting in the oddity of (118) and (119) respectively. As far as the semantics is concerned, both the (a) and (b) sentences

[14] For more discussion of MP, see Sauerland (2003a,b), Percus (2006), Chemla (2008), Singh (2011), and Schlenker (2012).

contribute the same information. But the (b) sentences carry stronger presuppositions, which are met in the context of use. MP requires that the (b) sentences be used.

Coming back to Akan, there are two alternatives for definiteness for all nouns: *IOTA NP nó* and *IOTA NP*. Both alternatives have associated presuppositions that need to be satisfied in the context of use. Inherently unique nouns are unavailable in the *IOTA NP nó* definite template because their meaning clashes with the non-uniqueness presupposition of *nó*. With regular nouns such as *man* in (120), every situation that satisfies the presupposition of IOTA is also a situation that satisfies the presupposition of *nó*. Regular nouns are unique in a context by being previously mentioned in the discourse, or being physically present in the discourse.

(120) a. Kofi ne **ɔbarima**$_y$ bí ba-a ha. **ɔbarima nó** tena-a ase.
Kofi CONJ man INDEF come-PST here man DEF sit-PST down
'Kofi and a man came here. The man sat down.

Presupposition: there is a unique man identical to y in the situation and there are other men in the wider context.

b. #Kofi ne **ɔbarima** bí ba-a ha. **ɔbarima** tena-a ase.
Kofi CONJ man INDEF come-PST here man DEF sit-PST down
'Kofi and a man came here. The man sat down.

Presupposition: there is a unique man in the situation.

The definite description with *nó* in example (120-a), carries additional presuppositions —that x is familiar and non-unique in a wider situation, and both presuppositions are met in the context. The definite expression with *nó* with thus always rules out bare definites with regular nouns.

2.6 Summary of chapter

In this chapter, I have defended a weak familiarity analysis of the Akan definite determiner *nó*. I surveyed the various types of uses of the definite determiner proposed by Hawkins (1978) with respect to *nó*, and concluded that *nó* is used in a subset of the contexts that license English *the*. The Akan definite determiner has anaphoric uses, immediate situation uses, and relational bridging uses or associative anaphora uses. *Nó*, unlike *the*, does not have larger situation uses; it is incompatible with nouns such as *president*. It is also generally infelicitous with inherently

unique nouns such as superlatives, globally unique nouns such as *sun* and *moon*, functional nouns such as *president*, and relational nouns such as *mother, wife, and father*. It was also noted that *nó* forms part of the bipartite distal demonstrative construction *saa...nó*.

There are two key respects in which the analysis I have proposed departs from previous accounts of Akan *nó*. One, it builds into the meaning of *nó*, the anti-uniqueness presuppositions that has been associated with demonstratives (Robinson, 2005; Dayal and Jiang, 2020). And it disassociates the iota operation from the meaning of the Akan definite determiner *nó*.

I further argue that also *nó* is also a non-saturating definite, a modifier. By treating *nó* as a non-saturating, we are able to understand its function in the partite demonstrative *saa...nó*. *Nó* as the same meaning when it used as a definite or a demonstrative. The difference in definite vs demonstrative reading is introduced by the D that selects *nó*. In definite contexts, there is a null D with the denotation of IOTA and introduces a situation pronoun. The situation pronoun is set to the default situation. *Saa* is the D in demonstratives. Like the null D, its denotation is IOTA and introduces a situation pronoun, but this situation pronoun is fixed to a non-default situation. By keeping the meaning of *nó* constant in both definite and demonstrative uses and changing only the denotation of D, we predict the difference between definites and demonstratives pointed out by Löbner (1985). Finally, I propose that the interpretation of non-inherently unique nouns as definites is constrained by the pragmatic principle, *Maximize Presupposition* (MP) (Heim, 1991).

The table below summarizes the distribution of definiteness in Akan, and compares it to German and English.

(121) Akan and the typology of definite determiners

	Akan	German	English
Uniqueness definites	Bare nouns	Weak article	Def article
	*Def article	*Strong article	*Demonstrative
	*Demonstrative	*Demonstrative	
Anaphoric definite	*Bare nouns	*Weak article	Def article
	Def article	Strong article	Demonstrative
	Demonstrative	Demonstrative	

Chapter 3

Indefiniteness marking in Akan: the indefinite determiner

3.1 Chapter overview

To provide a complete picture of Akan's determiner system, this chapter explores indefiniteness marking in Akan using the indefinite determiner. It is generally assumed that Akan has two indefiniteness encoding strategies: the use of the indefinite determiner *bí* and bare nouns. The two strategies are not interchangeable in most contexts. The determiner is typically translated into English as the complex indefinite *a certain*, while the bare noun is translated as *a*. The indefinite determiner is preferred at the beginning of stories to introduce new discourse referents that will be the topic of discussion in the rest of the story, as (1) illustrates.

(1) Context: At the beginning of a story.

a. Papa **bí** live akyire hɔ.
man INDEF lives back there
'A (certain) man stays at the back of the house.'

b. #Papa te akyire hɔ.
man stay back there
'A man stays at the back of the house.'

Another contrast between the two determiners noted in the literature is that the use of the determiner signals that the speaker has a particular referent in mind. For instance, the speaker in for (2-a) is assumed to have a particular shoe (Nike BETRUE) that they intend to buy in mind, but (2-b) is compatible with a context in which the speaker is looking for shoes, and any shoe will do. In the context of negation such as (3), the difference in readings is further highlighted. With the determiner in (3-a), the speaker is only averse to a particular type of fish, while they eat other types. In (3-b), by contrast, the speaker does not eat any kind of fish.

(2) a. Me-re-kɔ-tɔ mpaboa **bí**.
1SG-PROG-go-buy shoes INDEF
'I am going to buy a (certain) pair of shoes.'

b. Me-re-kɔ-tɔ mpaboa.
1SG-PROG-go-buy shoes
'I am going to buy a pair of shoes. (Amfo, 2010, p. 1787)

(3) a. Me-n-ni fish **bí**.
1SG-NEG-eat fish INDEF
'I don't eat a certain (kind of) fish.'

b. Me-n-ni fish.
1SG-NEG-eat fish
'I don't eat fish.'

The two indefinite strategies are usually distinguished along the specific and non-specific divide in the literature.[1] The indefinite determiner is considered specific and bare nouns, non-specific (Boadi, 2005; Amfo, 2010; Arkoh, 2011). Once we begin to look closely at what constitutes specificity, however, it becomes clear that *bí* shows mixed properties. I will focus on the overt indefinite determiner in this chapter, and compare it to the bare noun where relevant.

The rest of the chapter is structured as follows: in §3.2, I discuss the properties that distinguish specific indefinites from non-specific indefinites and use these properties to determine whether *bí* is a specific indefinite. I conclude that *bí* has mixed properties. The determiner allows exceptional wide-scope readings outside scope islands, has transparent readings in the scope of intensional verbs, and is used referentially like specific indefinites but also allows non wide-scope readings in islands and opaque readings in the scope of intensional verbs, like non-specific indefinites. The analysis is presented in §3.3. I propose that *bí* is an unambiguous choice function with an implicit skolem world/situation variable, an analysis similar to that of Mirrazi (2019). The proposal expands upon Arkoh's (2011) choice function analysis so that it can account for the non-wide scope readings of indefinites in scope islands and also the opaque readings in intensional contexts. §3.4 discusses the co-occurrence of the definite and indefinite determiner in Akan. The determiners co-occur in two orders: *NP bí nó*, which is interpreted as definite, and *NP nó bí*, which is interpreted as partitive. The section also sheds light on the

[1] Terminology introduced by Baker (1966)

ignorance inference of the indefinite determiner *bí*.

3.2 Properties of specific/non-specific indefinites

In English, sentences such as (4) are ambiguous: John may have a particular book in mind, or he may be talking about books in general. These readings are typically characterized as specific and non-specific readings of the indefinite.

(4) John is looking for an interesting book.[2]

a. ...whichever he finds, he will read *non-specific*

b. ..., namely War and Peace *specific*

This kind of specificity is referred to as *epistemic* specificity by Karttunen (1968), Farkas (1994), and Heusinger (2011a).[3] Another characteristic difference between specific and non-specific indefinites, according to Karttunen (1968), is their ability to introduce discourse referents that are available for anaphoric reference. Fodor and Sag (1982) focused on the ability of specific indefinites to have wide scope in intensional contexts: *scopal specificity*. Enç (1991) adds that only specific indefinites have partitive readings. Some properties of specific indefinites summarized by Heusinger (2002) are given in (5).

(5) (Heusinger, 2002, p. 167)

a. Certainty of the speaker about the identity of the referent

b. The referent is fixed/determined/not depending on the interpretation of the matrix predicate.

c. Specific indefinite NPs are 'scopeless' or 'referential terms', i.e., they behave as if they always have the widest scope.

d. Specific indefinite NPs are referential terms, i.e., they are existentially presupposed.

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[2]This is modeled after Heusinger, 2002, p. 169

[3] Note that *epistemic* specificity is different from epistemic indefinites. Epistemic indefinites convey the speaker's ignorance regarding the witness of an existential claim,(Alonso-Ovalle and Menéndez-Benito, 2003).

e. Specific indefinite NPs can be paraphrased by *a certain*.

In English, the difference between specific and non-specific indefinites is obscured by morphology; the same morpheme *a* encodes both interpretations. The difference is, however, morphologically marked in languages such as St'át'imcets (Matthewson, 1999), Russian (Dahl, 1970; Yanovich, 2005) and in Akan, as demonstrated in the above section and generally characterized in the literature (Boadi, 2005; Amfo, 2010; Arkoh, 2011).

In the sections that follow, I explore the characteristics of the specific indefinite in Akan, focusing on four properties:

(6) a. Having a particular referent in mind (epistemic specificity)
b. The specific indefinite's ability to take wide scope (scopal specificity)
c. Having a fixed referent (referential specificity)
d. The specific indefinite's ability to introduce discourse referents (discourse prominence)

I show that despite the analysis of *bí* as specific indefinite, as far as the above properties are concerned, *bí* has properties of both specific and non-specific indefinites. Does this mean that *bí* is like *a*, ambiguous as to whether it is specific or non-specific? This dissertation follows Arkoh (2011) in arguing that *bí* is always specific and derives the non-specific meaning from other factors.

3.2.1 Epistemic specificity

As mentioned in the previous section, a widely acknowledged property of specific indefinites is that they signal that the speaker has a particular referent in mind (Karttunen, 1968; Fodor and Sag, 1982; Farkas, 1994). Epistemic indefinites differ from definites, however; the referent of the specific indefinite is not identifiable by an addressee, *hearer non-identifiability* (Sæbø, 2013). The addressee's knowledge state is not taken into consideration in the identification of a referent for a specific indefinite.

The English indefinite, *a*, is ambiguous between specific and non-specific interpretations,

as shown earlier in example (4). In a similar way, example (7) is ambiguous. It is interpreted as specific, that is, the speaker has a referent in mind and can name the referent in (7-a). In (7-b), by contrast, it is interpreted as non-specific: the speaker does not have a particular referent in mind.

(7) (Fodor and Sag, 1982, p. 355).

a. A student in syntax 1 cheated on the final exam. I know him: It is Jim Miller.

b. A student in syntax 1 cheated on the final exam. But I do not know who it is.

The examples in (8) below show that *bí* in Akan also has both specific and non-specific uses. In (8-a), the determiner is interpreted as specific, while in (8-b), it is non-specific. Compare (8) to the bare noun example (9), which only has a non-specific reading.

(8) a. Sukuuni **bí** wɔ Kofi class a-wia adeɛ. Yɛ-frɛ no Kofi.
student INDEF be.located Kofi class PERF-steal thing 3PL-call 3SG.OBJ Kofi
'A (certain) student in Kofi's class stole something. He is Kofi."

b. Sukuuni **bí** wɔ Kofi class a-wia adeɛ. Nanso me-n-nim nipa koro.
student INDEF be.located Kofi class PERF-steal thing but 1SG-NEG-know person one
'A (certain) student in Kofi's class stole something. But I do not who it is.'

(9) a. #Sukuuni wɔ Kofi class a-wia adeɛ. Yɛ-frɛ no Kofi.
student be.located Kofi class PERF-steal thing 3PL-call 3SG.OBJ Kofi
'A student in Kofi's class stole something. He is Kofi."

b. Sukuuni wɔ Kofi class a-wia adeɛ. Nanso me-n-nim nipa koro.
student be.located Kofi class PERF-steal thing but 1SG-NEG-know person one
'A student in Kofi's class stole something. But I do not who it is.'

The data in (8) and (9) suggest that *bí* and the bare noun do not perfectly correlate to the specific and non-specific readings of *a* in English. More importantly, for the purposes of this chapter's discussion, *bí* has non-specific interpretations that contrast with its status as a specific indefinite in the literature.

3.2.2 Scopal specificity

Moving on to the scope properties of indefinites, it is well established that indefinites have wide-scope readings, extending beyond scope islands (Fodor and Sag, 1982; Farkas, 2002a; Reinhart, 1997; Winter, 1997; Kratzer, 1998; Matthewson, 1999; Schwarz, 2001; Schwarz, 2013; Schwarzschild, 2002; Charlow, 2014, 2019, among others). Example (10) is ambiguous: the indefinite NP, *a student of mine*, can have scope both within and outside the *that*-clause.

(10) Each teacher overheard the rumor that *a student of mine* had been called before the dean.
(Fodor and Sag, 1982)

The sentence is true in two scenarios. In scenario one, each teacher overheard that some unidentified student of the speaker had been called before the dean. It could be the case that different teachers heard rumors about different students of the speaker. This is the reading in which the indefinite NP's scope is within the *that*-clause. The sentence would also be true in a scenario where each teacher heard the rumor that a student of the speaker, John, had been called before the dean. For this reading, the indefinite NP must have scope outside the *that*-clause, above the universal.

In Akan, bare-indefinites and *bí*-indefinites exhibit different scope properties in scope islands. *Bí* indefinite NPs have variable scope: the indefinite can be interpreted within the scope island or outside the scope island. For instance, example (11) is ambiguous. In one reading, paraphrased in (11-a), a particular elder is needed for the law to be passed. The reading in (11-b), in contrast, is compatible with a context in which it does not matter which elder comes; as long as an elder is present, the law will pass.

(11) Sɛ **ɔpanyin bí** ba a, yɛ-bɛ-hyɛ mmra nó.
if elder INDEF come COND 1PL-FUT-force law DEF
a. For a certain elder; if that elder comes, the law will be passed.
b. If any of the elders come, the law will be passed (Bombi et al., 2019, p. 192)

Example (12) with the bare noun only has a reading wherein the indefinite is interpreted

within the scope of the conditional sentence, that is (12-b).

(12) Sɛ **ɔpanyin** ba a, yɛ-bɛ-hyɛ mmra nó.
if elder come COND 1PL-FUT-force law DEF
a. #For a certain elder; if that elder comes, the law will be passed.
b. If any of the elders come, the law will be passed.

Once again, contrary to its supposed status as a specific indefinite, (11) shows that *bí* NPs pattern with English *a* and not specific indefinites, such as the Salish no-polarity indefinites (Matthewson, 1999) and English *a certain* (Kratzer, 1998).

3.2.3 Referential specificity

The specificity/non-specificity divide has also been defined in terms of Quine's (1960) notion of *referentially transparent/referentially opaque* contexts. In a referentially transparent context, an indefinite is intended to refer to a particular referent. In a referentially opaque context, however, the indefinite defines a class of objects. The contrast becomes evident with intensional predicates including *believe, want,* and *intend*. The indefinite NP, *an important politician*, is ambiguous in (13). In one reading, Paula has in mind a particular person who is the referent of an important politician, and she believes that Bill talked to this person. This is the transparent/specific reading. For this reading, we may infer that the referent of the indefinite exists, that is, it licenses the existential entailment (13-a). Since the speaker has a person in mind, we can also substitute the indefinite NP with a referentially equivalent expression (13-b). Suppose the important politician is Angela Merkel; then, (13) is equivalent to (14).

(13) Paula believes that Bill talked to an important politician.
a. *existential entailment*: there exists an important politician.
b. *substitution*: the important politician = Angela Merkel

(14) Paula believes that Bill talked to Angela Merkel.

Example (13) has a second reading where *an important politician* is interpreted as defining a

class. Paula's belief is that Bill talked to someone who has the property of being an important politician. The existence of this person is restricted to Paula's belief worlds, not the actual world. As there is no entailment that such a person exists in the actual world, substitution fails. In the absence of an existence claim, (13) repeated in (15-a) allows the continuation in (15-b).

(15) a. Paula believes that Bill talked to an important politician

b. ...but there is no important politician.

Consistent with the properties of Akan *bí* discussed in the preceding sections, the determiner patterns with English *a*. Example (16) is ambiguous between a transparent reading (16-a) and an opaque reading (16-b). The transparent reading is licensed in a context wherein Kwame is the person Ama wants to marry is equivalent to (16-aiii).

(16) Ama pɛ sɛ **ɔkyerɛkyerɛni bí** ware nó.
Ama want COMP teacher INDEF marry 3SG.OBJ
'Ama wants a teacher to marry her.' (Bombi et al., 2019, p. 192)

a. *Transparent*: Ama dislikes most teachers, but she knows one teacher, Kwame, whom she likes very much, and she wants him to marry her.[4]

(i) *existential entailment*: there exists a teacher who Ama wants to marry her.

(ii) *substitution*: the teacher = Kwame

(iii) Ama wants Kwame to marry her.

b. *Opaque*: Ama does not know any teacher, but she believes that she would be happy as the wife of a teacher - no matter which teacher.

As we saw with the other properties that bare indefinite nouns pattern with non-specific indefinities, the same is true here. Only the opaque reading is available for (17) with the bare noun.

[4]Unlike the English sentence with *a*, (72) is not compatible with a context in which Ama does not know that Kwame is a teacher.

(17) Ama pɛ sɛ **ɔkyerɛkyerɛni** ware nó.
Ama want COMP teacher marry 3SG.OBJ
'Ama wants a teacher to marry her.'

a. #*Transparent*: Ama dislikes most teachers, but she knows one teacher, Kwame, whom she likes very much, and she wants him to marry her.

(i) *existential entailment*: there exists an teacher whom Ama wants to marry

(ii) *substitution*: the teacher = Kwame

(iii) Ama wants Kwame to marry her.

b. *Opaque*: Ama does not know any teacher, but she believes that she would be happy as the wife of a teacher - no matter which teacher.

3.2.4 Discourse prominence as specificity

Another characteristic that distinguishes specific and non-specific indefinites is their discourse prominence. A discourse-prominent indefinite introduces a referent that will be further mentioned in the discourse and may potentially be a topic of subsequent discourse (Heusinger, 2011b). Specific indefinites have discourse prominence and as such are typically found at the beginning of stories and in other introductory contexts. The indefinite determiner *bí* is felicitous, while the bare noun is infelicitous in (18) at the beginning of a story.

(18) Da #(**bi**), ɔ-bea #(**bi**) ne ne ba ɔsoɔdenfo #(**bi**) tena-a ase.
day INDEF woman INDEF CONJ 3SG.POSS child stubborn INDEF stay-PST under
'Once upon a time, there was a certain woman and her stubborn child'

(Lit: A certain day, a certain woman and her stubborn child lived.) (Amfo, 2010, p. 1786)

Bare nouns in Akan, similar to bare nouns in Hungarian (Farkas and Swart, 2003), Hindi (Dayal, 2011), and Persian (Modarresi, 2014), have less discourse prominence and are thus less likely to support anaphora in most contexts compared to the indefinite determiner. In (19) and (20), the presence of the indefinite or the bare noun affects acceptability. The bare noun is marginally accepted, while the indefinite is preferred. The data are consistent with Law and Syrett's (2017) finding that anaphora involving bare nouns incurs additional processing effort

and thus differs in status from anaphora involving regular indefinites.

(19) Kofi hu-u [agyinamoa tumtum #(**bi**)]$_i$. Na ɔ$_i$-re-su.
Kofi see-PST cat black INDEF. PRT 3SG-PROG-call
'Kofi saw a black cat. It was crying.'

(20) [Abofra #(**bi**)]$_i$ gyina abɔten hɔ. ɔ$_i$-re-su.
child INDEF stand outside there 3SG-PROG-cry
'A certain child is standing outside. S/he is crying.'

With respect to some languages, it has been claimed that bare nouns and regular indefinites have the same anaphoric potential (Chung and Ladusaw, 2004). Akan, however, is not among these languages.

3.2.5 Other scope domains

Although it has been demonstrated in the preceding sections that *bí* indefinites are ambiguous in the scope of intensional predicates and conditionals, bi patterns with typical specific indefinites in the scope of other scope-bearing operators such as negation and quantifiers.

Beginning with negation, *bí* indefinite NPs receive wide-scope interpretations in both subject (21) and object (22) positions. [5]

(21) Onipa **bí** a-n-to dwom.
person INDEF PERF-NEG-sing song
'A certain person didn't sing (There was a person who didn't sing.)' Indefinite ≫ Neg

(22) Me-n-ni fish **bí**.
1SG-NEG-eat fish INDEF
a. #I don't eat any fish. # Neg ≫ indefinite
b. There is a particular fish that I don't eat. Indefinite ≫ Neg

As a result, in the context of negation, its behavior is consistent with that of specific indefinites.

When *bí* indefinite NPs interact with the universal quantifier, *biara* in Akan, *bí* indefinites

[5] Example (21) is a variation of example (28) in Chung and Ladusaw (2004).

are unambiguous in subject position (23) but ambiguous in object position (24). In subject position, the indefinite takes scope above the universal quantifier. On the other hand, the indefinite can be interpreted above or below the universal quantifier in object position.

(23) Sojani **bi** gyina pono **biara** ano.
soldier INDEF stand door every mouth
'A (certain) soldier is standing in front of every door. '

a. There is a particular soldier who is standing in front of every door. Indefinite ≫ every

b. #For a every door, there is a different soldier standing in front of it. Every ≫ indefinite

(24) ɔbaa **biara** kane-e nhoma **bí**.
woman every read-PST book INDEF
'Every woman read a book. '

a. For every woman there is a *possibly* different book that they read. Every ≫ indefinite

b. There is a particular book that all the woman read. Indefinite ≫ every

Bí indefinites pattern with the specific indefinite *certain* in (25) and (26) in their interaction with the universal quantifier (Kratzer, 1998).

(25) A certain soldier is standing in front of every door.

a. There is a particular soldier who is standing in front of every door. Indefinite ≫ every

b. #For a every door, there is a different soldier standing in front of it. Every ≫ indefinite

(26) Every woman read a certain book.

a. For every woman there is a *possibly* different book that they read. Every ≫ indefinite

b. There is a particular book that all the woman read. Indefinite ≫ every

The indefinite *a*, on the other hand, is ambiguous in both subject and object position as (27) and (28) shows. In both positions, *a* interacts with the universal quantifier.

(27) A soldier is standing in front of every door.

a. There is a particular soldier who is standing in front of every door. Indefinite ≫ every

b. For a every door, there is a different soldier standing in front of it. Every ≫ indefinite

(28) Every woman read a book.

a. For every woman there is a *possibly* different book that they read. Every ≫ indefinite

b. There is a particular book that all the woman read. Indefinite ≫ every

Bare nouns in Akan, consistent with their properties discussed in the previous sections, take obligatory narrow scope with respect to negation in both subject (29) and object (30) positions.

(29) **Dan** n-ni ha.
house NEG-be.located there
'There is no house here.' ' Neg ≫ indefinite

(30) Me-n-ni **fish**.
1SG-NEG-eat fish
'I don't eat fish.'

a. I don't eat any fish. Neg ≫ indefinite

b. #There is a particular fish that I don't eat. # Indefinite ≫ Neg

Additionally, they take an obligatory narrow scope in relation to the universal quantifier *biara* in Akan, both in the subject (31) and object (32) positions.

(31) ɔbaa **biara** kane-e nhoma.
woman every read-PST book INDEF
'Every woman read a book. '

a. For every woman there is a *possibly* different book that they read. Every ≫ indefinite

b. #There is a particular book that all the woman read. Indefinite ≫ every

(32) Sojani gyina pono **biara** ano.
soldier stand door every mouth
'A soldier is standing in front of every door. '

a. #There is a particular soldier who is standing in front of every door. Indefinite ≫ every

b. For a every door, there is a different soldier standing in front of it. Every ≫ indefinite

3.2.6 Summary of properties of bí

To summarize, *bí*-indefinites have mixed properties that set them apart from prototypical specific indefinites, non-specific indefinites, and ambiguous indefinites. On the one hand, *bí*-indefinites allow for exceptional wide-scope readings outside of scope islands, transparent readings in the scope of intensional verbs, and are used in a referential sense. They, like the St'a át'imcets non-polarity indefinites (Matthewson, 1999), take an obligatory wide-scope with regard to negation and the universal quantifier in the subject position. On the other hand, like non-specific indefinites, they permit non-wide-scope readings in islands and have opaque readings in the scope of intensional verbs. Additionally, *bí*-indefinites differ from indefinites such as English *a*, which is said to be ambiguous between wide-scope and narrow-scope readings (Kratzer, 1998). Previous research, such as Arkoh (2011) and Bombi et al. (2019), emphasized the exceptional wide-scope reading but did not reconcile it with the narrow-scope reading. This chapter will present a theory that takes into account both properties.

3.3 The Analysis

Building on Arkoh (2011), I propose that Akan indefinite determiner *bí* is choice function expression. In the next section, I discuss in some detail several versions of the choice functional approach to these readings available in the literature before we show its applicability to the

Akan data we have discussed in §3.5.

3.3.1 Indefinites as choice functions

As we saw in §3.2.2, indefinites can take wide scope in environments that otherwise restrict the scope of other quantifiers. One of the questions that has dominated the literature is how we might account for this fact, that is, what makes indefinites special? Many analyses have been proposed to explain the scope behavior of wide-scope indefinites. The analyses we pursue here are referred to as *pseudo-scope* analyses. The core idea of these analyses is that specific indefinites do not take real scope, that is, the wide scope reading does not involve covert movement such as Quantifier Raising (QR) of an existential quantifier.

In one of the earliest versions of the pseudo-scope analysis, Fodor and Sag (1982) claimed that indefinites are ambiguous with respect to whether they should be interpreted as referential expressions or quantificational expressions, as (33) illustrates. Referential indefinites are similar to definites, in that they are individual constants and thus not scope-sensitive. Their scope-insensitivity gives the illusion of exceptional wide scope (33-a) even though the indefinite is not actually taking scope. Quantificational indefinites, like all quantifiers, obey scope restrictions, and are responsible for the narrow-scope reading (33-b).

(33) If a friend of mine from Texas dies in a fire, I will inherit a fortune.

a. *Wide-scope* For a particular friend of mine in Texas; if that friend dies, I will inherit a fortune.

b. *Narrow-scope:* If any of my friends from Texas dies, I will inherit a fortune.

Various objections have been raised to Fodor and Sag's (1982) analysis, particularly concerning their theory's inability to capture what is referred to as intermediate-scope reading (Farkas, 1981; Ruys, 1992; Abusch, 1994). The indefinite in example (34) has a reading can be described by (34-a). For this reading, the indefinite neither has the widest nor narrowest scope. It takes scope above the low quantifier phrase *every student* but above the highest quantifier *every professor*. The intermediate-scope reading is true in a context such as (34-b). A referential analysis does not predict the intermediate-scope reading.

(34) Every professor rewarded every student who read a book on the semantics-pragmatics interface. (Farkas, 1981)

a. *intermediate scope*: $\forall x[teacher(x) \rightarrow \exists z[\mathsf{book}(z) \wedge \forall y[\mathsf{student}(y) \rightarrow \mathsf{read}(y, z) \rightarrow \mathsf{rewarded}(x, y)]]] \approx$ For every teacher x, there is a potentially different book z such x rewarded every student y who read z.
every professor $\gg$ *a book* $\gg$ *every student*

b. *Scenario*: There are three teachers: Mark, Ken, and Dorothy, who each have two students; Mark $\rightarrow$ Mary and John, Ken $\rightarrow$ Hazel and Sreekar, and Dorothy $\rightarrow$ Ang and Lydia. There are four books a, b, c and d. Different professors choose different books which they will reward students for reading. Mark will reward students who read book a, Ken will reward students who read book d, and Dorothy will reward students who read book c. Mary and Hazel read a, Mary reads b, John and Ang read c, and Lydia and Sreekar read d. Mark rewards Mary but not John, Ken rewards Sreekar but not Hazel, and Dorothy rewards Ang but not Lydia.

The two other readings of (34) and the corresponding scenarios they describe are given in (35) and (36). The wide-scope reading (35-b) of the indefinite, where the indefinite takes scope above both quantifier phrases is captured by the scenario in (35-b). The reading captured by the scenario in (36-b) requires that the indefinite takes the narrowest scope with respect to both quantifier phrases (36-a). Both the narrow-scope and the wide-scope readings are derivable from Fodor and Sag's referential and quantificational indefinite analysis respectively.

(35) Wide-scope reading of them read b.

a. $\exists z[\mathsf{book}(z) \wedge \forall x[\mathsf{teacher}(x) \rightarrow \forall y[\mathsf{student}(y) \rightarrow read(y, z) \rightarrow \mathsf{rewarded}(x, y)]]]$
$\approx$ There is a book on semantics-pragmatics z such that every teacher x rewarded every student y who read z.
a book $\gg$ *every professor* $\gg$ *every student*. The exceptional wide-scope reading of the indefinite is what Fodor and Sag (1982) call the referential reading.

b. *Scenario*: the same teacher-student relationship as in scenario one, and the same

number of books. Hazel reads a, Lydia and Sreekar read b, and John and Ang read c. Here, only students who read book b are rewarded. So, Ken rewards Sreekar and Dorothy rewards Lydia. Mark does not reward any of his students because none of them read b.

(36) Narrow-scope reading

a. $\forall x[\mathsf{teacher}(x) \rightarrow \forall y[\mathsf{student}(y) \rightarrow \exists z[\mathsf{book}(z) \wedge \mathsf{read}(y, z)] \rightarrow \mathsf{rewarded}(x, y)]]$
$\approx$ Every teacher x rewarded every student y who read some book on the semantics-pragmatics interface z.
every professor $\gg$ *every student* $\gg$ *a book*. This reading can be attributed to the quantificational reading, where the indefinite cannot escape the scope island.

b. *Scenario*: the same teacher-student relationship as in scenario in (36-b), and the same number of books. Hazel reads a, Lydia and Sreekar read b, and John and Ang read c. Mark rewarded John, Ken rewarded Hazel and Sreekar, and Dorothy rewarded Ang and Lydia; Mary did not get a reward because she did not read any book.

Although Fodor and Sag's (1982) particular analysis does not capture all the potential readings in (36), their argument that indefinites do not take real wide scope has been widely adopted.

An approach that builds on the idea that indefinites do not take real scope is the choice function analyses. Choice function approaches borrow from the DRT tradition of Heim (1983) and Kamp (1981) the idea that indefinites introduce variables. These variables can be bound by a non-local operator. However, in these analyses, the variable introduced by the indefinite includes a function (a choice function) variable. Choice function analyses of indefinites include Reinhart (1997), Winter (1997), Kratzer (1998), and Matthewson (1999).

Reinhart (1997) defines a choice function as follows:

(37) A function f is a choice function $(CH(f))$ if it applies to any non-empty set and yields a member of that set.

Under the choice function analyses of indefinites, *a/some book*, for instance, is interpreted as *f(book)*. Reinhart (1997), Winter (1997), and Matthewson (1999) introduce existential closure ($\exists$-closure) over the choice function variable, as shown in example (38-a). Kratzer (1998), on the other hand, argues that the choice function variable remains free at LF in (38-b), and proposes that the value of the choice function is contextually determined, "often intended by the speaker, but not revealed to the audience" (Kratzer, 1998, p. 167).

(38) John read a/some book.

a. $\exists f[CH(f) \wedge \text{read(John, } f(\text{book}))]$

b. $\text{read[John, } f(\text{book})]$

Among the existential closure accounts, Reinhart (1997) and Winter (1997) allow unrestricted existential closure ($\exists$-closure); the choice function can be existentially closed at different levels of the composition. By contrast, Matthewson (1999) allows existential closure only at the topmost level.

The implication of Matthewson's (1999) highest existential closure analysis is relatively similar to Fodor and Sag's (1982) analysis. By allowing existential closure only at the highest level, the analysis does not predict the intermediate-scope readings. Additionally, the narrow-scope reading has to be derived via another mechanism; Matthewson (1999) proposes that narrow-scope readings are derived from an existential quantifier. She notes that although in languages such as English, indefinites permit intermediate-scope readings, this does not hold universally. For instance, Salish has indefinites that have only widest scope reading and do not generate the intermediate or narrow-scope reading.

Analyses such as Reinhart (1997) and Winter (1997) that allow $\exists$-closure at different levels of composition predict all the three readings in (39). The wide-scope reading is derived by existentially closing the choice function at the highest level (39-a), the intermediate-scope reading is derived by existentially closing the choice function under the highest quantifier (39-b), and the narrow-scope reading is derived by existentially closing the choice function at the lowest level (39-c). Accordingly, the analyses proposed by Reinhart (1997) and Winter (1997) derives the intermediate reading that was problematic for Fodor and Sag (1982), and do not require a

separate mechanism for deriving the narrow-scope reading.

(39) Every professor rewarded every student who read a book on the semantics-pragmatics interface. (Farkas, 1981)

a. *Wide-scope*: $\exists f[CH(f) \wedge \forall x[\textsf{teacher}(x) \rightarrow \forall y[\textsf{student}(y) \rightarrow \text{read}(y, f(\text{book})) \rightarrow \textsf{rewarded}(x, y)]]] \approx$ There is a way of choosing a member of the set of books such that every teacher x rewarded every student y who read that book.

b. *Intermediate-scope*: $\forall x[\text{teacher}(x) \rightarrow \exists f[CH(f) \wedge \forall y\ [\textsf{student}(y) \rightarrow \text{read}(y, f(\text{book})) \rightarrow \textsf{rewarded}(x, y)]]] \approx$ For every teacher x, there is a way of choosing a member of a potentially different set of books such that x rewarded every student y who read that book.

c. *Narrow-scope*: $\forall x[\textsf{teacher}(x) \rightarrow \forall y[\textsf{student}(y) \rightarrow\ \exists f[CH(f) \wedge \text{read}(y, f(\text{book}))] \rightarrow \textsf{rewarded}(x, y)]] \approx$ Every teacher x rewarded every student y who read any book on the semantics-pragmatics interface

Nevertheless, the free $\exists$-closure analyses by Reinhart (1997) and Winter (1997) have their own shortcomings. As was first pointed out by Schwarz (2001), free existential closure over-generates in downward entailing contexts, when the restrictor of the indefinite construction includes a bound pronoun. The free existential closure analysis predicts that (40) below has two readings. In one reading (40-a), the choice function is existentially closed below the negative quantifier. The second reading (40-b) requires existential closure of the choice function above negation.

(40) No candidate$_i$ submitted [a paper she$_i$ had written.]

a. $\neg\exists x[\textsf{candidate}(x) \wedge\ \exists f[CH(f) \wedge x$ submitted f(paper x had written)]] $\approx$ It is not the case that there is a candidate such that there is a way of choosing a member of the set of papers that she wrote and she submitted that paper.

b. $\exists f[CH(f) \wedge \neg\exists x[\textsf{candidate}(x) \wedge\ x$ submitted $f($ paper x had written)]] $\approx$ there is a way of choosing a member of the set of papers each candidate had written such that no candidate submitted that paper.

Let us focus on the reading in (40-b). The logical form expresses that each candidate has a paper that they wrote but did not submit. This is true in the scenario below; Alan did not submit A3, Bob did not submit B2, and Carl did not submit C2.

(41) Context: there are three candidates, Alan, Bob, and Carl. Each has published three papers. Each candidate submitted only two of their papers for their job application. In this context, it is true, according to LF (41-b), that each candidate did not submit one paper.[6]

Alan: {A1, A2, A3}
Bob: {B1, B2, B3 }
Carl: {C1, C2, C3}

However, the English sentence in (40) cannot be used to describe the situation in (41). The sentence only characterizes a context in which none of the candidates submitted any paper they wrote, the interpretation in (40-a).

We see that free and topmost ∃-closure analyses generate a reading that the English sentence does not permit. The second reading is only available with the complex indefinite *a certain*, as shown in (42).

(42) No candidate$_i$ submitted [a certain paper she$_i$ had written.]

a. #$\neg\exists x$[candidate$(x) \wedge \exists f[CH(f) \wedge x$ submitted $f($ paper x had written)]] $\approx$ It is not the case that there exists a candidate such that there is a way of choosing a member of the set of papers that she wrote and she did not submit that paper.

b. $\exists f[CH(f) \wedge \neg\exists x$[candidate$(x) \wedge x$ submitted $f($ paper x had written)]] $\approx$ there is a way of choosing a member of the set of paper that each candidate had written such that no candidate submitted that paper.

Therefore, although the free existential closure analysis derives the intermediate reading, it over-generates readings in downward entailing contexts when the restrictor of the indefinite

[6]The context provided here is a variation of Schwarz, 2011

includes a bound pronoun.

Skolemized/paramaterized choice functions

Kratzer (1998) proposes that indefinites are ambiguous with respect to whether they are quantificational expressions, which obeys all scope islands, or choice function expressions, which can be interpreted non-locally. The choice function, however, are not existentially bound; they remain free at LF. The variable's value is contextually determined, "often intended by the speaker, but not revealed to the audience" (Kratzer, 1998, p. 167). The analysis therefore effectively derives the narrow-scope reading via the quantifier and the wide-scope reading via the choice function. What about intermediate-scope readings? Kratzer (1998) points out that intermediate-scope readings can be facilitated by the presence of bound pronouns in the restrictor of the indefinite. We can easily obtain an intermediate-scope reading for (43-a) but not for (43-b); this is not predicted by free existential closure.

(43) a. [Every professor]$_i$ rewarded every student who read some book she$_i$ had reviewed for the New York Times.

b. Every professor rewarded every student who read some book I had reviewed for the New York Times. (Kratzer, 1998, p. 166)

These readings are not real immediate-scope readings since they are derived from the presence/absence of bound pronouns. Since the quantifier phrase, *every professor*, binds the pronoun in (43-a), a different choice of professor will yield different choices of books. Kratzer calls this reading a pseudo intermediate-scope reading. Since there is no pronominal binding in (43-b), the pseudo intermediate-scope is not available.

Kratzer's analysis draws on Hintikka's (1986) analysis of the complex determiner, *a certain*. According to that analysis, specific indefinites are represented with a choice function with implicit arguments, written as f_x. These arguments, known as *skolem indices*, are interpreted in the same way as pronouns. They can be bound by a quantifier in the clause or may remain free and receive a referential interpretation. With skolem indices, we are able to derive all three indefinite scope readings, as exemplified by (44). The wide-scope reading of the indefinite is

derived when the skolem index is interpreted referentially in (44-a). The functional reading in (44-b) is considered distinct from the 'true' narrow scope reading in (44-c). On the functional reading, a well-defined choice function selects a different book for every woman. For instance, in (44-b), our choice function can pick out for every woman a book by her favorite author. Thus, we can paraphrase (44-b) as *every woman read some book by her favorite author*. The 'true' narrow scope reading assigns arbitrary books to arbitrary women; Mary choose the book her advisor recommended, Ama chose her favorite novel, and Susan chose a book by her favorite African writer.

(44) Every woman read some book.

a. *Wide scope*: $\forall z[\mathsf{woman}(z) \rightarrow \mathsf{read}(z, f_x(\mathsf{book}))] \approx$ the speaker knows a way of choosing a member out of the set of books such that every woman read that book.

b. *Functional reading*: $\forall z[\mathsf{woman}(z) \rightarrow \mathsf{read}(z, f_z(\mathsf{book}))] \approx$ For every woman, there is a way of choosing a member of the set of books such that every woman read the book that was chosen for her.

c. *Narrow scope*: $\forall z[\mathsf{woman}(\mathsf{z}) \rightarrow \exists x[\mathsf{book}(x) \wedge \mathsf{read}(z, x)]] \approx$ For every woman, there is a book such that she read.

The skolemized function approach also has its own flaws. Particularly, as pointed out by Chierchia (2001) and Schwarz (2001), it has weak truth conditions in downward-entailing contexts. For instance, sentence (45-a) has an intermediate-scope reading that is true in the context described in (45-b). Smith makes the sentence true.

(45) a. Every student read every book some teacher had praised.

b. Context: Smith and Baker are teachers, and Mary and Sue are students. Smith praised books A, B, and C. Baker praised books 1, 2, and 3. Mary and Sue both read books A, B, and C. Only Sue read books 1,2, and 3.

Example (46-a), with the LF in (46-b), which can be read as the negation of (45-a) is, therefore, judged to be false in the same context.

(46) a. Not every student read every book some teacher had praised.

b. [not every student$_i$] $\exists f$ [every book$_j$ that some$_f$ teacher praised t$_j$] t$_i$ studied t$_j$

However, under the skolemized function approach, the interpretation for (46-a) given in (47) is true in the context under discussion. We can think of a choice function that maps students to teachers and selects Baker out of the set of teachers. Since Baker is such that Mary did not read every paper he praised, (47) is true in the context considered.

(47) $\neg\forall x[\text{student}(x) \rightarrow \forall y[\text{book}(y) \rightarrow \text{praised}(f_x(\text{teacher}), y) \rightarrow \text{read}(x, y)]] \approx$ It is not the case that for every student (x), f$_x(teacher)$ selects a teacher relative to that student such that x read every book y that the teacher praised.

The approach undergenerates the intermediate-scope reading that is relevant for interpreting (46-a).

3.3.2 A choice function analysis of *bí*

Now that we have gained some familiarity with several approaches to deriving the various scopal readings associated with indefinites, we are in position to return to the Akan facts and see how they can be handled.

Arkoh (2011) is the first analysis of the Akan indefinite *bí* that seeks to account for its scope feature, to my knowledge. Earlier approaches, such as Amfo (2010), concentrated more on the epistemic specificity property of *bí*. Arkoh (2011) concludes her work by stating that *bí* encodes specificity in the sense of Fodor and Sag (1982) and Kratzer (1998) and that Kratzer's (1998) choice function analysis best captures the distribution of *bí*. In contrast to English *a*, Arkoh (2011) argues that Akan *bí* is an unambiguous choice function analogous to the complex determiner *a certain*. Due to the fact that *bí* is not quantificational, the seeming narrow-scope reading of (48) is argued to be a functional reading of the indefinite, where an implicit variable in the *bí*-DP is bound by the higher quantifier "every woman".

(48) ɔbaa biara kane-e nhoma **bí**.
woman every read-PST book INDEF

'Every woman read a certain book. '

In the rest of this section, I spell out and formularizes Arkoh's (2011) claim. I start by explaining why Kratzer's (1998) unbounded choice function approach is best situated for Akan over Reinhart (1997) and Winter (1997) approach of free existential closure choice function and Matthewson's (1999) highest-level existential closure analysis.

When applied to Akan, Reinhart's (1997) and Winter's (1997) proposal that choice functions can be freely bound at various levels explains the three readings of (49).

(49) Sukuuni biara kane-e nhoma biara aa tikyani bi kamfo-e
student every read-PST book every REL. teacher INDEF praise-PST
'Every student read every book some teacher had praised.

a. *Wide scope*: There is a particular teacher such that every student read every book that they praised.

b. *Intermediate scope*:For every student, there is a particular teacher such that, they read every book the teacher recommended.

c. *Narrow scope*: For every student, it is the case that read every book that any teacher recommended.

It does not, however, account for the obligatory wide-scope reading of *bí* with respect to negation. For example, the free existential closure analysis cannot avoid generating the representation in (50) for (51), negation takes scope over the existential closure, a reading that the Akan sentence does not have.

(50) #$\neg\ \exists f[CH(f) \wedge$ eat (Kofi, f(fish)] $\approx$ It is not the case that there exist a type of fish that I eat.

(51) Kofi n-ni fish **bí**.
Kofi NEG-eat fish. INDEF
'Kofi doesn't eat a particular kind of fish.'

a. #Kofi don't eat any fish. Neg $\gg$ indefinite

b. There is a particular fish that Kofi don't eat. Indefinite $\gg$ Neg

Similarly, it fails to account for the subject/object asymmetry *bí*-DP displays in relation to the universal quantifier, which is mentioned in §3.2.5. While a *bí*-indefinite is ambiguous in object position, it can only be interpreted in surface order in subject position.

With regards to the highest-level existential closure analysis, Matthewson (1999) pointed out that its predictionscoincide with Kratzer's (1998) unbounded choice function analysis for St'át'imcets. However, in Akan, the two analyses make different predictions. The highest-level existential closure analysis predicts obligatory wide-scope readings of *bí*-indefinites. As we have already noted in §3.2, although *bí*-indefinites allow exceptional wide-scope readings outside scope islands, transparent readings in the scope of intensional verbs, they also allow non wide-scope readings in islands and have opaque readings in the scope of intensional verbs. The highest-level existential closure analysis cannot account for these facts without further adopting the view that *bí*-indefinites are ambiguous between a choice function and an existential quantifier, which is responsible for the narrow scope reading.

Kratzer's (1998) unbounded choice function analysis with skolem indices accurately predicts both readings in (52). The skolem index on the indefinite is free in the wide-scope reading (52-a) and is typically thought to be anchored to the speaker. As demonstrated in (52-b), the apparent narrow-scope reading of (52) is actually a functional reading of the indefinite. The context-dependent value for f is a function that maps each woman to a defined choice function for the set of books and selects the book that woman will read. The book varies according to each woman's choice.

(52) a. *Wide-scope reading*: $\forall x[\text{woman}(x) \rightarrow \text{read}(x, f_y(\text{book}))] \approx$ for every woman x f_y(book) selects a book known to the speaker such that x read that book

b. *Functional reading*: $\forall x[\text{woman}(x) \rightarrow \text{read}(x, f_x(\text{book}))] \approx$ for every woman x f_x(book) selects a book such that x read that book

Intermediate-scope readings of sentences such as (53-a) are also argued to be functional readings, rather than 'true' intermediate-scope readings, as shown in (53-b).

(53) a. Sukuuni biara kane-e nhoma biara aa tikyani bi kamfo-e
student every read-PST book every REL. teacher INDEF praise-PST

'Every student read every book some teacher had praised.

b. Intermediate scope:$\forall x[\mathsf{student}(x) \rightarrow \forall y[\mathsf{book}(y) \rightarrow \mathsf{praised}(f_z(\mathsf{teacher}), y) \rightarrow \mathsf{read}(x, y)]]]\approx$ For every student (x), f_z(teacher) selects a teacher such that x read every book y that f_z(teacher) praised.

Kratzer's (1998) also accounts for the subject/object asymmetry observed with *bí*-indefinites in relation to the universal quantifier. As Chierchia (2001) points out, skolem indices are pronouns and exhibit the same weak crossover effects as pronouns; a lower quantifier cannot move (covertly or overtly) above a pronoun with which it is co-indexed. As a canonical example of weak crossover, (54-a) lacks the reading in (54-b), because that requires the quantifier to cross over the pronoun it binds.

(54) a. His$_i$ mother loves everyone$_i$

b. everyone$_i$ [his$_i$ mother loves t$_i$] $\approx$ every x is such that x loves x's mother. (Chierchia, 2001, p. 71)

As a result, we predict that in object position (55), *bí*-indefinites are ambiguous with a wide-scope reading (55-a), where the skolem index may remain free. Alternatively, the upstairs quantifier could bind the skolem index for a functional reading (55-b).

(55) ɔbaa biara kane-e nhoma **bí**.
woman every read-PST book INDEF
'Every woman read a book. '

a. *Wide-scope reading*: $\forall z$ [$\mathsf{woman}(\mathsf{z}) \rightarrow \mathsf{read}(z, f_x(\text{book}))$] $\approx$ for every woman z f_x(book) selects a book known to the speaker such that z read that book

b. *Functional reading*: $\forall z$ [$\mathsf{woman}(\mathsf{z}) \rightarrow \mathsf{read}(z,\ f_z(\text{book}))$] $\approx$ for every woman z f_z(book) selects a book such that z read that book

When *bí*-indefinites occur in subject positions, the analysis predicts that the indefinite can only have wide-scope reading. A functional reading requires the lower quantifier to bind the skolem index, which results in weak crossover effects. As a result, (56) only has the implausible

reading that all the doors are guarded by the same guard, while the natural reading that each door has a different guard is missing.

(56) Sojani **bi** gyina pono **biara** ano.
soldier INDEF stand door every mouth
'A (certain) soldier is standing in front of every door. '

a. There is a particular soldier who is standing in front of every door. Indefinite $\gg$ every

b. #For a every door, there is a different soldier standing in front of it. Every $\gg$ indefinite

Downward-entailing contexts where the restrictor of the indefinite construction includes a bound pronoun, as in (57), provide additional evidence that *bi*-indefinites does not have true narrow-scope reading. (57) has two possible readings each compatible with the scenario in (58).

(57) Sukuuni biara$_i$ a-m-fa krataa **bí** àa ɔ$_i$-kyere-e a-n-kɔ.
student every PERF-NEG-take paper INDEF REL 3SG-write-PST PERF-NEG-go
'No student sent a (certain) paper they wrote.'

a. $\forall x$[student$(x) \rightarrow \neg$[submitted $(x,\ f_z($ paper x had written))]] $\approx$ For every student x, f_z(paper x has written) selects a paper known to the speaker such that x did not submit that paper.

b. $\forall x$[student$(x) \rightarrow \neg$[submitted $(x,\ f_x($ paper x had written))]] $\approx$ For every student x, f_x(paper x has written) selects a paper relative to x such that x did not submit that paper.

(58) Context: there are three students, Alan, Bob and Carl. They all have three published papers. For their job application, they all submitted only two of their papers. In this context, it is true that every student did not submit one one paper.[7]

[7]The context provided here is a variation of Schwarz, 2011

Alan: {A1, A2, A3}

Bob: {B1, B2, B3 }

Carl: {C1, C2, C3}

For (57-a), for instance, none of the students submitted the paper they collaborated on with their adviser. On the other hand, in (57-b), Alan did not submit the paper he collaborated on with their advisor, Bob did not submit his dissertation paper, and Carl did not submit his first paper. What is interesting is that (57) does not have the reading that none of the students submitted any of their papers. This interpretation requires*bí* to take scope below negation.

The proposed analysis, so far, accounts for the wide-scope and functional readings of *bí* indefinites. However, it offers no explanation for the real narrow scope readings in intensional contexts and in the antecedents of conditional sentences. As mentioned before, *bí* indefinites are ambiguous between wide-scope and narrow-scope readings in intensional contexts and in the antecedent of conditional sentences. We can derive the wide-scope readings of (59) in (59-a) and (60) in (60-a) by assuming that the skolem index of the choice function is unbounded and anchored to the speaker. Both narrow-scope readings in (59-b) and (60-b), however, cannot be considered functional readings. A functional reading requires the presence of a higher individual quantifier to bind the skolem index, but no quantifiers are present in either (59) or (60).

(59) Ama pɛ sɛ ɔkyerɛkyerɛni bí ware no.
Ama want COMP teacher INDEF marry 3SG.OBJ
'Ama wants a teacher to marry her.' (Bombi et al., 2019, p. 192)

a. *Transparent/ wide-scope*: Ama dislikes most teachers, but she knows one teacher, Kwame, whom she likes very much, and she wants him to marry her.

b. *Opaque/ narrow-scope*: Ama does not know any teacher, but she believes that she would be happy as the wife of a teacher—no matter which teacher.

(60) Sɛ ɔpanyin bí ba a, yɛ-bɛ-hyɛ mmra nó.
if elder INDEF come COND 1PL-FUT-force law DET
'If an elder gets here, we will pass the law.' (Bombi et al., 2019, p. 192).

a. *Wide-scope*: For a certain elder; if that elder comes, we will pass the law.

b. *Narrow-scope*: If any of the elders come, we will pass the law.

Bí indefinites are not exact equivalents of *a certain* indefinites, as in similar contexts, *a certain* indefinites only have wide-scope readings (61).

(61) Mary wants a certain teacher to marry her.

a. *Transparent/ wide-scope*: Mary dislikes most teachers, but she knows one teacher, John, whom she likes very much, and she wants him to marry her.

b. #*Opaque/ narrow-scope*: Mary does not know any teacher, but she believes that she would be happy as the wife of a teacher—no matter which teacher.

In the next section, I propose a modification to Arkoh's (2011) analysis that allows us to capture all the readings of *bí*.

3.3.3 Skolem choice functions with world variables

So far we have seen skolemized choice functions, where the skolem indices are individual arguments. Now, consider (62) in the context in (63). The relevant reading is given in (62-a) and paraphrased in (62-b). The indefinite is interpreted within the scope of the intensional predicate *think* but above negation. We cannot use the typical device for immediate-scope reading where the we assume that the individual skolem index of the choice function is bound by a quantifier. There is no individual quantifier binder in (62).

(62) Rodica does not think that Carl read some of the books.

a. Think $\gg$ some of the books $\gg \neg$

b. Rodica thinks there are some books that Carl did not read. (Mirrazi, 2019, p. 1)

(63) *Context*: Rodica knows that Carl must read the following books for his exam (A,B,C,D,E). Rodica also knows that it takes one hour for Carl to read a book. Rodica learns that Carl has began reading books three hours ago. Considering the speed at which Carl reads a book, Rodica knows that there are two books that he didn't have time to read but she does not know which of these books.

To account for these kinds of cases, Mirrazi (2019) proposed that world skolem indices in addition to individual skolem arguments. Skolem world indices, like skolem individual indices may be bound by a higher quantifier or remain free. Intensional predicates have quantifiers that range over worlds, and thus can bind the skolem world index of the choice function expression. The intended reading of (62) therefore, has the logical form in (64):

(64) $\forall w$" $\in$ Think (R,w) : $\neg$[read$_{w"}$(Carl, $f_{w"}(book)$)]

Extending this analysis resolves the problem with narrow-scope readings in intensional predicates and in the antecedents of conditionals in Akan. Starting with the intensional contexts, the transparent vs opaque readings correspond to the scopes given in (65-a) and (65-b), respectively. For the transparent reading, the world index remains free and is thus set to the actual world. We derive the narrow-scope reading when the quantifier binds the skolem world index of the indefinite.

(65) Ama pɛ sɛ ɔkyerɛkyerɛni **bí** ware nó.
Ama want COMP teacher INDEF marry 3SG.OBJ
'Ama wants a teacher to marry her.' Bombi et al., 2019, p. 192

a. Wide-scope/transparent: $\forall w'[w' \in Boul(\text{Ama}) \rightarrow [\text{marry}(f_w(\text{teacher}), \text{Ama}) \text{ in } w']] \approx$
For all worlds (w') compatible with Ama's desire worlds, Ama marries someone who is a teacher in the actual world (w).

b. Narrow-scope/opaque: $\forall w'[w' \in Boul(\text{Ama}) \rightarrow [\text{marry}(f_{w'}(\text{teacher}),\text{Ama}) \text{ in } w']] \approx$
For all worlds (w') compatible with Ama's desire worlds, Ama marries someone who is a teacher in w'.

The analysis easily extends to the scope of the indefinite in the antecedent of conditionals. The indefinite receives the expected wide-scope reading but also a narrow-scope reading. In Reinhart (1976) and Winter (1997), the narrow scope is derived from existentially closing the choice function at the lowest level. As demonstrated above, this analysis does not adequately describe the distribution of *bí*. Kratzer (1998), on the other hand, derives a narrow-scope reading with a quantification interpretation that obeys scope restrictions. Again, there is evidence

that *bí* does not have a quantificational interpretation. However, the analysis that indefinites have world variables that can be bound or remain free readily accounts for the two readings. For the apparent wide-scope reading, the skolem world index remains free and valued by the actual world. The world provided by the conditional binds the skolem world index for the narrow-scope reading.

(66) Sɛ ɔpanyin bí ba-a, yɛ-bɛ-hyɛ mmra nó.
if elder INDEF come COND 1PL-FUT-force law 3SG
'If an elder gets here, Ama will be happy.' Bombi et al., 2019, p. 192.

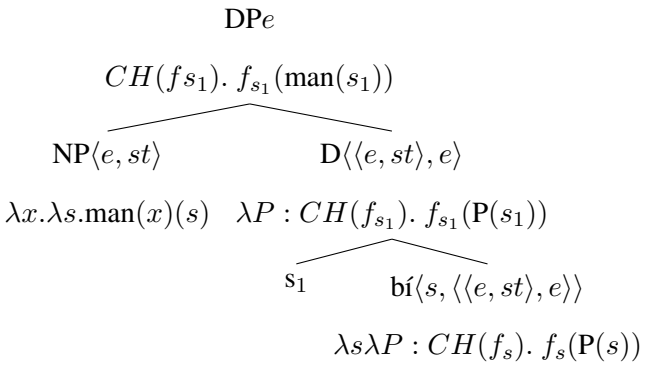
a. Wide scope: $\forall w'[w' \in \text{Acc}(\text{comes}(f_w(\text{elder})) \rightarrow \text{happy(Ama)}\ (w')]$ ≈For a certain elder; if that elder comes, we will pass the law.

b. Narrow scope:$\forall w'[w' \in \text{Acc}(\text{comes}(f_{w'}(\text{elder})) \rightarrow \text{happy(Ama)}\ (w')] \approx$ ' If any of the elders come, Ama will pass the law.'

By modifying *bí*-indefinites with skolem world indices, we are able to capture all of its wide-scope and narrow-scope reading while maintaining that *bí*-indefinites are obligatorily choice functional. Now, we can formulate the meaning of *bí*. I claim that the indefinite introduces a situation pronoun to the syntax, which introduces the situation with respect to which the NP denotation is interpreted. *Bí* is, therefore, type $\langle s, \langle\langle e, st\rangle, e\rangle\rangle$. The indefinite-DP *man bí* has the denotation in (68).

(67) $[\![\text{bí}]\!] = \lambda s \lambda P : CH(f_s).\ f_s(\text{P}(s))$

(68) $[\![\text{man } [s_1 \text{ bí}]]\!] = CH(f_{s_1}).\ f_{s_1}(\text{man}(s_1))$



Bí is always skolemized to the situation of its argument, and an individual argument, meaning that the choice function and the NP are always evaluated relative to the same index. The situation pronoun may be bound locally in a conditional for the seemingly narrow-scope reading of *bí* discussed earlier and bound by the matrix situation for the wide-scope reading.

3.4 Co-occurrence of the definite and indefinite determiners

Bí indefinites unlike, for instance, English *a* may co-occur with the definite determiner *nó* in two distinct orders. In one order, exemplified in (69), the indefinite determiner immediately follows the noun, and is then followed by the definite determiner. The second order in (70) has the indefinite determiner following the definite determiner.

(69) Papa **bí** **nó** bisa me me nɔma.
man INDEF DEF ask-PST 1SG 1SG.POSS number
After the party, that certain man asked me for my number. (Bombi et al., 2019, p. 187)

(70) Nkorofɔ **nó** **bí** ka-a sɛ ɔ-re-m-pene.
people DEF INDEF say-PST COMP 3PL-PROG-NEG-agree
'Some of the people said they will not agree.' (Amfo, 2010, p. 1796)

The order of determiners affects interpretation. When the indefinite precedes the definite (*bí nó*), the entire DP is interpreted as definite (Amfo, 2010). The DP *papa bí nó* in (69) is interpreted as *the salient man that was previously mentioned in the discourse*. When the definite precedes the indefinite (*nó bí*), the entire DP has a partitive reading similar to the English partitive constructive *some of the*. The DP *Nkorofɔ nó bí* in (70) is interpreted as *a portion of the people*. As a partitive construction, the noun that precedes the determiners must be plural; a singular noun is ungrammatical, as demonstrated in (71).

(71) #Papa **nó** **bí** ka-a sɛ ɔ-re-m-pene.
man DEF INDEF say-PST COMP 3PL-PROG-NEG-agree

In the later sections, we will discuss in detail how the meanings of the two determiners combine for the relevant readings when they co-occur.

3.4.1 NP *bí nó*

Based on Hawkins (1978)'s classification of definite uses, a definite description has anaphoric uses, immediate situation uses, and larger situation uses. However, we have already concluded in the previous chapter that *nó* does not have larger situation uses. As definite descriptions *bí nó* constructions are licensed in anaphoric contexts, as illustrated in (72-a). The same context also licenses *nó* in (72-b). In both examples, the natural interpretation is that the man Dufie is talking about is the same as the man who was dancing. The indefinite expression *papa bí* in (72-c) is interpreted as a different man from the one who was dancing.

(72) Context: Dufie and Priscilla go to a party. During the party, they watch a man dancing. The following day, Dufie says to Priscilla:

a. Papa **bí** **nó** bisa me me nɔma.
man INDEF DEF ask-PST 1SG 1SG.POSS number
'That certain man asked me for my number.' Bombi et al. (2019, p. 188).

b. Papa **nó** bisa me me nɔma.
man NO ask-PST 1SG 1SG.POSS number
'The man asked me for my number.'

c. #Papa **bí** bisa me me nɔma.
man INDEF ask-PST 1SG 1SG.POSS number
'A certain man asked me for my number.'

Bí nó definite descriptions are also licensed in immediate context situations, as (73-a) illustrates.

(73) Context: Ama and Kofi are sitting in front of their house. They see a man walking down the street. Ama says to Kofi...

a. Papa **bí** **nó** àa ɔ-re-ba nó bisa me me nɔma.
man INDEF DEF REL 3SG-PROG-come CD ask-PST 1SG 1SG.POSS number
'That certain man who is coming asked me for my number.'

b. Papa **nó** àa ɔ-re-ba nó bisa me me nɔma.
man DEF REL 3SG-PROG-come CD ask-PST 1SG 1SG.POSS number
'The man who is coming asked me for my number.'

c. #Papa **bí** àa ɔ-re-ba nó bisa me me nɔma.
man INDEF REL 3SG-PROG-come CD ask-PST 1SG 1SG.POSS number
'A certain man who is coming asked me for my number.'

Consistent with its characterization as definite expressions, *bí nó* NPs cannot be used to introduce new discourse referents, as (74) illustrates.

(74) Context: At the beginning of a story ...

a. #Papa **bí** **nó** bisa me me nɔma.
man INDEF DEF ask-PST 1SG 1SG.POSS number
'That certain man asked me for my number.'

b. #Papa **nó** bisa me me nɔma.
man NO ask-PST 1SG 1SG.POSS number
'The man asked me for my number.'

c. Papa **bí** bisa me me nɔma.
man INDEF ask-PST 1SG 1SG.POSS number
'A certain man asked me for my number.'

Nevertheless, not all contexts that license *nó* definite descriptions license *bí nó* definite descriptions. Consider, for instance, (75), which is a slightly modified variant of the context in Bombi et al. (2019, p. 188). Examples such as these, where the referent of the salient NP has been previously introduced in the discourse, are typical contexts that license anaphoric definites. However, in this context, only *nó* definite descriptions are licensed. *Bí nó* definite descriptions are infelicitous.

(75) Context: Dufie and Priscilla go to a party. During the party, they watch one man dancing. At the end of the party, they realized that the man was their former classmate, Kofi. Later in the evening, the man gave his number to Dufie. The following day, Dufie says to Priscilla.

a. Abrantie **nó** bisa me me nɔma.
man NO ask-PST 1SG 1SG.POSS number
The man asked me for my number.

b. #Abrantie **bí** **nó** bisa me me nɔma.
man INDEF NO ask-PST 1SG 1SG.POSS number
The certain man asked me for my number.

A difference between the context in (72) and the context in (75) is the addition that Dufie and Priscilla knew the identity of the man in question. In context (72), they could only identify

the man with the description “the man who was dancing”. On the contrary, in the context in (75), they knew his name and that they shared past experiences with him; they are acquainted with him. As previously pointed out by (Roberts, 2010), acquaintance and familiarity should be treated as two distinct notions. Familiarity, as defined in the previous chapter, is related to keeping track of discourse referents in a discourse. A discourse referent is (weakly) familiar is the the existence of the entity is entailed in the discourse (Roberts, 2003). Acquaintance, on the other hand, requires having some first hand experience with the referent. It is possible for a discourse referent to be familiar without requiring discourse participants to be acquainted with the relevant individual.

For a simple definite construction with *nó*, it is important that the familiarity presupposition is satisfied. Discourse participants may or may not be acquainted with the relevant discourse referent, as demonstrated in (75-a) and (72) respectively. In the case of *NP bí nó* definite descriptions, a speaker signals two seemingly opposing notions. One, they signal that the discourse referent of the relevant NP is familiar by being previously mentioned or by being in the immediate situation, and that they are not acquainted with the referent of the NP, where acquaintance means they are ignorant of some critical characteristics of the NP that is needed to identify the referent. Familiarity, as already argued, is associated with the definite determiner *nó*. I show, in the rest of this section that the anti-acquaintance inference, or rather the ignorance inference, is a property of the indefinite determiner *bí*.

The ignorance inference of *bí*

One of the main claims about *bí* indefinites proposed at the beginning of this chapter is that the use of the determiner rather than a bare noun signals that the speaker has a particular referent in mind. The relevant examples are repeated in (76). Where the choice of (76-a) over (76-b) means the speaker has a particular shoe in mind that they want to buy.

(76) a. Me-re-kɔ-tɔ mpaboa **bí**.
1SG-PROG-go-buy shoes INDEF
‘I am going to buy a (certain) pair of shoes.’

b. Me-re-kɔ-tɔ mpaboa.
1SG-PROG-go-buy shoes

‘I am going to buy a pair of shoes. (Amfo, 2010, p. 1787)

However, examples such as (77) also show that the use of the determiner is compatible with some ignorance about the referent of the NP. In (77), the speaker knows that the movie Ama wants to watch is new, but they are ignorant about the name of the movie.

(77) Ama pɛ sɛ ɔ- kɔ-hwɛ sini foforɔ **bi** a a- ba. Me- n-
Ama want COMP 3SG- MOT-watch movie new IND REL PERF- come 1SG- NEG-
nim sini koro mpo.
know movie one even
‘Ama wants to see a certain new movie. I don’t even know what movie.’

Specific indefinites, according to Ionin (2006) may carry two felicity conditions on their use: *noteworthiness* and *identifiability*. See also Abusch and Rooth (1997) and Farkas (2002a) for similar views. The indefinite description is noteworthy if their identity is important and further information may be given about them. Going back to the difference between the use of the bare noun and the indefinite determiner in (77), suppose we modify the context as in (78). In such as context, where any shoe that Kwame buys does not stand out, *bí* is infelicitous, even though Kwame has a particular shoe in his mind. *Bí* indefinites, therefore, require that the indefinite description signals noteworthiness.

(78) Context: Kwame is a High School student. In his school, only two prescribed set of shoes are allowed.

Me-re-kɔ-tɔ mpaboa **#bí**.
1SG-PROG-go-buy shoes INDEF
‘I am going to buy shoes.’

Identifiability, on the other hand, requires some form of knowledge on the part of the speaker. It means that the speaker can answer the question *what X is this?* The identifying property may be any relevant property that singles out the referent. Additionally, identifiability is context dependent, that is, what a speaker needs to know about a referent in order count as knowing the referent is determined by the context. In (77) for instance, the description ‘new movie’ is a both a noteworthy property and identifiable property that separates the movie Ama

wants to watch from other movies.

Across languages, we find indefinite determiners that signal a speaker's ignorance or indifference regarding some property of the witness of an existential claim. Alonso-Ovalle and Menéndez-Benito (2003) propose that we refer to these indefinites as *epistemic indefinites*.[8] Epistemic indefinite determiners include German *irgendein* (Aloni, 2012; Kratzer and Shimoyama, 2002), Italian *(un) qualche* (Aloni and Port, 2011; Aloni, 2012; Zamparelli, 2008), English *some* (Becker, 1999; Farkas, 2002b; Alonso-Ovalle and Menéndez-Benito, 2003) a.o. Using *irgendein* (79), *(un) qualche* (80), and *some* (81), the speaker conveys that they are unable to identify the witness of the existential claim.[9]

(79) *Irgendein* Student hat angerufen. #Rat mal wer?
Irgend-one student has called guess prt who
Conventional meaning: Some student called (the speaker does not know who)

(80) Maria ha sposato *un qualche* professore. #Indovina chi?
Maria has married a qualche professor guess who
Conventional meaning: Maria married some professor (the speaker does not know who) (Aloni and Port, 2015, p. 117)

(81) Look some professor is dancing on the table! (Alonso-Ovalle and Menéndez-Benito, 2003, p. 4).

The ignorance component of epistemic indefinite arises in two contexts. In the first context, the speaker cannot identify the witness of the existential claim among a plurality of referents in the domain, (Alonso-Ovalle and Menéndez-Benito, 2003, 2010, 2013; Kratzer and Shimoyama, 2002). In the second context, the speaker can identify the witness of the existential claim, but ignorant of certain aspects of this witness (shift in method of identification) (Aloni, 2012; Aloni and Port, 2015). The ignorance component of *bí* is of the second type —a shift in method of identification (Owusu, 2019). The speaker can identify the referent but is ignorant of certain important facts about the referent. For that reason, adding *guess who* is

[8]Epistemic indefinites is a different notion from epistemic specificity discussed in §4.1

[9]See Alonso-Ovalle and Menéndez-Benito (2013) for a comprehensive list of epistemic indefinites across languages, a summary of recent analyses, and problems with the analyses.

pragmatically odd. Similarly, *some* can be used in (81) to convey that the speaker does not have any more information about the witness of the existential claim.

Aloni and Port (2011, 2015), based on Aloni (2001) and Aloni (2008), propose that every context provides a method of identifying the witness of an existential claim. Indefinites also introduce a method of identifying the witness of an existential claim. Thus, in every context where an epistemic indefinite is used, two methods of identification are at play. An epistemic indefinite is only acceptable in contexts where the method of identification provided by the context and that introduced by the indefinite are different. Aloni and Port (2011, 2015) list three identification schemas (that is, methods of identification): naming, description, and ostension. These are used in the examples below to demonstrate the epistemic indefinite use of *bí*. The identification schemas are paired; first is the context required for knowledge, and the second is the identification provided by the epistemic indefinite.

Description and Naming

Scenario: You are visiting a foreign university and you want to meet a professor.

(82) Me- re- hwɛhwɛ professor **bi**, ɔno na ɔ- yɛ head of department, me-
1SG- PROG- search professor IND, 3SG FOC. 3SG- COP. head of department, 1SG-
n- nim ne din.
NEG- know 3SG-POSS name.
'I am looking for some professor, he is the head of department but I don't know his name.'

Speaker-can-identify → [Description], unknown → [Naming]

In this scenario, the method of identification contextually required for knowledge is naming, but the referent of the epistemic indefinite can only be identified by description.

Ostension and Naming

Scenario: You are watching a football match and a player gets injured so you tell your friends.

(83) Hwɛ player **bi** a- pira, yɛ frɛ no sɛn?
look player IND PERF- be.injured, 3PL call 3SG.OBJ what
'Look, some player is injured, what is his name?'

Speaker-can-identify → [Ostention], unknown → [Naming]

In this scenario, the method of identification contextually required for knowledge is naming, but the referent of the epistemic definite can only be identified by ostension. By using a description, the speaker signals a shift in the method of identification, thus implying their ignorance of the contextually relevant method of identification.

Now that we have established that *bí* has an ignorance inference, we can go back and look at the difference between the contexts that license *NP bí nó* and the contexts that do not. Let us begin from the context that licenses *NP bí nó* given in (72) and repeated in (84). In this context, the method of identification introduced by the indefinite, the one that Dufie and Priscilla use, is description. The indefinite description in this context only identifies the man as 'the man who was dancing'. What would one consider to be an appropriate method of identification required by the context to count as knowing the referent of the indefinite? It is unlikely that it is description, as one can describe certain properties of the referent without knowing who they are. Ostension is also unlikely for the same reason. It is most likely that this accepted method of identification in this context is naming. If that is the case, the method of identification required by the context and the one supplied by the indefinite are different, thus licensing the indefinite. The definite determiner is licensed because the referent of the noun is familiar. Thus the context satisfies the presupposition of the definite and the inference of the indefinite.

(84) Context: Dufie and Priscilla go to a party. During the party, they watch one man dancing. The following day, Dufie says to Priscilla:

Papa **bí** **nó** bisa me me nɔma.
man INDEF DEF ask-PST 1SG 1SG.POSS number
'That certain man asked me for my number.'

The only difference between the context in (84) and that one in (85) is the fact that Priscilla and Dufie can in fact identify the referent of the indefinite by name. On the assumption that the method of identification required by the context to count as knowledge is naming, the method of identification supplied by the indefinite is the same as that required by context. We predict that the indefinite is infelicitous in this context.

(85) Context: Dufie and Priscilla go to a party. During the party, they watch one man

dancing. At the end of the party, they realize that the man was their former classmate Kofi. Later in the evening, the man gives his number to Dufie. The following day, Dufie says to Priscilla.

#Abrantie **bí** **nó** bisa me me nɔma.
man INDEF NO ask-PST 1SG 1SG.POSS number
That certain man asked me for my number.

In §3.5, I argue that *bí* is a specific indefinite choice function whose value is contextually determined, typically by the speaker. How do we reconcile this meaning with the ignorance inference? In other words, if the speaker has a particular referent in mind in (86), then they cannot be ignorant about the referent of the indefinite. Recall, however, that the ignorance inference is not about the referent itself; rather it is about identifying some context-determined property that counts as knowing the referent. A speaker can have a referent in mind, but the method of identification supplied by the indefinite may still differ from that required by context. The Russian *-to* indefinites, which Yanovich (2005) characterized as free contextually-determined choice functions, also have ignorance inferences. Similar to the proposal for Akan, Kagan (2011) frames the ignorance inference as speaker identifiability, treating what counts as identifiability as context-dependent.

Putting together *NP bí nó*

In English, the definite determiner *the* and indefinite determiner *a* are in complementary distribution. Neither order in (86) is possible. The definite determiner may not precede the indefinite determiner, and the indefinite determiner may not precede the definite determiner.

(86) *__The a/ *a the__ the boy came here.

In a classical Standard Theory of generative grammar proposed by Chomsky (1965), the ungrammaticality of (86) was accounted for by assuming that both constituents are variants of the same syntactic head. Only one constituent is allowed to fill a syntactic head position at any given time, and so the two determiners may not co-occur.

Nevertheless, Lyons (1999) assuming Abney (1987)'s expanded DP hypothesis, argued that the definite and indefinite determiners occupy different syntactic positions. He takes the definite determiner to be the head of the DP, and the indefinite to occur as the specifier or head of the projection that hosts numerals, that is CardP (Cinque, 1999) or NralP (Aboh, 2010). Lyons (1999) provides some empirical evidence in support of the hypothesis that indefinites and numerals occupy a syntactic position different from the definite. Consider the distribution in (87) and (88). While the definite can precede and structurally dominate the numeral one (87), the indefinite determiner cannot (88).

(87) **The one** boy who came here is my favorite.

(88) ***A one** boy who came here is my favorite.

For Lyons (1999), the inability of the definite and indefinite determiners to co-occur in (86) is, therefore, not a consequence of the syntax. He attributes this effect to a phonological constraint that blocks weak forms from occurring in a non-initial position in a phrase (Lyons, 1999). Both determiners, he argues, are weak forms, and so neither order is permitted.

Coming back to Akan, it has already been established that the definite and indefinite determiners do not mutually exclude each other. This leads to the conclusion that neither Chomsky (1965)'s syntactic nor Lyons' (1999)'s phonological explanation extends to Akan. Additionally, numerals in Akan may co-occur with both the definite and indefinite determiners, as shown in (89) and (90), respectively. The example in (91) also shows that the numeral may co-oocur with both determiners

(89) Abofra baako nó ba-a ha.
child one DEF come-PST here
Literal meaning:'The one child came here.'

(90) Abofra baako bí ba-a ha.
child one INDEF come-PST here
Literal meaning:'A certain one child came here.'

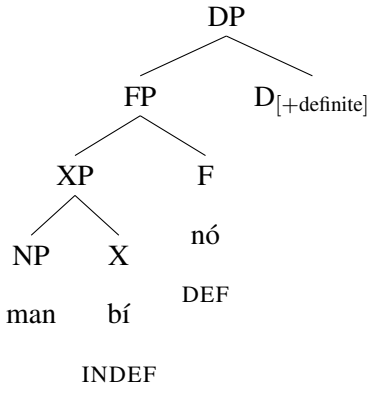
(91) Abofra baako bí nó ba-a ha.
child one INDEF DEF come-PST here
Literal meaning:'The certain one child came here.'

Though I do not attempt to discuss the D-system of Akan at greater length, the examples above are clear evidence that the definite determiner, indefinite determiner, and numerals target different positions in the D-system. In the previous chapter, I proposed that *nó* is a nominal modifier, and D is the domain of definiteness. Since the specific syntactic label of the *nó* projection is not relevant to the current analysis, it as labeled as FP. The projection that hosts the indefinite determiner will be labelled as XP. The DP in (92), therefore, has the syntax in (93).

(92) Context: Dufie and Priscilla go to a party. During the party, they watch a man dancing. The following day, Dufie says to Priscilla:

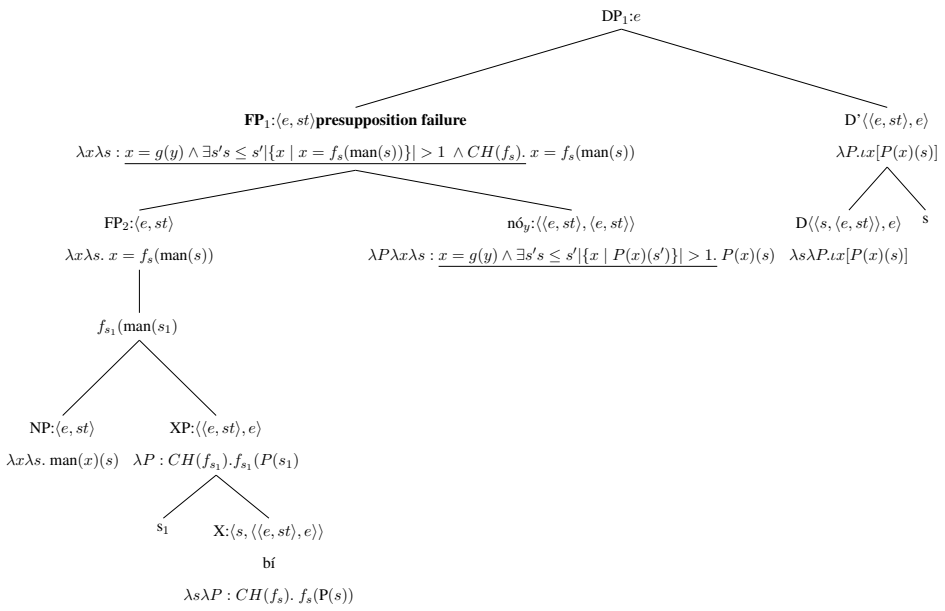
[$_{DP}$ Papa **bí** **nó**] bisa me me nɔma.
man INDEF DEF ask-PST 1SG 1SG.POSS number
'That certain man asked me for my number.'

(93)



Considering just the types, (94) based on the syntax in (93) can be interpreted compositionally. The NP *man*, which is type $\langle e, st\rangle$ combines with the indefinite, which is type $\langle\langle e, st\rangle, e\rangle$. The result is an individual of type e, which is unable to combine with *nó* directly. We resolve the type mismatch by employing a version of Partee's (1986) IDENT type-shifter that is modified to include situations and worlds. Afterwards, *nó* combines with the singleton set. Finally, D takes the FP as a complement.

(94)



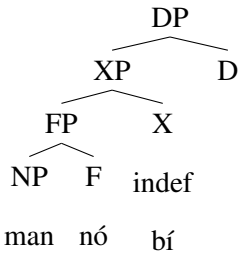
The modified IDENT takes something of type e and returns something of type $\langle e, st\rangle$, as shown in (95).

(95) Modified IDENT: $\lambda y\lambda x\lambda s.x = y(s)$

Recall from the previous chapter that *nó* has two presuppositions: a familiarity presupposition and a non-uniqueness presupposition. For the definite description in example (92), with the denotation in (95), the familiarity presupposition is satisfied because the referent of the NP has been previously mentioned in discourse. The non-uniqueness presupposition can be satisfied if the cardinality of the XP *papa bí* outside of the current discourse is greater than one. However, it is not clear that this is possible given our claim that *bí* is a choice functional expression. Choice functions picks one member out of a set, so the cardinality of $f(\text{man})$ is one, independently of context. Under the above assumptions, therefore, the indefinite NP *papa bí* should be incompatible *nó*. This conclusion is, however, not supported by the data in (92).

The problem in (95) appears to be that we want *nó* to combine with the noun first, so that the non-uniqueness presupposition can be a condition on the N-set, before combining with *bí*. In fact, this is precisely what Bombi et al. (2019) propose as shown in (96). The problem, of course, is that while it captures the semantics, it does not reflect the surface word order:

(96)



What are the options then? Here, I develop an alternative, following a suggestion of Veneeta Dayal (p.c.), which admittedly involves several stipulations but may well show us the path forward. I suggest that *bí nó* NPs are underlyingly two coordinated DPs: NP *bí* & NP *nó*. To get a sense of how this can resolve the problem of compositionality, let us consider the informal rendering of it in (97):

(97) Papa **bí** ne papa **nó** ba-a ha.
man INDEF CONJ man DEF come-PST here
'A man (we haven't discussed before) and the (unique familiar) man came here.'

The idea is that the determiners interact with the N-sets independently, and satisfying their semantic requirements, before combining with each other.

To make it more precise, consider the [N *bí nó*] structure in a concrete case like (98) with the schematic structure in (99):

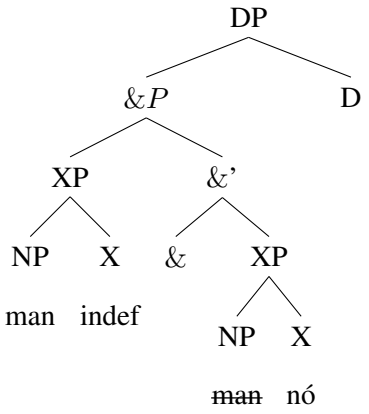
(98) Context: Dufie and Priscilla go to a party. During the party, they watch a man dancing. The following day, Dufie says to Priscilla:

Papa **bí** ~~ne~~ ~~papa~~ **nó** ba-a ha.
man INDEF CONJ man DEF come-PST here

Literal meaning: "The same man who we don't know very well but has been previously mentioned came here.

'The certain man asked me for my number.'

(99)



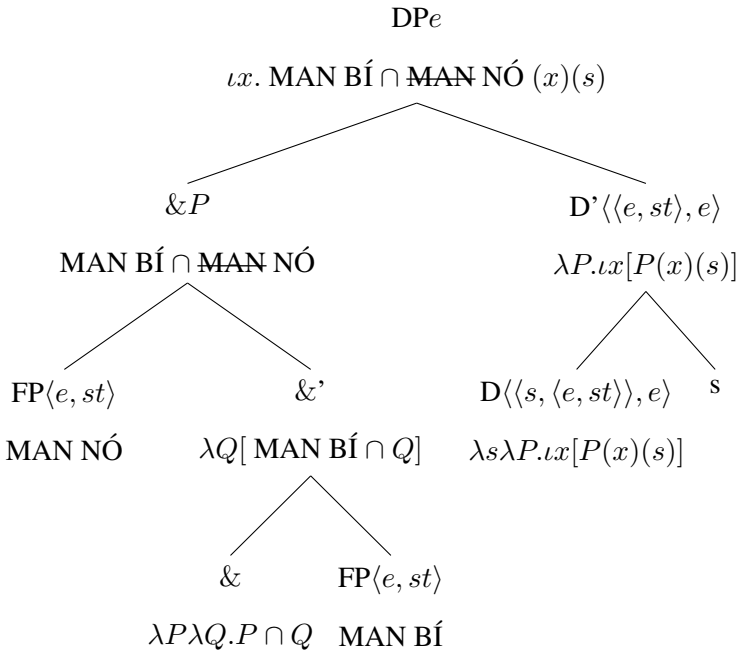
To put this in context, DP coordination typically involves the overt coordinator *ne*, but Akan has serial verb constructions (SVCs), which can be argued to involve covert coordination within the VP (Dolphyne, 1996; Osam, 1994b; Abrefa, 2009, a.o). Taking this, we also posit deletion of the second NP, under identity with the first, as has been proposed for VP ellipsis by Hardt (1992), for example. Such deletion happens at PF, which means at LF both NPs are visible. We assume that the conjction combines with the covert D.

We show the final derivation for this structure, using the semantics for *nó* argued for earlier in (100). I suggest that *man bí* undergoes Partee's IDENT as in (100-b), in order to become type compatible with the other conjunct:

(100) a. $[\![\text{ man nó}_y]\!]^g = \lambda x \lambda s : \underline{x = g(y) \wedge \exists s' s \leq s' | \{x \mid man(x)(s')\}| > 1.} \, man(x)(s)$

b. $[\![\text{ man bí}]\!]^g = \lambda x \lambda s : CH(f_{s_1}).\, x = f_s(\text{man}(s))$

These meanings feed into the &P, as shown below:



The head & introduces a conjunction structure with two arguments of type $\langle e, st\rangle$. The first is saturated by the IDENT-shifted *man bí*, the second by *man nó*. As noted earlier, the presuppositions of *bí* and *nó* are thus satisfied independently. This is then followed by the ellipsis of the second instance of man. Since &P is of type $\langle e, st\rangle$, a null D is projected to derive a type e meaning. The final derivation is given in (101):

(101) $[\![$ man nó$_y$ bí $]\!]^g = \iota x$. MAN BÍ $\cap$ ~~MAN~~ NÓ $(x)(s) \approx$ The unique individual that is familiar and subject to whatever constraints are imposed by the choice function.

We see then that it is possible to derive the correct meaning for *NP bí nó*, though admittedly there are several moves that call for independent motivation and justification.

3.4.2 NP *nó bí*: a partitive construction

Let us now consider the alternative order NP *nó bí* and the fact that it has a partitive interpretation. To put it in context, consider a typical partivite construction in English, such as those listed in (102).

(102) a. Some of the boys are weak.

b. Some of the water spilled.

c. One of the issues has been solved.

d. All of the students are present.

Partitive constructions tend to express a part-whole relation between two sets of the same kind (Selkirk, 1977; Jackendoff, 1977; Seržant, 2021). They are typically divided into parts, the quantifier and the restrictor. The restrictor is always definite, a requirement referred to as the *Partitivity Constraint*, and serves as the superset (Jackendoff, 1977; Barwise and Cooper, 1981). Generally, there is a tendency for the quantifier to be indefinite, and they express the subset. For instance, in (102-a), the definite description *the boys* is the restrictor and thus the well-defined superset from which a subset denoted by the quantifier *some* is selected from. The subset and supersets are the same kind of objects, that is, *boys*.[10] Partitive constructions in English, as evident in (102), involve *of-phrases*.

NP *nó bí* constructions have the partitive reading as we see in English. Example (103-a) expresses a subset-superset relation between a portion of boys and the whole set of boys. In (103-b), the head noun is a mass noun. *Of-phrases* are optional in Akan, as shown in example (104).

(103) a. Mmerantie **nó** **bí** ka-a sɛ ɔ-re-m-pene.
pl.boy DEF INDEF say-PST COMP 3PL-PROG-NEG-agree
'Some of the boys said they will not agree.'

b. Nsuo **nó** **bí** a-gu fem.
water DEF INDEF PERF.-fall floor
'Some of the water spilled.'

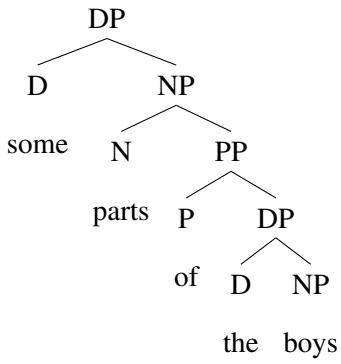
(104) Mmerantie **nó** mu **bí** ka-a sɛ ɔ-re-m-pene.
pl.boy DEF of INDEF say-PST COMP 3PL-PROG-NEG-agree
'Some of the boys said they will not agree.'

Focusing on English and Italian partitives, Chierchia (1997) proposes the structure in

[10]The relationship between the two sets is a subset relation rather than a proper subset relation and this allows for partitives such *All of the boys*

(105). The part-whole relation is contributed by a plural relation noun (parts). The preposition is semantically vacuous and are only present for syntactic reasons.[11]

(105)



I adopt Chierchia' (1997) analysis to illustrate the Akan examples. Partitive construction in Akan proceeds as in (107). Since the nouns that the definite determiner combines with in partitives are plurals, we will use Sharvy's (1980) semantics for plural definites repeated in (106).

(106) $\lambda s \lambda P . \sigma x [P(x)(s)]$

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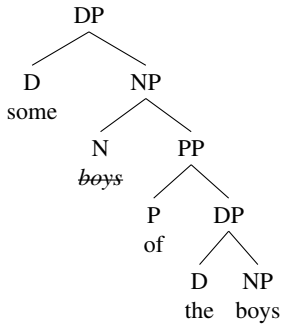
[11] See also Jackendoff (1977), Zamparelli (2002), and Sauerland and Yatsushiro (2004) for an alternative analysis where partitives are considered to involve two NPs (ii) and where *of* denotes the part-whole relation. NP-deletion in partitives is subject to the same conditions that NP-deletion in general is subject to.

(i)



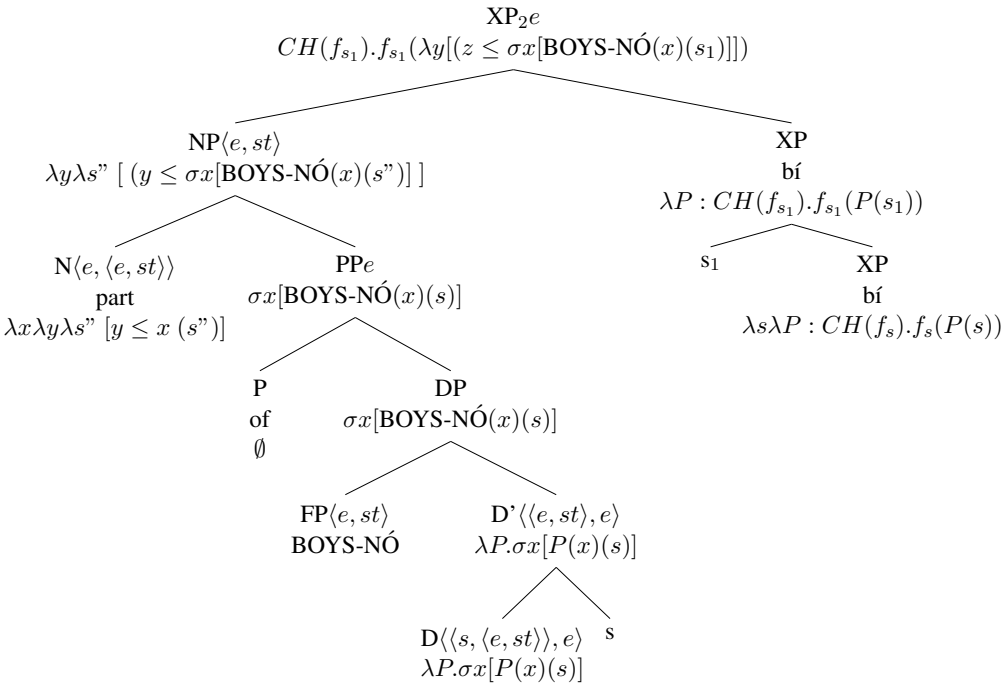
(107) $\lambda s \lambda P.\sigma x[P(x)(s)]$

The NP *part* is defined as a proper subset relation ($\leq$) relation. It combines with a definite NP to form a predicate that is true of a proper subset of the referent of the noun in the situation. The lexical entry is given in (108).

(108) $[\![\text{part}]\!] = \lambda x \lambda y \lambda s\ [y \leq x\ (s)]$

Assuming the context is such that there is a previously introduced set of boys, the familiarity presupposition of *nó* is satisfied. The non-uniqueness presupposition of *nó* is also satisfied since the predicate *boy* is not inherently unique.

(109)



The preposition is semantically vacuous. Finally the indefinite takes the NP as argument. Typically, the indefinite determiner in a partitive is the quantifier, but in Akan, I have already argued that *bí* does not have a quantificational reading. The choice function applies to the set denoted by the NP, and since the domain of individuals include singular and plural individuals,

we obtain the intended plural reading.

3.5 Summary of chapter

The focus of this chapter has been the indefinite determiner *bí*, which is used with bare nouns to express indefiniteness in Akan. At the beginning of this chapter, I demonstrated that contrary to most discussions in the literature, the Akan indefinite determiner *bí* does not always pattern with specific indefinites. The determiner does not take the widest scope in all contexts. Specifically, *bí* indefinites may take scope below intensional predicates for opaque readings and may be interpreted in the scope of conditionals in conditional sentences. Combined with the determiner's ability to take widest scope with respect to negation and the universal quantifier, it shows mixed properties between a specific and non-specific indefinite. Even with its mixed properties, I have argued that the determiner is not ambiguous between a choice function expression and a quantificational expression. *Bí* indefinites, I argue, are unambiguous skolemized choice function expressions with additional world variables. Skolem individual variables may be bound with a higher quantifier for a functional reading, a perceived narrow-scope reading or remain free giving the illusion of widest scope. Similarly, skolem world variables may be bound or remain free. They are bound for opaque readings in intensional contexts and the supposed narrow-scope readings in conditional sentences.

Bí indefinites also co-occur with the definite determiner *nó* in two orders: the indefinite-definite order *NP bí nó* for a definite reading, and definite-indefinite order *NP nó bí* for a partitive reading. I show that *bí* indefinites have an ignorance inference, that is, the speaker is ignorant about certain important facts about the referent. Thus in the case of *NP bí nó* definite descriptions, a speaker signals that the discourse referent of the relevant NP is familiar and that they are not acquainted with the referent of the NP.

Chapter 4

The clausal determiner

4.1 Overview of chapter

This chapter investigates the nature and meaning of a variant of the Akan nominal definite determiner *nó*, which was discussed in Chapter 2. This variant occurs clause-finally in contexts such as the one described in (1).

(1) **Context:** Kofi is having problems with Linguistics. His parents have been encouraging him to ask their neighbor, Dr. Abrefa, for help, but Kofi has been too shy to ask him. This morning Kofi informs his mother that he has finally asked their neighbor for help. His mom reports to his father...

[[$_{TP}$ Kofi a-nya a-kɔ hu Dr. Abrefa] **nó**].
'Kofi PERF-get CONS-go see Dr. Abrefa CD
Kofi has gone to see Dr. Abrefa.'

The morpheme *nó* in (1) cannot be construed as a nominal definite determiner since proper names in Akan do not typically co-occur with definite determiners. Following Saah (2004), Arkoh (2011), and Korsah (2017), I will refer to this variant as the *clausal determiner* (CD).

As noted in Chapter 2, an extensive body of literature exists on nominal definite descriptions across languages. Current studies on definite descriptions, however, have begun to focus on non-nominal definite descriptions. One line of study shows that presuppositions such as existence, uniqueness, and familiarity, argued to be core properties of nominal definite descriptions, can be encoded by syntactic structures outside the nominal domain. Baker and Travis (1997) reports on the Mohawk factual mood prefix *wa-*, which they argue presupposes existence and uniqueness. They conclude that *wa-* is a verbal equivalent of the English nominal

definite determiner. Instead of a nominal argument, *wa-* takes an event argument. In Chinese, Hole (2011) argues that the cleft construction, *shí ... de*, presupposes familiarity and uniqueness and denotes a unique familiar event. A second line of study shows that in certain languages, morphemes that have similar form and semantics as the nominal definite determiner can be used outside of the DP. These morphemes may take VP or TP complements. Such languages include Ga (Renans, 2016, 2018; Korsah, 2017), Ewe, Fongbe (Lefebvre, 1998; Larson, 2003), Akan (Amfo, 2006; Saah, 2010; Korsah, 2017) and Haitian Creole (Lefebvre, 1998; Wespel, 2008)

In this chapter, I focus on establishing the semantic contribution of the clausal determiner in Akan. The rest of the chapter is structured as follows. §4.2 lays out the empirical landscape. Here I present data on the different syntactic constructions that license the clausal determiner in Akan. In §4.3, I examine the presuppositions triggered by the clausal determiner. The nominal *nó* in Chapter 2 was shown to presuppose familiarity and non-uniqueness. Relatedly, the clausal determiner also triggers a familiarity presupposition, but there is no non-uniqueness presupposition. §4.4 provides supporting evidence for treating the clausal determiner as a propositional determiner. §4.5 presents the analysis and is the main contribution of this chapter. Here, I argue *nó* in a simple declarative clause containing has two semantic implications: it asserts its complement and presupposes that there is a discourse referent in the context that has the same propositional content as its complement. Finally, §4.6 summarizes the major claims of the chapter and serves as a conclusion.

4.2 The Data

Most of the contexts I discuss in this section, such as relative clauses, focus constructions, and wh-questions have already been discussed in the literature. In addition to these contexts, however, I present new data on the use of *nó* in declarative sentences, which shows crucially that *nó* is not a subordinate clause marker, contrary to Amfo (2006).

4.2.1 Relative clauses

Of all the contexts that license the clausal determiner, it is the relative clause that has received the most attention in the literature (Saah, 2004; Saah, 2010; Arkoh and Matthewson, 2013; Korsah, 2017; Bombi et al., 2019). Relative clauses are the main focus of the next chapter, but there are briefly discussed here. Also, in this chapter, I consider temporal when-clauses (3) and factive clauses (4) under the broad category of relative clauses, since both constructions include the use of the relativizer *áa*.

A typical NP modified relative clause, such as (2) has two positions *nó* can occupy: after the head noun and at the end of the relative clause. The determiner at the end of the relative clause is the clausal determiner.

(2) Abofrá nó [$_{RC}$ áa Kofi hú-u no **nó**] a-ba.
child DEF REL Kofi go-PST 3SG CD PERF-come
'The child whom Kofi saw has come.' (Saah, 2010, p. 92)

In temporal when-clauses such as (3), the head noun is noun *time*, and typically this is not followed by a determiner, but the clausal determiner is obligatory at the end of temporary when-clauses.

(3) Bre [$_{RC}$ áa Kwame dú-u Nkran **nó**], ná abofrá nó á-da.
time REL Kwame arrive-PST Accra CD PRT child DEF PERF-sleep
'When Kwame got to Accra, the child was asleep. (Amfo, 2007, p. 17)

(4) Ba [$_{RC}$ áa Kofi ba-e **nó**] yɛ nwanwa.
come REL Kofi come-PST CD COP surprising
'The fact that Kofi came is surprising.

In a factive construction such as (4), a copy of the predicate *come* is fronted, followed by the relativizer *áa*. Since the fronted element in factive constructions are not nominals, there is no nominal determiner, but the clausal determiner is obligatory at the end of the factive constructions.

4.2.2 Focus constructions and wh-questions

I will now focus on the use of clausal determiners in Akan focus constructions and wh-questions. Focus marking and wh-question formation in Akan generally employ similar strategies .[1] Akan employs two main strategies to mark focus and form wh-questions: fronting with morphological marking (ex-situ strategy) and no fronting with no morphological marking (in-situ strategy).

Ex-situ focus constructions and wh-questions, exemplified in (5-A1) and (6-a), respectively, possess three main features: (i) the focused element/wh-word is located at the left periphery of the clause, (ii) the particle *na* follows the focused element/wh-word, and (iii) a resumptive pronoun occurs at the canonical position of the focused element/wh-word (Marfo and Bodomo, 2005).[2] For the in-situ strategy, the focused constituent or wh-word occurs in its canonical position, as shown in (5-A2) and (6-b), respectively. The clausal definite determiner is only licensed in ex-situ focus constructions (5-A1) and wh-questions (6-a). In-situ focus constructions (5-A2) and wh-questions (6-b) do not license the clausal determiner.

(5) Q: Who did Kofi meet?

A1: (ɛ-yɛ) Kwaku na Kofi kɔ hyia-a no (**nó**).
3SG.COP. Kwaku FOC Kofi go meet-PST 3SG.OBJ CD

‘ It was KWAKU that Kofi met.’ EX-SITU

A2: Kofi kɔ hyia-a Kwaku (***nó**).
Kofi go meet-PST Kwaku CD

Kofi met KWAKU.’ IN-SITU

(6) a. Hwán na Kofi dwene sɛ́ Ama pɛ́ no (**nó**)?
who FOC Kofi think COMP Ama like 3SG.OBJ DEF
‘Who does Kofi think Ama likes?’ EX-SITU

b. Kofi dwene sɛ́ Ama pɛ́ hwán (***nó**)?
Kofi think COMP Ama like who DEF
‘Who does Kofi think Ama likes?’ IN-SITU

[1] See Boadi (1974), Saah (1988, 1994), Marfo and Bodomo (2005), Ofori (2011), Duah (2014), Grubic, Renans, and Duah (2019), Korsah and Murphy (2019), and Titov (2019, a.o). for extensive work on the morphosyntax and semantics of focus in Akan.

[2] Lartey et al. (2020) in recent experimental work on resumption pronoun licensing in ex-situ *who* questions argue that the presence or absence of the pronoun does not affect grammaticality.

An in-depth investigation of the difference between the in-situ and ex-situ strategies and how they contribute to the licensing of the clausal determiner awaits further research.

4.2.3 Declaratives

That the clausal determiner is licensed in simple declarative sentences has received little to no attention in the literature, to my knowledge. In declarative sentences, as in the other clauses we have seen so far, the clausal determiner is clause-final and independent of any nominal determiner within the sentence. The example at the beginning of this chapter shows the use of the clausal determiner in a declarative sentence. Another example of the clausal determiner in a declarative is given in (7). Again in this example, *nó* cannot be a nominal determiner as the verb is intransitive.

(7) Context: Ama is not feeling too well and has lost her appetite, but she needs to eat in order to take her medication. Ama's mother tasked Yaa, Ama's sister, with making sure Ama eats her food. After some time, the mother asked Yaa to report on the situation. Yaa replies:

[[$_{TP}$ Ama e-tumi a-ba a-bɛ didi] **nó**].
Ama PERF-be.able CONS-come CONS-MOT- eat CD
'Ama has been able to come and eat.'

Generally, no restrictions exist on the verb types that can occur in these *nó*-declarative clauses. Most of the examples in this dissertation, however, will involve intransitive verbs because the role of the determiner as a non-nominal modifier is much more evident with intransitive predicates. When transitive sentences are used, they will involve proper names or pronouns, as those terms typically do not occur with a nominal determiner, and any determiner occurring after them can therefore reliably be taken to be a clausal determiner. As demonstrated in (9), the clausal determiner does not co-occur with the nominal definite determiner,

(8) Same context as (1)

[[$_{TP}$ Kofi a-nya a-kɔ hu no] **nó**].
Kofi PERF-get. CONS-go see 3SG.OBJ CD

Kofi has gone to see him.'

(9) Same context as in (7)

[[$_{TP}$ Ama e-tumi a-bɛ di ne aduane nó] ***nó***].
Ama PERF-be.able CONS-come eat 3SG.POSS food DEF CD

' Ama has been able to come and eat.'

4.3 The presuppositions of the clausal determiner

Having presented the kinds of syntactic structures in which the clausal determiner is used, this section focuses on the conditions that need to be satisfied in order to license a clausal determiner. I show that though the clausal determiner and the nominal determiners have similar forms, they differ in their semantic/pragmatic contributions.

4.3.1 Familiarity but not non-uniqueness

Familiarity presupposition

Let us begin with two declarative sentences; (10-a) has a clausal determiner, while (10-b) does not. Both sentences have the same truth condition; they are true iff *Kofi has gone to see Dr. Abrefa*, and false otherwise. However, the two sentences are not interchangeable. At the beginning of a discourse, (10-a) is felicitous, while (10-b) is infelicitous. The clausal determiner, like the nominal determiner, is infelicitous in any context where familiarity is not satisfied.

(10) a. Kofi a-kɔ a-kɔ hu Dr. Abrefa.
Kofi PERF-mot. CONS-go see Dr. Abrefa
Kofi has gone to see Mr. Abrefa.'

b. Kofi a-kɔ a-kɔ hu Dr. Abrefa **nó**.
Kof PERF-mot. CONS-go see Dr. Abrefa CD
Kofi has gone to see Mr. Abrefa. '

It is important to note that what is shared knowledge is not that Kofi went to see Dr. Abrefa. In the familiar context in (11-a) for (11), for instance, the event of seeing Dr. Abrefa is not considered common knowledge at the time of utterance. What is familiar is the necessity

that the event take place, *that Kofi should see Dr. Abrefa*. This proposition must be shared knowledge between the speaker (Kofi's mother) and the addressee (Kofi's father).

(11) Kofi a-kɔ a-kɔ hu Dr. Abrefa **nó** .
Kofi PERF-mot. CONS-go see Dr. Abrefa CD
Kofi has gone and see Dr. Abrefa.'

a. **Familiar context**: Kofi is having problems with linguistics. His parents have been encouraging him to ask their neighbor, Dr. Abrefa, for help, but Kofi has been too shy to ask him. This morning, Kofi informs his mother that he has finally asked their neighbor for help. His mom **can** report the news to Kofi's father by uttering (11).

b. **Non-Familiar context**: Kofi is having problems with linguistics. His mother has been encouraging him to ask their neighbor, Dr. Abrefa, for help, but Kofi has been too shy to ask him. His father does not know about any of this. This morning, Kofi informs his mother that he has finally asked their neighbor for help. His mom **cannot** report the news to Kofi's father by uttering (11).

The requirement for shared knowledge between the speaker and addressee is not only limited to *nó* in declaratives, but it is also evident in relative clauses, as demonstrated in (12).

(12) Abofrá nó áa Kofi hú-u no **nó** a-ba.
child DEF REL K go-PST 3SG CD PERF-come
'The child whom Kofi saw has come.' (Saah, 2010, p. 92)

a. **Familiar context**: The addressee knows that Kofi saw a child. The speaker **can** utter (12).

b. **Non-Familiar context**: The addressee does not know that Kofi saw a child. The speaker **cannot** utter (12).

The familiarity presupposition extends to the use of the clausal determiner in wh-questions too. A question with a clausal determiner presupposes the speaker expects a positive answer to the question. Using the terminology from Abusch (2010), *nó*-questions have a hard presupposition, similar to the presupposition of English cleft-sentences. Cleft questions, as explained in Dayal

(2016, p. 51) “do not brook negative responses and nor they allow the speaker to suspend the existential commitment.”

(13) Who was it that left the party?

#No one.

Compare to the regular question in (14), which allows a negative answer.

(14) Who left the party?

No one.

Similarly, a question with the clausal determiner, as in (15) is infelicitous with a negative answer.

(15) Speaker A: Hena na Kofi kɔ hyia no **nó**?
who FOC Kofi go meet-PST 3SG CD
‘Who did Kofi go to meet?’

Speaker B:# ɔ-a-n-kɔ hyia obiara.
3SG-PERF-NEG-go meet everyone

‘He did not meet anyone.’[3]

Because *nó* questions have a hard existence presupposition, they are used instead of regular questions in contexts where the speaker knows the relevant information but wishes to be reminded. As such, it is fairly common in exam/quiz questions, but also in contexts where the speaker has enough information to form an expectation but not enough to be confident in it.

Focus constructions, with or without the clausal determiner, are argued to be licensed in the same type of context. Bombi et al. (2019) explain this intuition by arguing that Akan focus constructions independently trigger an existence presupposition. As such, with or without the clausal determiner, the focus construction is only acceptable in a context where *Kofi met someone* is presupposed.

[3]Said with more emphasis and non-neutral intonation, the answer is felicitous. Speaker B actively cancels the presupposition. Cleft questions in English also allow these answers. For instance, one can answer (14) with *You are mistaken, no one has left the party.*

(16) (ɛ-yɛ) Kwaku na Kofi kɔ hyia-a no (**nó**).
3SG.COP. Kwaku FOC Kofi go meet-PST 3SG.OBJ CD
It was KWAKU that Kofi met.'

⇝ *Kofi met someone*

Ex-situ focus constructions in Akan also trigger an exhaustive presupposition. Using (17-a) presupposes that Antwi bought shoes and nothing else, and so the sentence is infelicitous in the context provided. In-situ focus constructions, as shown by the felicity of (17-b), do not share this presupposition.

(17) (Context: Antwi bought a shirt and shoes)

a. #Ataadeɛ na Antwi tɔ-ɔɛ.
shirt FOC Antwi buy-PST
'It was a SHIRT that Antwi bought.' Duah (2015, p. 10)

b. Antwi tɔ-ɔ ataadeɛ.
Antwi buy-PST shirt
'Antwi bought A SHIRT.'

When combined with the earlier discussed existence presupposition, the exhaustive presupposition of ex-situ focus constructions makes them comparable to cleft constructions.I want to highlight that the existence and exhaustive presupposition associated with ex-situ focus in Akan is independent of the clausal determiner. This is significant because some analyses of the exhaustivity and existence presuppositions of cleft constructions link them to definite determiners, either by proposing covert definite determiners or treating the cleft pronoun as a definite determiner (Büring and Križ, 2013; Hedberg, 1990; Hedberg, 2000, 2013; Križ, 2017; Tieu and Križ, 2017). I argue, following Bombi et al. (2019) , that the clausal determiner is not an overt manifestation of the cleft determiner.

Furthermore, similarities between the clausal determiner in Akan and particles that are analyzed as background markers in languages such as Bole and Ngamo by Grubic (2015) and Güldemann (2016) respectively, are indisputable. However, I refrain from calling *nó* as a background marker in Akan. As far as I can tell, in the way Güldemann (2016) uses the term, these markers are relevant to the calculation of focus interpretation. As we have seen, focus is not a consistent licenser of *nó* in Akan.

(18) Bole (Chadic)

ónúu dóodó ḿ móndù **yé** Bámói.
give:PFV money to woman BG Bamoi

BAMBOI gave money to a/the woman. (Gimba, 2005, p. 7)

(19) Ngamo (West-Chadic)

Abu esha**=i** Sama nzono.
Abu called-PFV=BG Sama yesterday

'Abu called SAMA yesterday.' (Grubic, 2015, p. 120)

Besides, not all contexts that license the focus constructions can license the clausal determiner. For instance, questions, as argued by Stalnaker (1974) and Roberts (1996), do not add propositions to the common ground, but they provide the background for focus constructions. The question in (20-a) licenses both the Akan and English focus constructions in (20-b) and (20-c), respectively. However, the question in this context cannot license the clausal determiner (20-d).

(20) Context: As part of the routine at the recreational center, Kwame has to question the staff about who used the facility the day before. Because of the current virus situation, most days nobody uses the pool.

a. Who swam yesterday?

b. JOHN swam yesterday.

c. Kwaku na ɔ-dware-e ennora.
Kwaku FOC 3SG-swim-PST yesterday
' KWAKU swam yesterday.'

d. #Kwaku na ɔ-dware-e ennora **nó**.
Kwaku FOC 3SG-swim-PST yesterday CD
'It is KWAKU who swam yesterday.'

The existential presupposition of the question, *that someone swam yesterday*, is not shared by the speaker and addressee. Since the clausal determiner requires shared assumptions, questions in this context cannot license the clausal determiner.

4.3.2 No factive presupposition

Based on the the evidence in the last section, we can conclude that the clausal like the nominal determiner presupposes familiarity. Now, we consider the role of whether *nó*-clauses presuppose factivity.

In languages such as Hebrew (Kastner, 2015) and Greek (Roussou, 1991), CPs can be headed by definite determiners/demonstratives. Typically these CPs appear in embedded contexts. When they occur under non-factive verbs, they trigger a factive presupposition. The relation between definite CPs and factive interpretation in embedded clauses has received considerable attention in the literature (Moulton, 2009; De Cuba, 2007; De Cuba and Ürögdi, 2009; Haegeman and Ürögdi, 2010; Kastner, 2015). Focusing on the interpretation of no-clauses in clause-embedding contexts, I show that *nó*-CPs, unlike definite CPs in the languages mentioned above, do not trigger factive presuppositions. Evidence in support of this argument comes from the fact that *nó*-clauses neither trigger factive presuppositions under non-factive predicates nor are selected by only factive predicates.

Clause-embedding predicates have been shown to differ on the properties of the clauses they embed. Different authors propose different ways to distinguish clause embedding predicates, some of which include *factive vs non-factive* (Kiparsky, 1971), *familiar vs novel* (De Cuba, 2007), *referential vs non-referential* (Haegeman and Ürögdi, 2010), *presuppositional vs non-presuppositional* (Kastner, 2015), and the three way distinction *factive, non-factive,and response stance* by Cattell (1978) among others. For this work, I adopt Cattell's (1978) three-way distinction as it offers a finer distinction between the kinds of presupposition triggered by the predicates, compared to the two-way distinctions.

(21) Cattell's (1978) classification of embedding predicates

a. *Volunteered stance/ non-factive:* believe, say, assume, feels, think

b. *Non-stance / factive:* remember, regret, know, forget

c. *Response stance:* agree, admit, confirm

Volunteered stance or non-factive predicates display two properties. One, they generally

present the informational content of their complement as new information to the discourse participants. The information they present, therefore, is generally felicitous in out-of-the-blue contexts. For instance, the addressee need not know that Mary came to school for (22) to be felicitous. Secondly, a non-factive predicate does not commit the speaker to the truth or falsity of the complement; that is, there is no speaker commitment. (22) is felicitous whether the Mary came to school or not.

(22) John thinks that Mary came to school but Mary did not come to school.

Since the speaker is not committed to the truth of the complement, the complement can be overtly negated without resulting in a contradiction, as exemplified by the *but*-clause in (22).

Non-stance/ factive predicates, on the other hand, presuppose the truth of their complement. That is, the speaker is committed to the truth of the complement of the embedding predicate. As such, for (23) to be felicitous, it must be the case that *Mary came to school* is believed to be true by the speaker. Because of the commitment to the truth of the complement, the overt negation of the complement results in a contradiction.

(23) John forgot that Mary came to school but # Mary did not come to school.

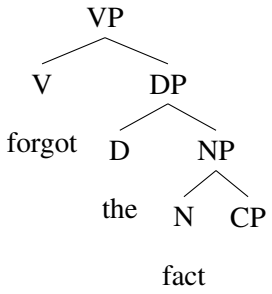
Furthermore, the complement of a factive predicate must be familiar to all discourse participants; it cannot provide new information to the addressee. Thus, example (24) is infelicitous.

(24) #John forgot that Mary came to school but # I did not know that Mary did came to school.

Earlier analyses such as Kiparsky (1971) suggested that factive clauses are headed by a covert *fact*. In English, the DP *the fact* may precede factive complements, as in (25).

(25) John forgot (the fact) that Mary came to school

(26)



Though Kastner (2015) rejects this idea, he agrees that factive complements are DPs even in the absence of an overt DP. Across languages, it has been shown that the complement of factive predicates tend to have nominal properties. In some languages, these complements take an overt definite determiner or demonstrative, or a nominalizer (Moulton, 2009; De Cuba, 2007; De Cuba and Ürögdi, 2009; Haegeman and Ürögdi, 2010; Kastner, 2015). As mentioned earlier, in Hebrew (Kastner, 2015) and Greek (Roussou, 1991), an overt determiner/demonstrative heads the CP in the absence of a noun. The Hebrew demonstrative *ze* takes clausal complements and can be embedded below a verb such as *explain*, a non-factive predicate under Cattell (1978)'s (1978) classificative, for a factive reading (27-a). The difference between (27-a) and (27-b) illustrates that the factivity presupposition is not a lexical property of *explain*.

(27) a. hu **hisbir** et [ze š-ha-binyan karas] (#aval hu lo be'emet karas)
he **explained** ACC this comp-the-building collapsed but 3SG NEG really collapsed
'He **explained** the fact that the building collapsed (# but it didn't).'

b. hu **hisbir** [š-ha-binyan karas] (aval hu lo be'emet karas)
he **explained** comp-the-building collapsed but 3SG NEG really collapsed
'He **explained** that the building collapsed (but it didn't).'

Response stance predicates are also typically associated with nominal properties. However, unlike factive predicates, they only presuppose that their complement has been previously mentioned in the context or is familiar to the discourse participants. The complement need not be true in the context. For instance, one can only agree to something if it has been introduced before, without necessarily being committed to the proposition, as demonstrated in (28-a) and (28-b).

(28) a. John agreed that Mary came to school but #nobody said Mary came to school.

b. John agreed that Mary came to school but Mary did not come to school.

Looking at the compatibility between *nó*-clauses and each of these predicate types provides insight into the presupposition associated with *nó*.

Nó clauses are non-factive

Nó-clauses are compatible with all three types of clause embedding predicates as shown in (29). They combine with a non-factive predicate in (29-a), a factive in (29-b), and a response stance verbs in (29-c).

(29) a. Nana gyɛdi sɛ Kofi a-nya a-kɔ a-kɔ hu Kwame **nó**.
Nana believe COMP Kofi PERF-get CONS-MOT. CONS-go see Kwame CD
'Nana thinks that Kofi has gone to see Kwame.' *volunteered stance/non-factive*

b. Kwame a-nu ne-ho sɛ ɔ-kɔ hu-u Kofi **nó**.
Kwame PERF-regret 3SG.-self COMP 3SG.SUBJ-MOT see-PST Kofi CD.
'Kwame regrets going to see Kofi. *non stance/ factive*

c. Kwame gyetum sɛ Ama a-kɔ hu Kofi **nó**.
Kwame PERF-agree COMP Ama PERF-MOT see Kofi CD but
'Kwame agreed that Ama has gone to see Kofi. *response stance*

When they are embedded under a factive verb, *nó*-clauses have factive interpretations, as shown in (30-a). Factivity is, however, a property of the verb not a property of the definite CP. In (30-b), where there is no clausal determiner, the factive presupposition is still present.

(30) a. Kwame a-nu ne-ho sɛ ɔ-kɔ hu-u Kofi **nó** #nanso
Kwame PERF-regret 3SG.-self COMP 3SG.SUBJ-MOT see-PST Kofi CD but
ɔ-n-kɔ hu-u Kofi.
3SG.SUBJ-NEG-MOT see-PST Kofi
'Kwame regrets going to see Kofi # but he has not gone to see Kofi.

b. Kwame a-nu ne-ho sɛ ɔ-kɔ hu-u Kofi #nanso
Kwame PERF-regret 3SG.-self COMP 3SG.SUBJ-MOT see-PST Kofi but
ɔ-n-kɔ hu-u Kofi.
3SG.SUBJ-NEG-MOT see-PST Kofi
'Kwame regrets going to see Kofi # but he has not gone to see Kofi.

Examples (31-a) and (31-b) clearly show that *nó* is not an overt realization of the supposed determiner in factive constructions.

Since factivity is an inherent property of the verb and not a property of the *nó*-clauses themselves, they are compatible with canonical non-factive verbs such as *believe*, as shown in (31-a). More importantly, under non-factive predicates, *nó*-clauses do not trigger factive presuppositions. Negating the complement in both embedded *nó*-clauses and ordinary complement clauses does not result in a contradiction. They behave similarly as CPs without *nó*, such as (31-b).

(31) a. Nana gyedi sɛ Kofi a-nya a-kɔ a-kɔ hu Kwame **nó**
Nana believe COMPL Kofi PERF-get CONS-MOT. CONS-go see Kwame CD
nanso Kofi n-kɔ-i.
but Kofi NEG-go-PST
'Nana thinks that Kofi has gone to see Kwame, but Kofi has not gone yet.'

b. Nana gyedi sɛ Kofi a-nya a-kɔ a-kɔ hu Kwame nanso
Nana believe COMPL Kofi PERF-get CONS-MOT. CONS-go see Kwame but
Kofi n-kɔ-i.
Kofu NEG-go-PST
'Nana thinks that Kofi has gone to see Kwame, but Kofi has not gone yet.'

To complete the paradigm, I look at response stance predicates which also inherently lack factivity. These predicates remain non-factive when they embed *nó* clauses. There is no difference in factivity between the *nó* clause (32-a) and the clause without *nó* (32-b).

(32) a. Kwame gyetum sɛ Ama a-kɔ hu Kofi **nó** nanso Ama n-kɔ
Kwame PERF-agree COMP Ama PERF-MOT see Kofi CD but Ama NEG-go
hu-u Kofi.
see-PST Kofi
'Kwame agreed that Ama has gone to see Kofi but Ama has not gone to see Kofi.'

b. Kwame gyetum sɛ Ama a-kɔ hu Kofi nanso Ama n-kɔ
Kwame PERF-agree COMP Ama PERF-MOT see Kofi but Ama NEG-go
hu-u Kofi.
see-PST Kofi
'Kwame agreed that Ama has gone to see Kofi but Ama has not gone to see Kofi.'

The goal of the next section is to establish that *nó* take propositional complements and that

nó-clauses are propositions.

4.4 Verbal determiner, propositional determiner or both

It is not controversial that *nó* in the data above does not take nominal complements. The real question then is the kind of semantic object this variant of the determiner takes. In previous literature, *nó* is treated as an event determiner, i.e, it takes a VP complement (Bombi et al., 2019; Ofori, 2011; Saah, 1995; Boadi, 2005). As an event determiner, the morpheme is informally described as marking an event as familiar or presupposed. Most of these analyses, however, focused on the use of the clausal determiner in relative clauses and focus constructions. Though the event-based analysis is plausible, the data I consider in this chapter is more compatible with a propositional analysis. In the rest of the chapter, I focus on the use of the clausal determiner in simple declarative sentences.

4.4.1 Events and propositional anaphora

Different predicates have been shown to take only propositions, only events or only individuals as arguments, (Asher, 1993, 2012; Peterson, 1982; Snider, 2017). These predicates are therefore good diagnostics for determining the semantic content of their complements. We will apply the diagnostics to both the *nó*-clause and the prejacent of *nó*. If they are propositions, they will only be compatible with predicates that take propositional arguments. The diagnostics will establish that *nó*-clauses are propositions and in the contexts which are relevant for this analysis, the complement of *nó* is a proposition.

Before we begin I should clarify that, I do not attempt to define the terms events and propositions here, but rather present some basic properties that characterize each and distinguish one from the other. What we are calling propositions are what Stalnaker (1976, p. 79) characterizes as "the things people express when they make predictions or promises, give orders or advice." A proposition is the main information expressed by the sentence. Because the proposition is the semantic content of the sentence, two sentences may contain different words but express the same proposition. Consider the two sentences in (33), some of the words in the sentences are different but they do express the same proposition. That is, they are true in the same set of

worlds and are therefore classified as synonymous

(33) a. The Linguistics Association of Ghana Workshop is a biannual event.

b. The Linguistics Association of Ghana Workshop takes place twice a year.

On the standard analysis of *that*-clausal complements, volunteered stance/ non-factive predicates such as *assume*, *believe*, and *think* are argued to take propositional complements.[4]. The constituents that are underlined in (34-a) and (34-b) denote propositions. Thus we may characterize propositions as the complement of non-factive attitude verbs.

(34) a. John believes that Mary is happy.

b. John thinks that Mary is vegan.

These verbs cannot take event arguments as illustrated in (35). Thus if the *nó*-clauses and their prejacent can combine with these predicates, then it is likely that these constituents denote propositions not events.

(35) a. #Fred believes John's cookie eating.

b. *Fred thinks John's skateboarding.

We have already seen in §4.3 that volunteered stance/ non-factive predicates take *nó* clauses as arguments. The relevant examples are repeated in (36). The verb *believe* is compatible with the *nó*-clauses in (36). Example (37) also illustrates that the prejacent of the *nó*-clause is compatible with proposition-taking attitude predicates, independently of *nó*.

(36) Nana gyedi sɛ Kofi a-nya a-kɔ a-kɔ hu Kwame **nó**.
Nana believe COMP Kofi PERF-get CONS-MOT. CONS-go see Kwame CD
'Nana thinks that Kofi has gone to see Kwame.'

(37) Nana gyedi sɛ Kofi a-nya a-kɔ a-kɔ hu Kwame.
Nana believe COMP Kofi PERF-get CONS-MOT. CONS-go see Kwame
'Nana thinks that Kofi has gone to see Kwame.'

[4]But see Moulton (2009, 2015) based on Kratzer (2006) for an an analysis of finite clausal arguments as properties of individuals with propositional content, (type $\langle e, \langle s, t\rangle\rangle$)

If the complement of non-factive verbs are propositions, then *nó*-clauses and the prejacent are propositions.

As we have seen for propositions, certain predicates only combine with events. Events have spatiotemporal properties; they occur at a particular time and place. Propositions, on the other hand, are independent of time or space. The proposition expressed by a sentence is verified by an instance of the event. For instance, in the sentence *John ate the cookies*, one can inquire about the time and place this event occurred. If John ate the cookie in bed at 1:00 am, then that is the place and time. As such only events can be arguments of certain predicates of time and space such as *at home*, *at the mall* and *in the morning*. We can, therefore, easily distinguish events from propositions by looking at the kind of predicates they combine with, as illustrated in (38). *That*-clauses are incompatible with the predicate *happened in the morning* because they denote events not propositions. *John's cookie eating* describe an event and thus is compatible with this predicate.

(38) a. #That John ate the cookies happened in the morning.

b. John's cookie eating context took place at 1:00 am.

Now, let us consider *nó*-clauses and the complement of *nó*-clauses. As evident from examples (39) and (40), both constructions are incompatible with event predicates. Example (39-b) illustrates that the infelicity of (39-a) does not result from the presence of the complementizer.

(39) a. #Sɛ Kofi kɔ kɔ hu-u Kwame **nó** si-i anopa nó.
COMPL Kofi MOT. go see-PST Kwame CD took.place-PST morning DEF
Intended meaning: 'That Kofi did not go to see Kwame happened this morning.'

b. #Kofi kɔ kɔ hu-u Kwame **nó** si-i anopa nó.
Kofi MOT. go see-PST Kwame CD took.place-PST morning DEF
Intended meaning: 'Kofi did not go to see Kwame happened this morning.'

(40) a. #Sɛ Kofi kɔ kɔ hu-u Kwame si-i anopa nó.
COMPL Kofi MOT. go see-PST Kwame took.place-PST morning DEF
Intended meaning: 'That Kofi did not go to see Kwame happened this morning.'

b. #Kofi kɔ kɔ hu-u Kwame si-i anopa nó.
Kofi MOT. go see-PST Kwame took.place-PST morning DEF

Intended meaning: 'Kofi did not go to see Kwame happened this morning.'

Another characteristic that separates propositions from events is their ability to be assigned a truth value. Since propositions are the semantic content of sentences, they are the kind of semantic object that can be true or false. Events can neither be true or false; they either occur or do not occur but cannot be assigned truth values. Therefore, one of the diagnostics to separate propositions from events is to see whether the construction can combine with predicates *true* and *false*. The prediction that only propositions can combine with these predicates is exemplified by (41) and the fact that (42) is infelicitous.

(41) a. That John is the thief is false.

b. That Mary saw John is true.

(42) #John's cookies eating is true.

Here again *nó*-clauses and the prejacent of *nó* both patterns with propositions as shown by the examples in (43) and (44) respectively.

(43) Sɛ Kofi a-nya a-kɔ a-kɔ hu Kwame **nó** yɛ nokware.
COMPL Kofi PERF-get CONS-MOT. CONS-go see Kwame CD COP true
'That Kofi has gone to see Kwame is true.'

(44) Sɛ Kofi a-nya a-kɔ a-kɔ hu Kwame yɛ nokware.
COMPL Kofi PERF-get CONS-MOT. CONS-go see Kwame COP true
'That Kofi has gone to see Kwame is true.'

Also, *nó*-clauses can stand alone as simple declaratives. Simple declarative sentences express propositions.

(45) Afei Kofi a-kɔ a-kɔ hu Mr. Abrefa *nó*.
now Kofi PERF-mot. CONS-go see Mr. Abrefa CD
'Kofi has now gone to see Mr. Abrefa.'

Taking all the facts discussed until now, we can reach two conclusions. First, we can conclude that *nó*-clauses are propositions, and secondly that *nó* can take propositional arguments.

4.4.2 Propositional discourse referents

We have established that *nó*-clauses are propositions and that *nó* takes propositional arguments. Now, let us attempt to explain how propositions introduce discourse referents, which are then available for anaphoric reference. Most of the fundamental properties of propositional anaphora are shared by individual anaphora (Partee, 1973; Partee, 1984; Snider, 2017).These properties include the ability to make anaphoric reference to non-linguistic antecedents, the availability of definite and indefinite antecedents, and the availability of bound variable readings.

Krifka (2013) associates the introduction of discourse referents with specific projections in the syntax. A clause, such as (46), makes available multiple discourse referents. Nominal discourse referents are introduced for the DP *Ede* and *the cookie*. In addition, a an event discourse referent is introduced for the VP, and two propositional discourse referents are introduced for TP and NegP, respectively, as illustrated in (47). [5]

(46) Ede didn't steal the cookies. (Krifka, 2013)

(47) (Krifka, 2013)

$$\underset{\hookrightarrow d'_{prop}}{[_{NegP}\ \textit{Ede did-n't}}\ [_{TP}\ t_{Ede}\ t_{did}\ \underset{\hookrightarrow d''_{prop}}{[_{vP}\ t_{Ede}\ t_{steal}\ \textit{steal the cookie}]}]]$$

The two propositional discourse referents are the positive proposition (48-a), and the negative proposition (48-b).

(48) Ede didn't steal the cookies.

a. d'$_{prop}$ = Ede stole the cookies.

b. d"$_{prop}$ = Ede did not steal the cookies.

Clauses that can introduce propositional discourse referents include the following, given in Snider (2017, p. 166).

[5] $\hookrightarrow$ shows where discourse referents are introduced

(49)

	Construction	Introduce Propositional Discourse Referent?
Declarative		
Matrix	Active	Yes
	Passive	Yes
Prejacent of	Negation	Yes
	Epistemic modals	Yes
Interrogative	Polar	Yes
Finite clauses	Factives	Yes
	Non-factives	Yes
Relative clauses	Restrictive	Limited
	Non-restrictive	Yes
Subject clauses	*that*-clauses	Yes

We can use anaphoric expressions, such as deictic demonstratives *this* and *that*, the pro-form *it*, the relative pronoun *which*, and the coordinators *so* and *as* to refer back to propositional discourse referents (Needham, 2012; Snider, 2017). As you may have noticed, some of these expressions are also used for nominal anaphora. For instance, *it* is anaphoric to the proposition *that Mary is a genius* in (50-a) and the DP *the flower vase* in (50-b).[6]

(50) a. John believes [that Mary is a genius]$_i$. Fred is certain of *it*$_i$. Asher, 1993, p. 23

b. [The flower vase]$_j$ is beautiful. I like *it*$_j$.

In examples (51-a) and (51-b), the demonstratives *this* and *that* are anaphoric to the proposition *Kyle won the race*. Compare these examples to the (52), where the demonstratives are anaphoric to individual entities.

(51) Did you hear? Kyle won the race?

a. I know *this*.

[6] *It* can also refer to the clause *John believes that Mary is a genius*.

b. I know *that*. (Snider, 2017, p. 23)

(52) a. [Pointing to a book on the table]. I want *that*.

b. [Holding coffee in my hands]. *This* is too sweet.

Both propositional discourse referents introduced by Krifka's negated sentence are available for anaphoric reference with the proform *it*. In (53-a), *it* refers back to the proposition introduced at NegP, and in (53-b), it refers back to the proposition introduced at TP.

(53) Ede didn't steal the cookie. (Krifka, 2013, p. 5)

a. and he can actually prove *it*. → that he didn't steal the cookie

b. even though people believed *it*. → that he stole the cookie

In Akan, the deictic demonstratives *wei* 'this' and *ɛno* 'that', as shown in (54) and (54-b), respectively, are used as propositional anaphors.

(54) Ama a-wo, Kofi a-te?
Ama PERF-give.birth Kofi PERF-hear
'Ama has given birth, has Kofi heard about it.'

a. *ɛno* deɛ Kofi a-te?
that TOP Kofi PERF-hear
'Kofi has heard that.'

b. *Wei* deɛ Kofi a-te.
this TOP Kofi PERF-hear
'Kofi has heard this.'

For comparison, note that the demonstratives are also used as individual anaphors in example (55) where they are anaphoric to the noun *car*.

(55) [Picking two cars on the street, one close and the other further away]

Me-pɛ *wei* ɛ-n-yɛ *ɛno*.
3SG-like that 3SG-NEG-COP that
'I like this not that'

In Akan, the phonetic realization of pronouns is constrained by an animacy condition

in clause-final position. That is, the third person pronoun *no* is only phonetically realized in clause-final position with an animate antecedent. When the pronoun's antecedent is inanimate, as in the case of the case proposition in (56), the pronoun is covert.

(56) Kofi sɛ ɔ-m-pɛ fufuo nanso me-n-gye n-ni —.
Kofi COMPL 3SG-NEG-like fufu but 3SG-NEG-collect NEG-eat.
'Kofi says he doesn't like fufu, but I don't believe it.'

Though Krifka (2013) links the introduction of discourse referents to syntactic projections, not all projections make available discourse referents for anaphora. In the nominal domain, Karttunen (1976) notes that discourse referents introduced below negation do not survive beyond the scope of negation. This means that these discourse referents are not available for anaphoric reference in subsequent clauses. For instance, although the DP *the car* introduces a discourse referent in (57), neither the pronoun nor the definite determiner can successfully refer back to it, as shown in (57-a) and (57-b), respectively. Similarly, a discourse referent introduced within the scope of the verb *doubt* does not survive beyond the scope of the embedding verb. It is impossible to make reference to the DP, *a car* introduced in the first part of (58), with the pronoun *it*.

(57) Bill does not have **a car**.

a. #**It** is black.

b. #**The** car is black (Karttunen, 1976, p. 4)

(58) I doubt that Mary has **a car**. #Bill has seen **it**. (Karttunen, 1976, p. 12)

A property of these contexts is that the existence of the entity is not presupposed. In both (57) and (58), there is no car whose existence is being asserted. Existence is an important licensing factor for anaphoricity. We can extend the same notion to other types of anaphors, such as event and propositional anaphora. It is expected that event or propositional anaphors will be licensed only if the context presupposes the existence of the relevant event or proposition. As a result, as with nominals, we predict that discourse referents for events introduced within the scope of negation will be unavailable for anaphora. As shown in (59-a) and (59-b), the

prediction is correct (14-b). Because the context does not imply the existence of an event, the anaphoric pronoun is infelicitous in both examples (59-a) and (59-b).

(59) a. Jack didn't [cut Betty with a knife]$_i$, **#it/that**$_i$ was gruesome.

b. I doubt that anybody [cut Betty with a knife]$_i$, **#that/it**$_i$ was gruesome. (Hankamer and Sag, 1976)

Recall though that propositional discourse referents behave differently from nominal and event anaphora. All the propositions in (59-a) and (59-b) are available for anaphora, as demonstrated in (60) and (61). Both the positive and negative propositions in (60) are available for anaphora: *That* in (60-a) refers to the negative proposition *Jack didn't cut Betty with a knife*, and *it* in (60-b) refers to the positive proposition *Jack cut Betty with a knife*. *It* refers to the proposition embedded under *doubt* in (61), which is *that anybody cut Betty with a knife*.

(60) Jack didn't cut Betty with a knife. **That** was surprising.

a. **That** was surprising.

b. I was expecting **it**.

(61) I doubt that anybody cut Betty with a knife. **It** would have made the news.

The difference between (60) and (61) serves as an important diagnostic for anaphoric reference to events and anaphoric reference to propositions; in the presence of negation, only propositional anaphora survives. We can use this diagnostic to support the argument that clausal *nó* is a propositional anaphoric determiner.

As noted above, event anaphoricity is dependent on the existence of an event in the context, but as we have seen previously, it is possible to explicitly cancel the existence of the event denoted by *nó*-clauses, as in (62).

(62) Context: At the last departmental meeting on Friday, it was decided that Kofi would meet with the Dean, Kwame, the following Tuesday. Today is Wednesday, Nana hasn't heard from Kofi yet, but takes it for granted that the meeting has taken place. However, Kofi was not able to meet with Kwame yesterday because Kwame was out of the office.

Nana gyedi sɛ Kofi a-nya a-kɔ a-kɔ hu Kwame **nó** nanso Kofi
Nana believe COMP Kofi PERF-get CONS-MOT. CONS-go see Kwame CD but Kofi
n-kɔ-i.
NEG-go-PST
'Nana thinks that Kofi has gone to see Kwame, but Kofi has not gone yet.'

Here, the event *go to see Kwame* is stated to not exist at the time of discourse, and thus should not be able to license event anaphora. The availability of the *nó* in this context supports the propositional analysis.

Example (63) with future tense is another context where an event is not presupposed to exist but licenses the clausal determiner.

(63) Ama is sick but refuses to go to the hospital. She keeps buying drugs from the local pharmacy against her mother's advice. It's been a week and she is still not feeling any better, so finally she decides to go the next day.

Ama a-gye a-tum sɛ ɔ-bɛ-kɔ hospital **nó**.
Ama COMPL-collect CONS-put.in COMP 3SG-FUT-go hospital CD
'Ama has agreed to go to the hospital.'

What exists in this context is the proposition 'that Am should go to the hospital'. The anaphoric determiner is, therefore, licensed by this proposition.

4.5 The analysis: definite propositions

Based on the conclusions in the previous chapter, I argue that *nó*-clauses denote definite propositions. In the context of the clausal determiner in Akan, a definite proposition is a familiar proposition, where uniqueness is not a core property of the determiner.

A propositional analysis of clausal determiners was first proposed by Wespel (2008) for the clausal determiner *la* or its phonological variant *a* in Haitian Creole (HC) in (64).

(64) Mari pati **a**.
Mary leave DEF
'Mary has left (as we knew).' (Lefebvre, 1998, p. 238)

As the information in parenthesis shows, (65) presupposes that the propositional content of the sentence is not new information. According to Wespel (2008), the propositional content of *la*-clauses is already part of the common ground at the utterance time. He adds that the main discourse role of these clause is "to confirm a prediction or an expectation, or reintroduce backgrounded information relevant to the current discourse" (Wespel, 2008, p. 128). He points out that this use of *la* is akin to Himmelmann's(1996) recognitional use of nominal definite descriptions. The recognitional use of a definite expression helps to highlight the piece of information that is already common knowledge and has some significance to the present conversation.

An important consequence of Wespel's account is that *la*-clauses are not assertions, even in declarative sentences. Assertions, according to Stalnaker (1978), add new information to the conversation. An important principle of communication is that one cannot assert information that has already been introduced into the conversation; that is, you cannot assert information that is already in the common ground. Contrary to Wespel (2008), I argue that *nó*-clauses are assertions. Although they presuppose familiarity, at the time of the utterance of a *nó*-clause the proposition they express is necessarily not already in the common ground.

Let us begin with the definition of common ground by Stalnaker (1978) in (65). By definition, all propositions in the common ground are familiar, but they are also propositions whose truth discourse participants are jointly committed.

(65) *Common ground (CG)*: includes all propositions that participants have publicly and mutually committed to, and whose truth participants are assumed to have taken for granted. The common ground describes a set of worlds, the *context set*, which are those worlds in which all of the propositions in the common ground are true. (Stalnaker, 1978)

What happens if a speaker asserts a false claim? The assertion is rejected and thus not added to the common ground. However, being asserted, a discourse referent is introduced for this

proposition. In other words, not all familiar propositions are in the common ground. The fact that propositions that introduce discourse referents have different status as far as speaker commitment is concerned has also been pointed out by Snider (2017). Declarative sentences introduce propositions whose truth the speaker is committed to; the prejacent of negation is asserted to be false, and the speaker has no commitment to the prejacent of epistemic modals. In the rest of this chapter, I show that the *nó*-clauses are licensed by discourse referents whose propositional content the speaker is not committed to, and thus is not in the common ground.

Examples (66) and (67) show typical contexts where *nó*-clauses are licensed. In (66), for instance, the discourse participants raise the issue that *Kofi should go see Dr. Abrefa*, and this is only resolved by the *nó*-clause. This means that before the *nó*-clause was uttered, it was not common ground that *Kofi had gone to see Dr. Abrefa*. Similarly, in (67), the context that licenses *nó* raises the issue that *Kofi will go to town*, and the *nó*-clause resolves this issue by concluding that *Kofi did go to town*.

(66) Context: Kofi is failing his class and needs to see the academic adviser, Mr. Abrefa. For over three weeks, his parents have been trying to get him to do this. Out of nowhere, today he went to see Dr. Abrefa. When she learns about this, Kofi's mom says to his dad:

Afei Kofi a-kɔ a-kɔ hu Dr. Abrefa **nó**.
now Kofi PERF-mot. CONS-go see Dr. Abrefa CD
'Kofi has now gone to see Dr. Abrefa.'

(67) Context: Kofi informed Ama and Abena, who are his roommates, that he would go to the market later in the day. Later in the evening, Abena is looking for him. Ama tells Abena...

Kofi a-nya kɔ dwam nó.
Kofi PERF-get go market CD.
'Kofi has gone to the market'.

Nó-clauses are also felicitous responses to sentences with modals, such as (68).[7] Speaker

[7] Akan has only one modal verb *tumi* which is an ability and deontic modal. There is also a modal prefix *bɛ*, often glossed as the future marker, which also expresses both epistemic and deontic modality.

A expresses the necessity that *Kofi see Dr. Abrefa*, while Speaker B's response with the *nó*-clause confirms that *Kofi has seen Dr. Abrefa*.

(68) A: ɛ-wɔ sɛ Kofi kɔ hu Dr.Abrefa.
3SG-have COMP Kofi go see Dr. Abrefa
'It is necessary that Kofi see Dr. Abrefa.'

B: ɔ-a-kɔ-hu no **nó** o.
3SG-PERF-MOT-see 3SG CD PART
'He has already gone to see him (as expected).'

In both (67) and (68), the initial discourse introduces the propositional content of the assertion that contains *nó*, but the proposition is presented as a non-resolved or non-confirmed issue in the discourse. And the role of the *nó*-clause is to confirm or resolve this issue.

The following example reinforces the argument that the antecedent of *nó*-clauses cannot already be in the common ground. In other words, a speaker cannot use a *nó*-clause to reintroduce a backgrounded true proposition because it has become relevant to the present discourse.

(69) **Context**: the department sent out a list of first years to everyone, and there are five people on the list. There were no prior expectations about the number of people. Ama and Yaa both received this email, so they have this information. Ama cannot remember the number of first years and needs to be reminded. Yaa says

First yearfoɔ nó yɛ five (**#nó**).
first year.PL DET COP. five CD
'There are five first years.'

Here, the information that *there are five first year students* is already established in the common ground before the *nó*-clause is uttered. Repeating the sentence in (70) is not redundant since it is serves as a reminder for Ama. The clausal determiner is, however, infelicitous in this context.

We have seen that discourse participants keep track of propositions in a context. True propositions are stored in the common ground, but false propositions and propositions to which speakers are not committed also need to be tracked. Portner (2009) proposes that there are two spaces where discourse participants store propositions: the common ground and the common

propositional space, defined in (70).

(70) *Common Propositional Space (CPS)*: domain where information that interlocutors are mutually aware of but are not committed to is stored (Portner, 2007).

By definition, every proposition that is uttered in a conversation is first stored in the CPS. Propositions whose truth is mutually accepted by all discourse participants are immediately added to the common ground. False propositions and propositions that the speaker is not committed to remain in the CPS. False propositions may never be upgraded to the common ground, but once discourse participants commit to the truth of a proposition that they were previously not committed to, these propositions may be added to the common ground. I argue that that is the role of *nó*-clauses, to push a clause from the CPS to the common ground.

In the case of the modal contexts that license *nó*-clauses, it has been shown in the literature that modal sentences make two propositions salient: the modalized proposition and the prejacent proposition (Portner, 2007; Fintel and Gillies, 2007). Both propositions introduce discourse referents that are available for anaphoric reference, as illustrated in (71).

(71) Pascal and Mordecai are playing Mastermind. After some rounds where Mordecai gives Pascal hints about the solution, Pascal says:
There might be two reds. (Fintel and Gillies, 2007, p. 20)

Mordecai, knowing the solution, responds:

(72) a. That's right. There might be.
b. That's right. There are.
c. That's wrong. There can't be.
d. That's wrong. There aren't. (Fintel and Gillies, 2007, p. 20)

The propositional anaphors *that* in (72-a) and (72-c) target the modalized proposition while the ones in (71-b) and (71-d) target the prejacent (unmodalized) propositions. These propositions, however, have different effects on the context. According to Fintel and Gillies (2007),

the prejacent proposition is asserted content, while the modalized proposition is 'profferred' content.

When Speaker A utters sentence (73) in Akan, they introduce two propositions: the modalized proposition ϕ 'that it is necessary that Kofi go to see Dr. Abrefa,' and the prejacent proposition ψ 'Kofi goes to see Dr. Abrefa.' Propositional discourse referents are introduced for both ϕ and ψ. At this point, any anaphoric expression should be able to refer back to these two propositions, therefore licensing the *nó*-clause answer by Speaker B.

(73) A: ɛ-wɔ sɛ Kofi kɔ hu Dr. Abrefa.
3SG-have COMP Kofi go see Dr. Abrefa
'It is necessary that Kofi see Dr. Abrefa.'

B: ɔ-a-kɔ-hu no **nó** o.
3SG-PERF-go-see 3SG CD PART
'He has already gone to see him (as expected).'

However, *nó*-clauses have two semantic contributions, as stated in (74).

(74) a. *Assertion*: ϕ-*nó* asserts ϕ.

b. *Presupposition*: the propositional content of their complement has an antecedent in the discourse (familiarity).

Considering (73), the familiarity presupposition is satisfied by the availability of discourse referents for the ψ proposition. For the *nó*-clause to be an assertion, the propositional content of the *nó*-clause must not be in the common ground at utterance time. Suppose the initial context, that is, the context before (73) was uttered, is empty. When (73) is uttered, the modalized proposition ϕ is immediately entered into the CPS, and then, if it is not contested, it is also entered into the CG. The prejacent proposition ψ is also entered into the CPS, but since there is no speaker commitment to this proposition, it does not update the CG. The update process is illustrated in (75).

(75)

Initial context	Update with modal sentence
C_o	C_1
cg {}	$cg^1 = cg \cup \{ [\![\phi]\!] \}$
cps {}	$cps^1 = cg \cup \{ [\![\phi]\!] \} \cup \{ [\![\psi]\!] \}$

Because ψ is not in the CG when Speaker B utters the *nó*-clause, the necessary conditions for making an assertion are satisfied. It is added after Speaker B's utterance, as illustrated in (76).

(76) Update with *nó*-clause

C_2

$cg^2 = cg^1 \cup \{ [\![\phi]\!] \} \cup \{ [\![\psi]\!] \}$

$cps^2 = cg \cup \{ [\![\phi]\!] \} \cup \{ [\![\psi]\!] \}$

Thus, *nó* pushes clauses in the CPS to the CG. Recalling Wespel's (2008) claim that the role of the clausal determiner is "to confirm a prediction or an expectation," the analysis above captures these readings. Expectations or predictions are statements about what might happen in the future, so they are neither true nor false propositions. Confirming a prediction or an expectation means committing to the proposition it expresses, and *nó*-clauses are used by speaker so commit to such propositions. A context where the propositional content of the *nó*-clause is already in the CG at the time the *nó*-clause is uttered violates Stalnaker's (1978) conversational principle.

Compositionally, I assume that the clausal definite determiner, like the nominal determiner, has an index whose value is determined by a contextually determined assignment function. There is an identity relation between the value of the index and the descriptive content of the proposition complement of *nó*. I treat *nó* as an identity function, type $\langle\langle s,t\rangle,\langle s,t\rangle\rangle$ with a familiarity presupposition. *Nó* in declarative sentences takes a proposition as an argument and returns the proposition *iff* the familiarity presupposition is satisfied in the context (77).

(77) $[\![\text{nó}_q]\!]^g = \lambda p\ \lambda w : \underline{p = g(q)}.\ p(w)$

Presupposes that the propositional content of their complement has an antecedent in the discourse (familiarity).

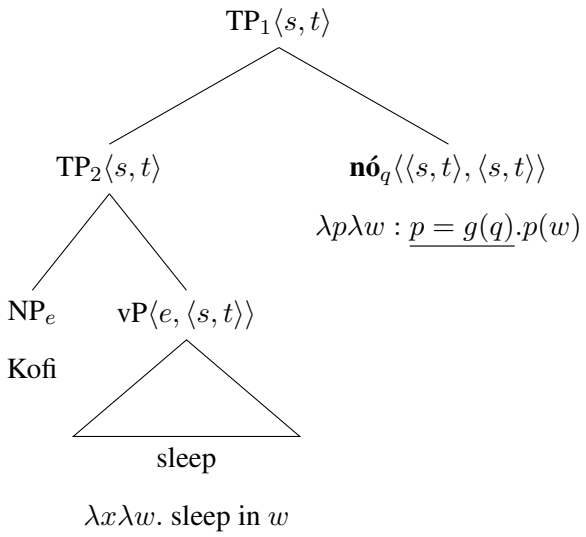
A simple declarative sentence such as (78) with a clausal determiner has the interpretation, given in the tree in (79).

(78) Kofi a-nya a-da **nó**.
Kofi PERF-get CONS-sleep CD
'Kofi has finally slept.'

a. *Assertion*: Kofi has slept.

b. *Presupposition*: *That Kofi sleep* has an antecedent in the context.

(79)



a. $[\![\text{TP}_2]\!]^g = \lambda w.x$ Kofi sleep in w

b. $[\![\text{TP}_1]\!]^g = \lambda w : \underline{\text{Kofi sleep} = g(q)}.$ Kofi sleep in w

As argued previously, a *nó*-clause with negation has two interpretations that correspond to the scope interaction between the clausal determiner and the negation. On one reading, the clausal determiner takes wide scope over negation. This is represented in (80) and the tree in (81). In this context, the antecedent of the proposition is a negated proposition. The

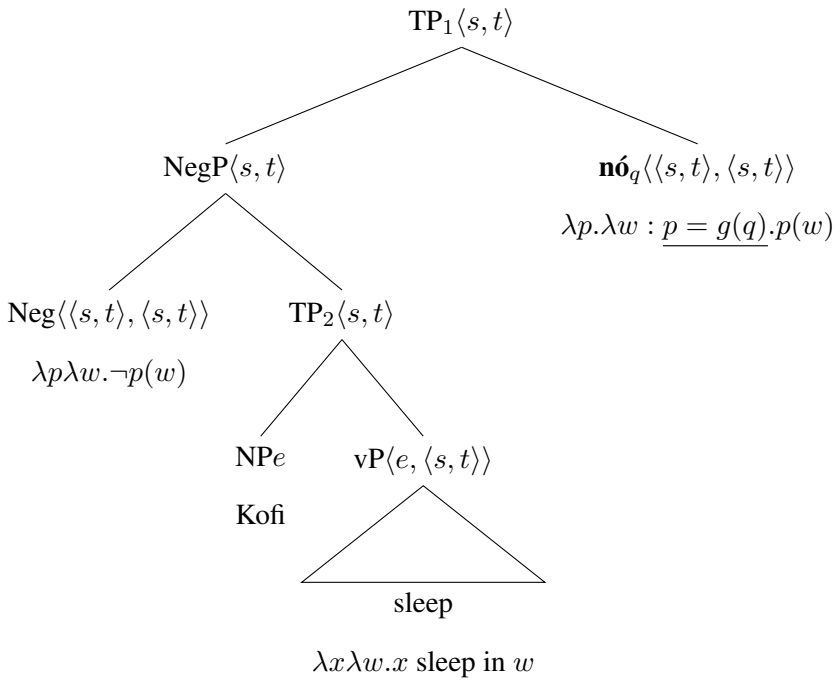
presupposition and the assertion are both negative propositions.

(80) Kofi a-n-nya a-n-da **nó**.
Kofi PERF-NEG-get CONS-NEG-sleep CD
'Kofi did not sleep.'

a. *Assertion*: Kofi did not sleep.

b. *Presupposition*: *That Kofi not sleep* has an antecedent in the context.

(81) The clausal determiner scopes over negation



a. $[\![\text{TP}_2]\!]^g = \lambda w$. Kofi sleeps in w

b. $[\![\text{NegP}]\!]^g = \lambda w$. Kofi doesn't sleeps in w

c. $[\![\text{TP}_1]\!]^g = \lambda w : \underline{\text{K doesn't sleep} = g(q)}$. Kofi doesn't sleep in w

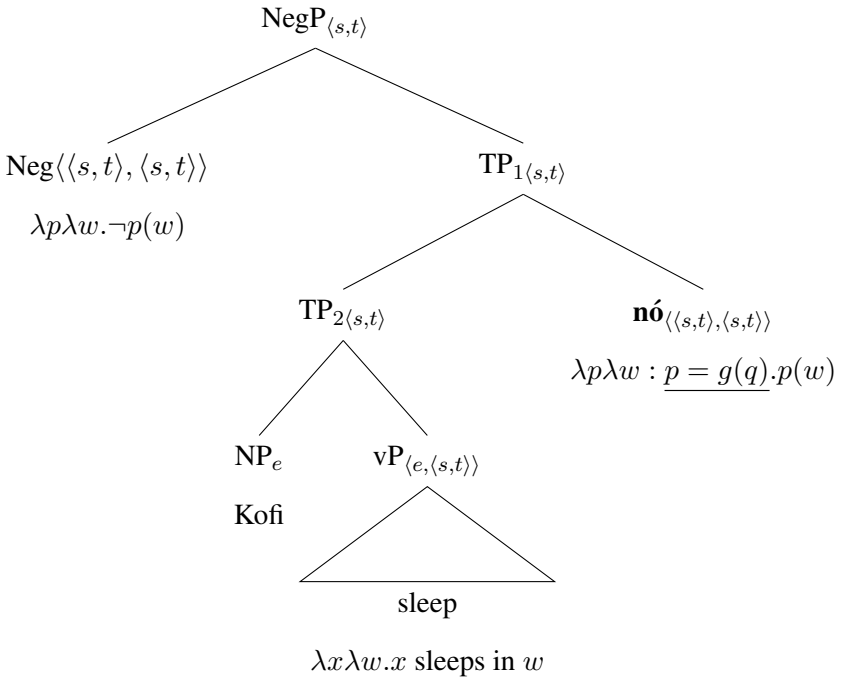
On the other reading, negation takes scope over the clausal determiner. This is shown in (82) and represented in the tree in (83). Here, the antecedent of the proposition is a positive proposition. The sentence asserts a negative proposition but presupposes the familiarity of a positive proposition.

(82) Kofi a-n-nya a-n-na **nó**.
Kofi PERF-NEG-get CONS-NEG-sleep CD
'Kofi did not sleep.'

a. *Assertion*: Kofi has not slept.

b. *Presupposition*: *That Kofi sleep* has an antecedent in the context.

(83) Negation scopes over the clausal determiner



a. $[\![\text{TP}_2]\!]^g = \lambda w$. Kofi sleep in w

b. $[\![\text{TP}_1]\!]^g = \lambda w : \underline{\text{K sleep} = g(q)}$. Kofi sleep in w

c. $[\![\text{NegP}]\!]^g = \lambda w : \underline{\text{K sleep} = g(q)}$. Kofi doesn't sleep in w

In terms of Portner's (2007) analysis, the familiarity required of *nó* amounts to information in the CPS. Contrary to Wespel (2008), therefore, I have shown that the clausal determiner in Akan cannot be used to simply restate an asserted proposition.

4.6 Summary of chapter

This chapter analyzed the use of *nó* in the clausal domain, focusing on declarative sentences. First, I established that despite its status as a clausal determiner, *nó*-clauses in embedded contexts do not have some of the typical characteristics of definite CPs. For instance, *nó*-clauses do not trigger factive presuppositions under non-factive predicates; factivity, I concluded, is neither a necessary nor sufficient condition for licensing *nó*-clauses. I then showed that the *nó* in the clausal domain, like in the *nó* in the nominal domain, has a familiarity presupposition.

Considering the different properties of events and propositions, I showed that *nó* takes propositional, rather than event arguments. Specifically, I showed that clausal *nó* is licensed even in contexts where event discourse referents are unavailable. Building on this, therefore, I argued that *nó*-clauses are definite propositions. *Nó*-clauses have two semantic contributions: a presupposition of familiarity and an assertion.

Contrary to Wespel (2008), I showed that the clausal determiner cannot be used to reintroduce a proposition that is already in the common ground. Every context in which *nó*-clauses are licensed is a context in which the propositional content of the *nó*-clause is not already present. I borrowed from Portner (2007) the idea that the update of information in a conversation occurs at two different levels: the Common Propositional Space and the Common Ground. Every proposition that is uttered is entered into the CPS, but only true propositions that are mutually accepted by discourse participants are in the CG. Propositions in the CG cannot be reasserted, but propositions in the CPS can be asserted. The analysis of clausal *nó* proffered in this chapter not only captures the rather intriguing distributional restrictions, it provides empirical support for a textured view of the structure of discourse.

Chapter 5

Determiners in Akan Relative Clauses

5.1 Nominal or clausal determiner in relative clauses

As I demonstrated in the preceding chapter, the clausal determiner is licensed in a number of contexts, one of which being the context of relative clauses. In addition, it is one of the domains in which the clausal determiner has received much attention in the literature. According to a recent work by Bombi et al. (2019), all determiners in relative clauses modify the head noun, thus qualifying as nominal determiners. Before we continue our consideration of the clausal determiner in relative clauses, it is important that we first demonstrate that the clause-final *nó* in relative clauses is a clausal determiner, as argued by Saah (2010) and Arkoh and Matthewson (2013).

To recap the facts in the previous section, a typical Akan NP-headed relative clause, such as (1), possesses the morphosyntactic features specified in (2).[1]

(1) [$_{DP}$ Abofra (**nó**) [$_{RC}$ áà Kofi hu-u no (**nó**)]] a-ba.
child DEF REL Kofi see-PST 3SG CD PERF-come
'The child whom Kofi saw has come.' (Saah, 2010, p. 94)

(2) a. there is a head NP *abofra* which appears outside the RC

b. following the head NP, an optional definite determiner *nó* appears.

c. an obligatory relativizer *áà* follows the determiner marking the beginning of the relative clause

d. a resumptive pronoun that agrees with the head noun in number and person occupies the canonical position of the head noun.

[1]For detailed descriptions of characteristics of Akan relative clauses have, see Boadi (2005), Saah (2010), and McCracken (2013)

e. at the end of the RC, an optional definite determiner *nó* appears.

f. the relative clause follows the head NP.

For the purposes of this chapter, we will only concentrate on the determiner features mentioned in (2-b) and (2-e). One of the distinctive aspects of Akan relative clauses is the presence of two determiner positions: one immediately following the head noun and another at the end of the RC. The determiners' distribution and relative order in relation to the other constituents are schematized in (3). Both determiners are optional.

(3) Linear schema for determiners in NP-headed relative clauses

NP (+DET_1) + Relative-Clause (+DET_2)

As demonstrated in (2), the definite determiner *nó* may occur in both DET_1 and DET_2. The debate in the literature, then, is whether both DET_1 and DET_2 modify the head noun or only DET_1 modifies the head name, while DET_2 modifies the clause. Bombi et al. (2019) make the former case, while Saah (2010) and Arkoh and Matthewson (2013) take the latter position. I argue in this section in favor of Saah (2010) and Arkoh and Matthewson (2013).

5.1.1 DET-1 the determiner in the first position

There is no disagreement on the status of determiners in DET_1. Its role and status are readily apparent from the permissible determiners in that position. All the nominal determiners discussed in Chapters 2 and 3 may occur in DET_1, as shown in the examples below. DET_1 may be filled with the definite determiner *nó* as in (4), or the indefinite determiner, as in (5). Example (5) also shows that there is no matching requirement between the determiner in DET_1 and the one in DET_2.

(4) **N + Nó + Relative-Clause + Nó**

Aberantie **nó**$_1$ [$_{RC}$ áà mo-boa-a no **nó**$_2$] bɛ-da ase.
man DEF REL. 2PL-help-PST 1SG.OBJ CD FUT-sleep under

'The man who you helped came to say thank you.'

(5) **N + Bí + Relative-Clause + Nó**

Aberantie **bí** [$_{RC}$ áà mo-boa-a no **nó**$_2$] bɛ-da ase.
man INDEF REL. 2PL-help-PST 1SG.OBJ CD FUT-sleep under
'A certain man who you helped came to say thank you.'

As shown in (6), the indefinite-definite combination discussed in Chapter 3 may also occur in DET_1. And finally, DET_1 may be empty, that is, a bare noun may occur as a head of a relative clause, as in (7).

(6) **N + Bí-Nó + Relative-Clause + Nó**

Aberantie **bí** **nó** [$_{RC}$ áà mo-boa-a no **no**$_2$] bɛ-daa ase.
man INDEF DEF REL. 2PL-help-PST 1SG.OBJ CD FUT-sleep under
'The certain man who you helped came to say thank you.'

(7) **N + ∅ + Relative-Clause + Nó**

Aberantie [$_{RC}$ áà mo-boa-a no **nó**] bɛ-daa ase.
man REL. 2PL-help-PST 1SG.OBJ CD FUT-sleep under
'A man who you helped came to say thank you.'

As has been already established, all the determiners in DET_1 are nominal determiners, that is, they interact with the noun. Thus, DET_1 is the position of the nominal determiner.

Based on the above discussion, the nominal determiner intervenes between the head and the relative clause, in the Akan relative clause. De Vries (2001, 2002) points out that the sequence of determiners in relation to the head noun and relative clauses varies across languages. The table below from De Vries (2001) illustrates the various logical permutations of the linear order of relative clauses and their head NPs in several languages.

Table 2: Variation in the position of determiners in RCs (De Vries, 2001, p. 8)

RC type	*linear order*	*language examples*	
		OV languages	*VO languages*
postnominal	D N RC	Dutch	English
	N D RC	Oromo	Swedish
	N RC D	Lakota	Indonesian
prenominal	D RC N	Tigré	(RC N: Palauan, Chinese)
	RC D N	Korean	
	RC N D	Basque	

Akan relative clauses are post-nominal in nature and have the N-D-RC structure.

5.1.2 DET-2: the determiner in the second position

In contrast to *nó* in DET_1, there is no agreement on the status of *nó* in DET_2 in examples such as (8).

(8) Aberantie **nó** [$_{CP}$ áà [$_{TP}$[$_{TP}$ yɛ-boa-a no] **nó**]] bɛ-daa ase.
man DEF REL. 3PL-help-PST 1SG.OBJ CD FUT-sleep under
'The man who we helped came to say thank you.'

On the one hand, Saah (2004), Saah (2010), Arkoh and Matthewson (2013), Korsah (2017), and Bombi et al. (2019) assert that *nó* in DET_2 in (9) is a determiner. While Amfo and Fretheim (2005) and Boadi (2005) define it as a dependent clause marker; a signal that a subordinate clause has come to an end. Even within determiner analyses, there are distinctions based on whether the determiner is nominal or clausal. Saah (2004), Saah (2010), Arkoh and Matthewson (2013), and Korsah (2017) all treat *nó* as a clausal determiner, which is analogous to the propositional definite mentioned in Chapter 4. They assert that the determiner marks the information contained in the relative phrase, not the head noun, as familiar to the conversation participants. According to (bombi2019), on the other hand, the second determiner is a nominal determiner, which means that it operates at a nominal level.

As mentioned in the previous chapter, I consider *nó* in DET_2 a clausal determiner. I start with the type of determiners that can occupy this position. Regardless of which determiner is in DET_1, DET_2 can only be occupied by *nó*, the indefinite determiner *bí* cannot occupy this position, as demonstrated by examples in (9) to (12).

(9) **# NP + Nó + Relative-Clause + Bí**

Aberantie **nó** [$_{RC}$ áà mo-boa-a no **#bí**] bɛ-daa ase.
man DEF REL. 2PL-help-PST 1SG.OBJ INDEF FUT-sleep under

(10) **# NP +Bí + Relative-Clause + Bí**

Aberantie **bí** [$_{RC}$ áà mo-boa-a no **#bí**] bɛ-daa ase.
man INDEF REL. 2PL-help-PST 1SG.OBJ INDEF FUT-sleep under

(11) **# N + Bí-Nó + Relative-Clause + Bí**

Aberantie **bí** **nó** [$_{RC}$ áà mo-boa-a no **#bí**] bɛ-daa ase.
man INDEF DEF REL. 2PL-help-PST 1SG.OBJ INDEF FUT-sleep under

(12) **# NP +∅+ Relative-Clause + Bí**

Aberantie [$_{RC}$ áà mo-boa-a no **#bí**] bɛ-daa ase.
man REL. 2PL-help-PST 1SG.OBJ INDEF FUT-sleep under

As with the DET_1, DET_2 may be bare, as in (13).

(13) **NP + Nó + Relative-Clause +** ∅

Aberantie **nó** [$_{RC}$ áà mo-boa-a no] bɛ-da yen ase.
man DEF REL. 2PL-help-PST 1SG.OBJ FUT-sleep 3PL.OBJ under

'The man who you helped came to say thank you.'

With the knowledge that only *nó* can be a clausal determiner, the fact that *bí* cannot be in DET_2 suggests that that position only hosts clausal determiners. Suppose DET_2 is a nominal determiner position, we need to explain why *bí* is unable to occur in this position. On the analysis that DET_2 is a clausal determiner position, no further explanation is required.

Bombi et al. (2019) present two arguments in support of their argument that *nó* in DET_2 is a nominal determiner, which are listed and addressed below. First, they contend that *nó* is infelicitous in the context of (14), as it modifies the head noun, which has not been introduced previously.

(14) Context: Nana starts a conversation with a stranger: Yesterday I was at the bar and. . .

#...papa [áà ɔ-tena-a Berlin **nó**] ba-a hɔ.
...man REL. sit-PST Berlin CD arrive-PST there

'The man who lived in Berlin arrived.' (Bombi et al., 2019, p. 185)

The problem with this reasoning is that it does not preclude the analysis that *nó* is a clausal determiner. As established in Chapters 2 and 4, familiarity is a property that both nominal and clausal determiners possess. All that (15) indicates is that *nó* has a presupposition of familiarity.

In addition, take, for example, a noun like *president*, which we established in Chapter 2 is incompatible with *nó* in Akan. Whether *nó* occurs in DET_1 or DET_2 in a relative clause headed by these nouns results in different interpretations. When *nó* occurs in DET_1, as it does in (15), the relative clause is interpreted literally as '*the president seated in a chair*'. (15) is felicitous in a context involving multiple presidents, such as an African Union meeting. It is infelicitous when applied to the president of Ghana. In the context, it has the same constraint as the unmodified *nó*-NP.

(15) Omanpanyin **nó** [$_{RC}$ áà ɔ-te akonya so] na ɔ-re-kasa..
president DEF REL 3SG-sit.on chair top FOC 3SG-PROG-talk
The president who is sitting on the sitting.

However, in (16), where *nó* occurs in DET_2, the relative clause receives an idiomatic reading, it means *current president*, and can be felicitously be used to describe the president of Ghana.

(16) Omanpanyin [$_{RC}$ áà ɔ-te akonya so **nó**] na ɔ-re-kasa.
president REL 3SG-sit.on chair top CD FOC 3SG-PROG-talk
'The current president is talking'

LIT: The president who is sitting on the throne is talking.

Second, Bombi et al. (2019) argue that in a relative clause such as (17) can be reanalyzed as (18), where *nó* in DET_2 will be analyzed as part of the *bí nó* combination.

(17) Papa **bí** [$_{rc}$ áà yɛ-boa-a no **nó**] bisa-a me me
man INDEF REL. 3PL-help-PST 1SG.OBJ DEF ask-PST 1SG.OBJ 1SG.POSS
nɔma
number
'The certain man asked me for my number.'

(18) Papa **bí** **nó** [$_{CP}$ áà yɛ-boa-a no] bisa-a me me
man INDEF DEF REL. 3PL-help-PST 1SG.OBJ ask-PST 1SG.OBJ 1SG.POSS
nɔma
number
'The certain man asked me for my number.'

While this argument appears plausible, it does not predict (19). In this case, DET_1 is occupied

by indefinite-definite *bí nó* combination, while DET_2 is occupied by *nó*.

(19) Papa **bí** **nó** [$_{CP}$ áà yɛ-boa-a no **nó**] bisa-a me
man INDEF DEF REL. 3PL-help-PST 1SG.OBJ ask-PST 1SG.OBJ 1SG.POSS
me nɔma
number
'The certain man asked me for my number.'

In light of the foregoing, I conclude that *nó* in DET_2 is the clausal determiner that modifies clauses.

A summary of the distribution of Akan determiners in relative clauses is provided in (20). Det_1 may host the definite determiner, the indefinite determiner, the indefinite-definite combination or remain bare. DET_2 can be occupied by the definite determiner or be bare.

(20) Summary of determiner distribution in Akan

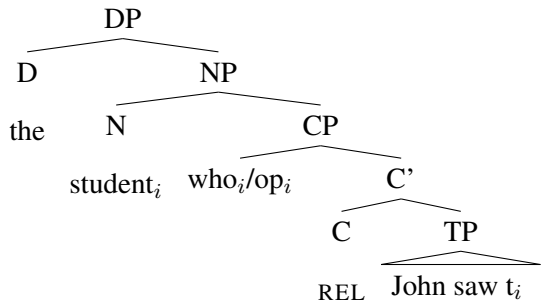
Definite	*indefinite*	*Bare*
N+ nó + RC + nó	N+ bí + RC + nó	N+ ∅ + RC + ∅
N+ bí nó + RC + nó		
N+ nó + RC + ∅	N+ bí + RC + ∅	N+ ∅ + RC + nó
N+ bí nó + RC + ∅		

The rest of the chapter is as follows: the next section examines how the choice of determiners in the two positions affects the interpretation of the relative clause. Additionally, I will demonstrate how to generate these interpretations. The main goal is to demonstrate that the interpretation of the nominal determiners (discussed in Chapters 2 and 3) and the clausal determiner (discussed in Chapter 4) does not get obscured in the interpretation of the relative clause. Also, I demonstrate how, particularly when there are two determiners, the semantics of the two determiners interact and what they impose on the contexts that license them. Then in section 5.3, I examine the function of relative clauses in Akan. Akan relative clauses have a mix of restrictive and non-restrictive relative clause characteristics. Focusing on these mixed features, I argue that, in addition to restrictive relative clauses, Akan has descriptive relative clauses rather than non-restrictive relative clauses.

5.2 Interpreting nominal and clausal determiners in relative clauses

I have established in the previous section that determiners in DET_1 are nominal determiners, and DET_2 is the domain of the clausal determiner. In this section, I show that compositionally, both determiners contribute their interpretations as expected. For the interpretation in this section, I adopt a standard Partee (1975) analysis of relative clauses, whose syntax is based on one of the early analyses of RC, the *Head External Account* (HEA), proposed by Quine (1960) and assumed by Chomsky (1977) and Jackendoff (1977).[2] In this analysis, the head NP is merged outside of the relative clause CP. It also involves the A'-movement of a relative operator, which can be either overt or covert. As demonstrated in, the determiner then combines with the resulting NP (21).

(21)



The head and the relative clause property are combined via compositional rule called *Predicate modification*, defined below:

---

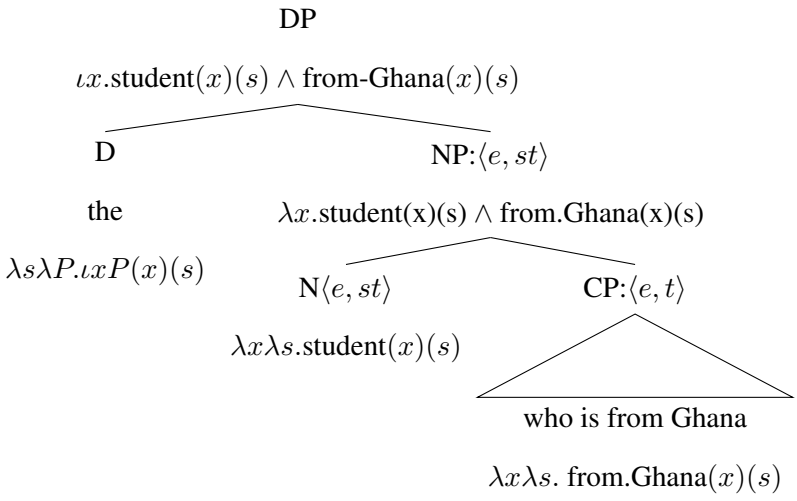
[2]The HEA cannot account for situations in which the head NP appears to originate in the RC CP, such as (i).
(i). The student [$_{CP}$who$_i$ John saw t$_i$]
Other analyses of relative clauses such as the Head Raising Analysis (HRA) by Brame (1968), Schachter (1973), and Vergnaud (1974), which has recently gained support from Kayne (1994) and Bhatt (2000) and Sauerland's (1998) Matching Analysis (MA)Sauerland (1998) are better suited to account for this problem.

(22) **Predicate Modification**

If α is a branching node whose daughters are β and γ, and $[\![\beta]\!]$ and$[\![\gamma]\!]$ are both of type $\langle e, t\rangle$ then $[\![\alpha]\!] = \lambda x.[[\![\beta]\!](x) \wedge [\![\gamma]\!](x)]$ (Heim and Kratzer, 1998)

This rule combines two predicates of type $\langle e, st\rangle$ into a new predicate of the same type. The new predicate holds true for any individual who satisfies both predicates. In (23), this means that the individual is *from Ghana* and *a student*. The definite determiner then takes the modified NP as a complement. The interpretation of the RRC in (21) proceeds as shown in (23).

(23) The student who is from Ghana

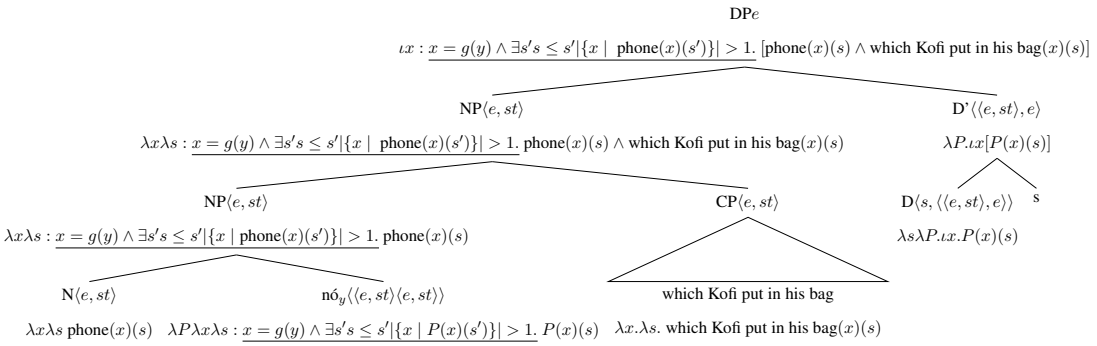


(24) $[\![$The student who is from Ghana$]\!]$ = ιx.student$(x)(s) \wedge$ from-Ghana$(x)(s) \approx$ the x who is a student and from Ghana in s.

Coming back to Akan, I have argued extensively in Chapter 2 that *nó* is a nominal modifier and not the head of the DP. In other words, *nó* and the English definite determiner *the* do not have the same function in a relative clause DP. The Akan equivalent of *the* is the null D.

A relative clause with the configuration NP+ *nó*$_1$ + RC + $\emptyset$ is interpreted as follows:

(25) $[\![[_{\text{DP}}$ fon **nó** $[_{\text{RC}}$ áà Kofi de-hyɛɛ ne bag mu$]]]\!] \approx$ The unique familiar phone which Kofi put in his bag



The noun combines with *nó* first, which means that the familiarity and non-uniqueness presupposition need to be satisfied for the noun property. The relative clause CP then combines with the NP via predicate modification yielding a property of type $\langle e, st\rangle$. Finally, the resulting NP combines with the D head for a the DP meaning in (25).

The referent of the head noun is familiar, which can be attributed to the fact that it was introduced in the previous clause, as demonstrated in (26). The propositional content of the relative clause, on the other hand, is not familiar; it has not previously been mentioned.

(26) ɛnnora Kofi kɔ-ɔ Circle kɔ tɔ-ɔ fon ne laptop. ɔ-bɛ-duro fie
yesterday Kofi go-PST Circle go buy-PST phone CONJ laptop 3SG-FUT-reach home
nó sɛɛ fon **nó** $[_{\text{RC}}$ áà ɔ-de-hyɛ ne bag mu] a-firi
DEF PART phone DEF REL 3SG-take-put 3SG.POSS bag inside PERF-remove
a-tɔ.
PERF-fall
'Yesterday Kofi went to Circle to buy a phone and a laptop. When he got home he realized that the phone, which he put in his bag, fell down.'

Similarly, in (27), the context indicates that the head noun *policeman* is familiar, but the relative propositional content of the relative clause is not. The use of the relative clause assists in distinguishing the relevant police officer from other officers.

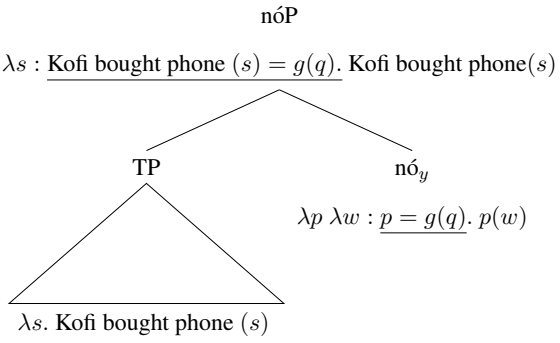
(27) Ama and Yaa are having a discussion about the retirement age of soldiers and other civil servants. Yaa complains:

Asogyafoɔ ne Polisifoɔ kɔ pension ntem dodo. Wo-nim sɛ [$_{DP}$ polisini
soldiers CONJ policemen go pension early INTS. 2SG-know COMP policeman
nó [$_{RC}$ áà ɔ-te yɛn dan ńo akyi]] kɔ pension.
DEF REL. 3SG-stay 3PL house DEF back go pension

'Soldiers and policemen retire too early.You know, the policeman who stays behind our house is retired.'

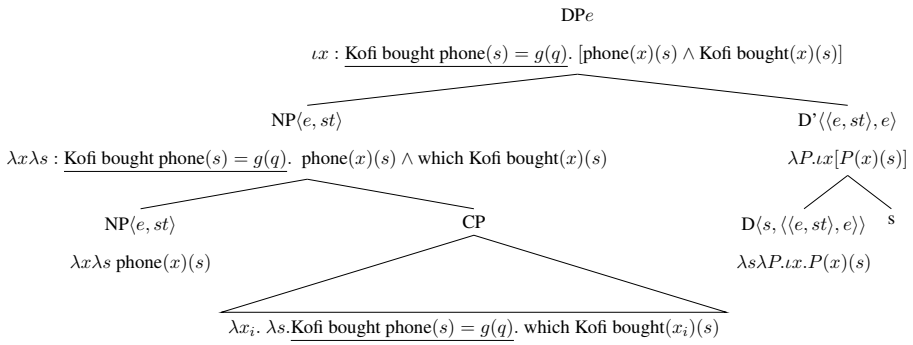
Next, we consider relative clauses in which DET_1 is bare and DET_2 is occupied by *nó*, with the configuration NP+ $\emptyset$ + RC + *nó*$_2$, as in (28). Before the derivation for the relative clause begins, the clausal determiner attaches to the TP, as shown in (28). Like the *nó*-clauses discussed in the previous chapter, (28) is felicitous if it is familiar that *Kofi bought a phone*.

(28) The familiar proposition that I bought a phone



Following this step, the standard procedure for constructing a relative clause is used to derive (29). Recall that in 2, I argued that bare nouns can be combined with IOTA for a definite reading. Thus, null D can be combined with the NP in (29).

(29) $[\![[_{\text{DP}}$ phone $[_{\text{RC}}$ áà John kɔ-tɔ-e **nó**$]]\!] \approx$ The unique phone, for which it is familiar that Kofi bought.



A relative clause with this configuration in licensed in two contexts. In one scenario, as illustrated in (30), both the clause and the head noun are introduced in the previous clause. In other words, the head noun *phone* is familiar, and the fact that *Kofi bought a phone* is also familiar.

(30) ɛnnora Kofi kɔ-ɔ Circle kɔ tɔ-ɔ fon ne laptop. ɔ-bɛ-duro fie
yesterday Kofi go-PST Circle go buy-PST phone CONJ laptop 3SG-FUT-reach home
nó sɛɛ fon [$_{\text{CP}}$ áà ɔ-tɔ-e **nó**] yɛ fake.
DEF PART phone REL 3SG-buy-PST CD COP. fake
'Yesterday Kofi went to Circle to buy a phone and a laptop. When he got home he realized that the phone he bought was a fake'

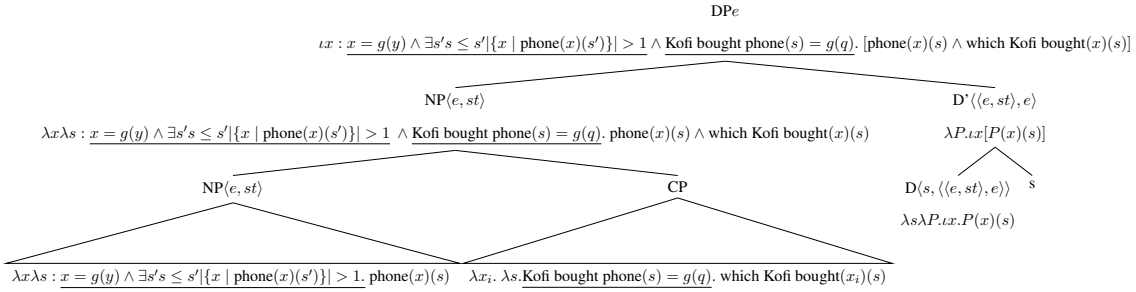
In the other context, illustrated in (31), the head noun is not explicitly mentioned in the prior discourse, but the propositional content of the relative clause is.

(31) ɛnnora Kofi kɔ-ɔ Circle kɔ tɔ-ɔ nnɛema. ɔ-bɛ-duro fie nó sɛɛ
yesterday Kofi go-PST Circle go buy-PST things 1SG-FUT-reach home DEF PART
fon [$_{\text{rc}}$ áà ɔ-tɔ-e **nó**] yɛ fake.
phone REL 1SG-buy-PST CD COP. fake
'Yesterday Kofi went to Circle to buy things. When he got home he realized that the phone he bought was a fake'

Next, I consider the third case where *nó* occupies both determiner positions, which is the order NP+ *nó*$_1$ + RC + *nó*$_2$. Two familiarity presuppositions are imposed on the context in this scenario, one on the noun property and the other on the propositional content of the RC

proposition.

(32) $[\![[_{\text{DP}}$ fon **nó** $[_{\text{RC}}$ áà Kofi kɔ-tɔ-e **nó**$]]]\!] \approx$ The unique familiar phone, for which it is familiar that Kofi bought.

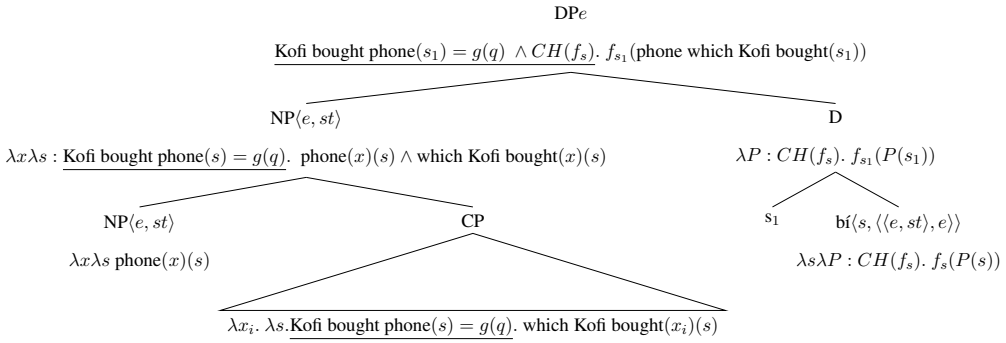


(33) ɛnnora Kofi kɔ-ɔ Circle kɔ tɔ-ɔ fon ne laptop. ɔ-bɛ-duro fie
yesterday Kofi go-PST Circle go buy-PST phone CONJ laptop 3SG-FUT-reach home
nó sɛɛ fon **nó** $[_{\text{rc}}$ áà ɔ-tɔ-e **nó**$]$ yɛ fake.
DEF PART phone DEF REL 3SG-buy-PST CD COP. fake
'Yesterday Kofi went to Circle to buy a phone and a laptop. When he got home he realized that the phone he bought was a fake.'

We can now proceed to relative clauses with the indefinite determiner *bí* in DET_1. When an indefinite determiner appears in DET_1, the head noun introduces new discourse referents to the context just like an unmodified indefinite NP.

We first consider the order NP+ $bí_1$ + RC + $nó_2$ in (34).

(34) $[\![[_{\text{DP}}$ phone **bí** $[_{\text{RC}}$ áà Kofi kɔ-tɔ-e **nó**$]]]\!]$



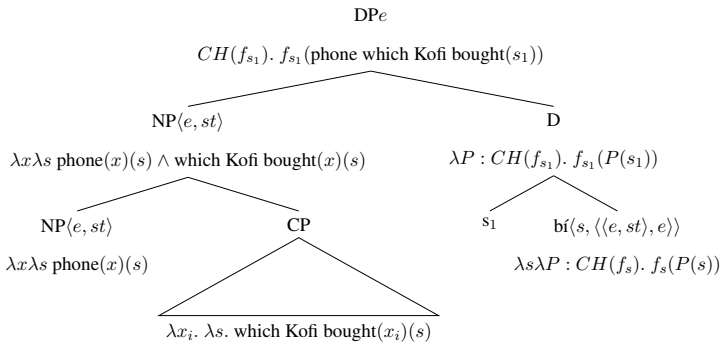
With this relative clause order, the head noun must not be explicitly mentioned in the prior discourse, but the propositional content of the relative clause is, as in (35). When the head noun is explicitly mentioned, as in (36), the sentence becomes infelicitous.

(35) ɛnnora Kofi kɔ-ɔ Circle kɔ tɔ-ɔ nneɛma. ɔ-bɛ-duro fie nó sɛɛ
yesterday Kofi go-PST Circle go buy-PST things 3SG-FUT-reach home DEF PART
fon **bí** [$_{CP}$ áà ɔ-tɔ-e **nó**] yɛ fake.
phone INDEF REL 3SG-buy-PST CD COP. fake
'Yesterday Kofi went to Circle to buy a phone and a laptop. When he got home he realized that the phone he bought was a fake'

(36) #ɛnnora Kofi kɔ-ɔ Circle kɔ tɔ-ɔ fon ne laptop. ɔ-bɛ-duro fie
yesterday Kofi go-PST Circle go buy-PST phone CONJ laptop 3SG-FUT-reach home
nó sɛɛ fon **bí** [$_{CP}$ áà ɔ-tɔ-e **nó**] yɛ fake.
DEF PART phone INDEF REL 3SG-buy-PST CD COP. fake
'Yesterday Kofi went to Circle to buy a phone and a laptop. When he got home he realized that the phone he bought was a fake'

For the order NP+ *bí*$_1$ + RC + $\emptyset$, the derivation is given below. Here, neither the head noun nor the propositional content of the relative clause are previously introduced.

(37) $[\![$[$_{DP}$ phone **bí** [$_{RC}$ áà Kofi kɔ-tɔ-e]]$]\!]$



(38) ɛnnora Kofi kɔ-ɔ Circle. ɔ-bɛ-duro fie nó sɛɛ fon **bí** [$_{CP}$ áà
yesterday Kofi go-PST Circle 3SG-FUT-reach home DEF PART phone INDEF REL
ɔ-tɔ-e] yɛ fake.
3SG-buy-PST COP. fake
'Yesterday Kofi went to Circle to buy a phone and a laptop. When he got home he realized that the phone he bought was a fake'

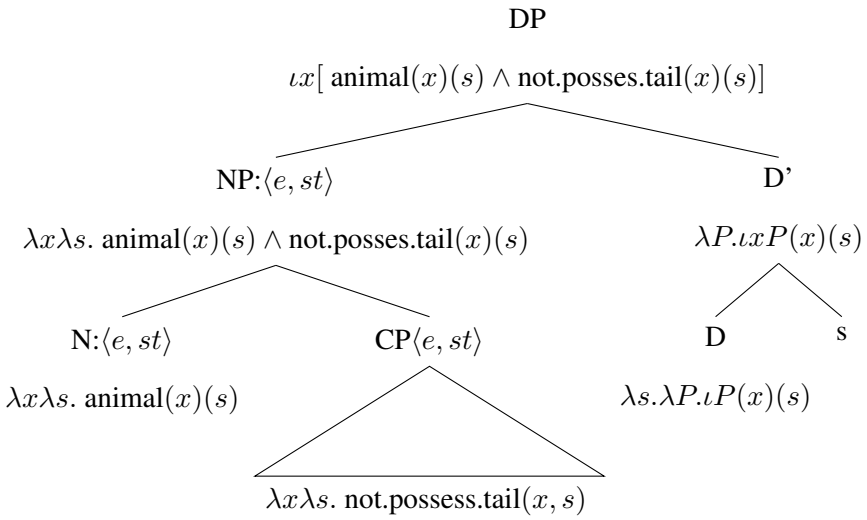
The final construction has no overt determiner in either position, with the order NP+ $\emptyset$ + RC + $\emptyset$. This type of relative clause order is mostly used to make generic statements. Neither the head noun nor the relative clause is presupposed to be familiar. The relative clauses in these (39) and (40) create subclasses within reference classes, a semantic feature of indefinites with descriptive readings.

(39) Aboa [$_{CP}$ áà [$_{TP}$ ɔ-n-ni dua]] tumi pra neho.
animal REL 3SG-NEG-have tail be.able sweep 3SG.POSS
'Animals without tails can still groom themselves.'

(40) Obiara m-pɛ abofra [$_{RC}$ áà ɔ-m-mu adeɛ asem].
everyone NEG-like child REL 3SG-NEG-respect thing issue
'Nobody likes a disrespectful child.'

LIT: Nobody likes a child who does not respect.

The composition of a relative clause with this order is illustrated with (39) in (41).



To summarize, this section provided analysis for relative clauses with various determiner interpretations and demonstrated the various contexts in which they are licensed. I demonstrate that all of the interpretations are derived from the individual interpretations of the determiners.

5.3 Restrictive vs. Non-restrictive distinction in Akan

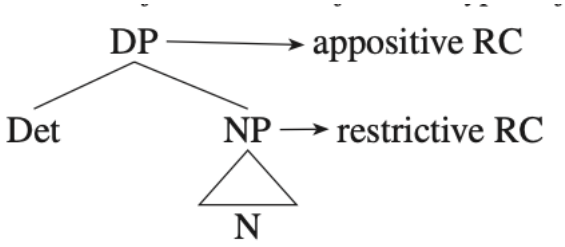
Finally, I will analyze the possible interpretations of relative clauses in Akan. Typically, the literature distinguishes two types of relative clauses: *restrictive relative clauses* (RRC) and *non-restrictive relative clauses* (NRC), sometimes known as *appositive relative clauses* (ARC). NRRC is pronounced in English with a comma intonation, that is, with pauses following the head noun and the relative clause, which are absent in RRC. The following examples in English illustrate the difference between NNRC/ARC (41-a) and RRC (41-b).

(41) a. Students, who study hard, do well in their exams. (NRRC/ARC)

b. Students who study hard do well in their exams. (RRC)

Syntactically, the two RCs are assumed to have different attachment sites in the DP. Two possible attachment sites are proposed based on Abney's (1987) DP hypothesis, as illustrated in (42).

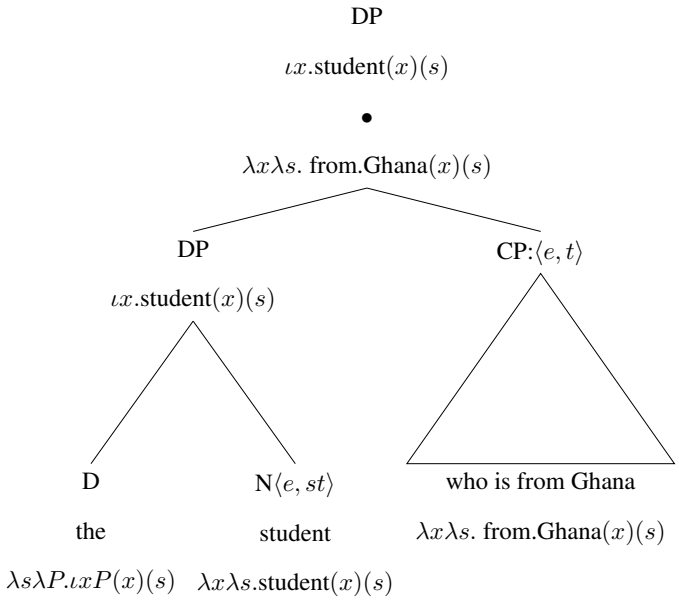
(42) Two sites of attachment for RRCS and NRRCs/ARCS (Wiltschko, 2013, p. 157)



All the derivations in the previous sections are interpreted using an RRC syntax.

NRRCs are traditionally either treated as DP adjuncts and conjoined to the DP (Ross, 1967; Emonds, 1979; Demirdash, 1991; De Vries, 2005, a.o.), as exemplified in (43). The • notation is used by Potts (2002) to separate appositive meaning from the meaning of the DP.

(43) The student, who is from Ghana



Saah (2010) observes that, in contrast to English, Akan lacks a 'comma' intonation or any other syntactic or phonological mechanism that distinguishes RRC from NRRC. And so asserts that Akan lacks NRRCs. As we will see, while comma intonation is an important indicator of RC types in English, there are additional ways to differentiate RRCs from NRRCs. In the following two subsections, I take a closer look at the restrictive/non-restrictive distinction and relate them to Akan. Based on the discussions in sections 5.3.1 and 5.3.2, I conclude that Akan supports the existence of a third type of relative clause known as *descriptive relative clauses* (DRCs), which is discussed in 5.3.3.

5.3.1 Restrictive relative clauses (RRCs)

Let us begin with the well-known function of RRCs. By supplying the information essential to identify the referent, RRCs constrain the referent of the head noun they modify. An RRC requires us to consider only a subset of things that have the noun property, namely those that also have the relative clause property. As such, it presupposes the existence of more entities possessing the noun property in the context. For example, (44) is consistent with a context containing multiple boys, given that just one of the boys is wearing a red shirt.

(44) The boy [$_{RC}$ who is wearing a red shirt] is sitting. RRC

The one boy wearing a red shirt satisfies the definite determiner's uniqueness premise.

In the same context, that is, one with multiple boys, the Akan relative clause in (45) is also felicitous. The role of the relative clause in (45) is to restrict the referent of the head noun to only individuals with the head noun property and the relative clause property.

(45) Abranteɛ nó [$_{RC}$ áà ɔ-hyɛ ataadeɛ kɔkɔɔ nó] te ho.
man DEF REL 3SG-wear shirt red CD sit down.
'The man who is wearing a red shirt is sitting down.'

Similarly, in (46), though Yaa and Ama start by discussing all policemen, the relative clause restricts the reference to the policeman who lives behind their house.

(46) Ama and Yaa are having a discussion about the retirement age of soldiers and other civil servants. Yaa complains:

Asogyafoɔ ne Polisifoɔ kɔ pension ntem dodo. Wo-nim sɛ [$_{DP}$ polisini
soldiers CONJ policemen go pension early INTS. 2SG-know COMP policeman
nó [$_{RC}$ áà ɔ-te yɛn dan ńo akyi]] kɔ pension.
DEF REL. 3SG-stay 3PL house DEF back go pension

'Soldiers and policemen retire too early. You know, the policeman who stays behind our house is retired.'

Another feature of RRCs, which is noted by De Vries (2000) and Del Gobbo (2017), is that they are typically headed by NPs. Other maximal projections, such as APs or PPs, can not function as heads of RRCs. For instance, the AP-headed relative clause in (47) is not an RRC, that is, it does not have the function discussed above.

(47) Mary was [$_{AP}$ intelligent, [$_{RC}$ which John never was]].

In Akan, NPs are the only type of maximal projection that can serve as RC heads. A relative clause headed by PP heads, such as the one in (48), is ungrammatical.

(48) #ɔmmo kasa [$_{PP}$ fri du mienu kɔ pem dɔn kɔ [$_{RC}$ áà na ɛ-yɛ nwanwa]].
3PL talk from ten two go end bell one, REL PART 3SG-COP surprise
'They talked from twelve to one c'clock, which was surprising.'

Another characteristic of RRCs is their ability to have quantified NPs as heads, as in (49) (Ross, 1967).

(49) Every student who wears socks is a swinger. (Ross, 1967, p. 246)

Again, we see in (50) that this is another property of RCs that relative clauses in Akan have; they can have quantified NPs as heads.

(50) Sukuuni biara [$_{RC}$ áà ɔ-pɛ adesua] bɛ passe.
school.person every REL 3SG-like learning FUT pass
Every student who likes studying will pass.

Related to the property discussed above, Safir (1986) notes that quantifiers in the matrix phrase of RRCs are able to bind pronouns in the relative clause. In (51), for instance, the pronoun *him* in the relative clause is bound by the quantifier phrase *every christian* in the matrix phrase.

(51) [Every Christian]$_i$ forgives a man [$_{RC}$ who harms him$_i$].

Akan relative clauses also allow quantifier phrases in the matrix clause to bind a pronoun inside the relative clause. In example (52), the quantifier phrase *every Christian* in the matrix phrase binds the third person pronoun *nó*.

(52) [Christoni biara]$_i$ de papa bí [$_{RC}$ áà ɔ-di-i no$_i$ atem] bone
Christian every take man INDEF REL 3SG-eat-PST 3SG.OBJ insult sin
kye no.
forgive 3SG.OBJ
Every Christian$_i$ forgave a man who insulted him$_i$.

Since the main function of RRCs is to create a subset out of a head noun property, they are incompatible with proper names, resulting in the infelicity of (53). Remember that proper

names refer uniquely to the individual identified by the name.

(53) #John who is in the army is my friend.

In order for an RRC to modify a proper name, the proper name must be interpreted as a common noun. That is, instead of considering the referent of the proper name *John* as denoting the unique person named John, it is interpreted as the set of people named *John*. Thus, (54) is compatible with a context where there are multiple *Johns* and only one of them is in the army. And in that context, the proper name co-occurs with a definite determiner, as in (54).

(54) The John who is in the army is my friend.

Akan relative clauses can also modify proper names with the definite determiner. With the determiners, two different individuals named Kofi are picked out.

(55) Kofi nó [$_{RC}$ áà ɔ-fri Kumasi nó] yɛ sofo, na Kofi nó [$_{RC}$ àa ɔ-fri Accra nó] yɛ dɔkɔta.
Kofi DEF REL 3SG-come.from Kumasi CD COP pastor CONJ Kofi DEF REL 3SG-come.from Accra CD COP doctor
'The Kofi from Kumasi is a pastor, and the Kofi from Accra is a doctor.'

Based on the properties of RRCs presented in this section, it is reasonable to conclude that Akan relative clauses can function as RRCs, as I had implicitly assumed in the derivations given in §5.2.

5.3.2 Non-restrictive relative clauses (NRRCs)

The conclusions of the previous section are in agreement with Saah's (2004) argument that Akan relative clauses are RRCs. However, Saah (2010) also asserts that the NRRC interpretation is still available, but with extraposed RC, such as (56). In the extraposed RC, the head noun is separated from the relative clause by the VP.

(56) ɔbarima bí [$_{VP}$ tena-a ase] [$_{RC}$ áà ne din de Nyamkyɛ]
man INDEF sit-PST under REL 3SG.POSS name be.called Nyamkye
'There lived a man whose name was Nyamekyɛ.'

In this section, we consider all the phenomena allowed by NRRCs and test Akan examples. If in Akan there were no NNRCs, we would expect ungrammaticality, where NRRCs are licensed, but RRCs are not.

We begin once again with the function of the relative clause. NNRCs also add information about a referent, but this information is supplementary, that is, it is not essential in identifying the referent of the head noun. When a NRRC is used, the property of the head noun alone is enough to identify the referent. As such, NRRC, such as (57), is infelicitous in contexts where there are multiple boys.

(57) The boy, [$_{RC}$ who is wearing a red shirt] is a sitting. NRRC

Without any syntactic or phonological change, (45) repeated here as (58) has a similar function. It is also felicitous in contexta where only the denotation of the head noun is relevant for identifying the referent, where it is used to convey more information about a uniquely identifiable referent.

(58) Abranteɛ nó [$_{RC}$ áà ɔ-hyɛ ataadeɛ kɔkɔɔ ɔ] te ho.
man DEF REL 3SG-wear shirt red DEF sit down.
'The man who is wearing a red shirt is sitting down.'

Also consider (59) in light of Wiltschko's (2013) modified context.

(59) Context: The mailman who has been delivering mail in the neighborhood for the last 10 years has retired. Everyone knows this mailman. Ama and Yaa have been living in this neighborhood. Ama tells Yaa:

Wo-nim sɛ mailman **nó** [$_{RC}$ áà ɔ-de yɛn mail no brɛ yɛn nó
2SG-know COMP mailman DEF REL. 3SG-take 3PL mail DEF bring 3PL.OBJ DEF
kɔ pension.
go pension

'You know, the mailman, who delivers our mail, is now retired.'

In the preceding context, only one relevant mailman is known to both discourse participants. In this case, the RC is providing information that is not required for identifying the referent and

can be omitted.

Another property of NRRCs is that phrases modified by NRRCs cannot be in the scope of a negative marker in the matrix clause, as evidenced by (60)'s ungrammaticality (Demirdash, 1991; Sells, 1985).

(60) *Every rice-grower in Korea doesnt own a wooden cart, which he uses when he harvests the crop.

Relative clauses in Akan have no such restrictions; they are able to occur in the scope of negation as in (61).

(61) Sukuuni biara n-ni car [$_{RC}$ áà ɔ-de ba sukuu pɛ].
student every NEG-have car REL. 3SG-take come school only
'No student own a car they only drive to school.'

Another characteristic of NNRC that distinguishes them from RRC in English is their ability to modify proper nouns. This property builds on the first property of NRRC discussed above. Since NRRCs tend to provide supplementary information about uniquely identifiable referents, they are compatible with proper names.

(62) John, who is in the army is my friend.

This is another property where non-extraposed Akan relative clauses have in common with other NRRCs. Relative clauses in Akan modify proper names, as exemplified in (63), by providing information that is not required for the referent's identification. The relative clause does not separate this particular Kofi from other individuals named Kofi in the context; it, therefore, has a non-restrictive reading.

(63) Kofi [$_{RC}$ áà me ne no te ha] m-mu me.
Kofi REL 3SG CONJ 3SG.OBJ stay here NEG-respect 1SG.OBJ
Kofi who lives with me does not respect me.

In summary, Akan relative clauses have a non-restrictive reading and can modify proper

nouns, both of which are characteristics of NRRCs. In contrast to NRRCs, they can occur within the scope of a negative marker and allow binding within a relative clause. Although the findings are not conclusive, they contradict Saah's (2010) claim that non-extraposed relative clauses in Akan are restrictive clauses.

5.3.3 Another type of relative clause

The two sections above show that Akan non-extraposed relative clauses show mixed properties of RRCs and NRRCs, although they have dominant RRC properties. Looking at data from Austro-Bavarian German, Wiltschko (2013) argues for a third type of relative clause, *descriptive relative clauses* (DRCs). These kinds of relative clauses show mixed properties; that is, they can modify a head that refers to a unique individual but also have typical properties of RRCs. These types of relative clauses are also referred to as *fully-integrated appositive* relative clauses by Del Gobbo (2017).

The term *descriptive relative clauses* was first used to describe a type of relative clause in Chinese with a particular syntax (Chao, 1968; Hashimoto, 1971). Relative clauses in Chinese may precede or follow the demonstrative, as shown in (64). The relative order of the demonstrative affects the interpretation of the relative clauses. When the relative clause follows the demonstrative, as in (64-a), it is interpreted as a DRC, while in (64-b), with the relative clause preceding the demonstrative, it is interpreted as a RRC.

(64) a. na-ge [dai yanjing de] nanhai
that-CL wear glasses de boy
'that boy, who wears glasses'

b. [dai yanjing de] na-ge nanhai
wear glasses DE that-CL boy
'the boy that wears glasses' (Del Gobbo, 2005, p. 288)

Evidence of these relative clauses with mixed properties is also found in Austro-Bavarian German, where it also has a distinct syntax (Wiltschko, 2013). The RRCs are headed by the strong definite article in German discussed in Chapter 2, but the DRC is headed by the weak definite determiner. For instance, (65) is felicitous in a context where there is only one contextually relevant mailman, so it is non-restrictive but the head noun can bind a pronoun inside the

relative clause like a RC.

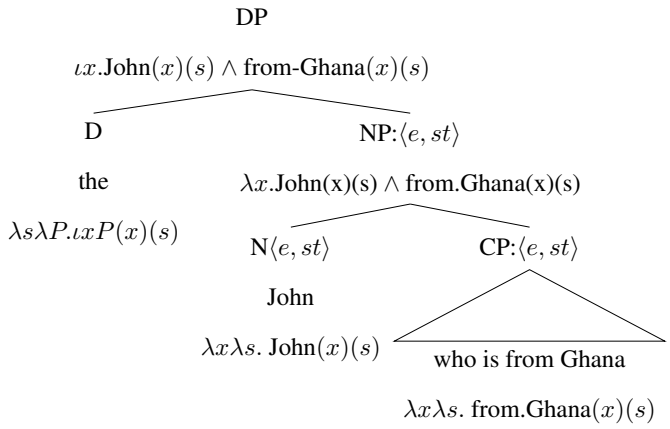
(65) A jede Hausfraui bei uns in da Siedlung ...kennt n Briaftroga
INDEF each housewife at us in DET_w neighbourhood ...knows DET_r mailman
[wos iai d Post bringt]
COMP her DET_r mail brings
'Every housewife in our neighborhood knows the mailman who brings her the mail.'

Akan relative clauses, as we saw earlier, also show mixed properties. They can be used to restrict the referent of a head noun, but can also be used to modify a unique referent. For instance, Akan relative clauses may modify proper names, a property of NRRC, but when they so, they can also allow binding of a pronoun inside the relative clause by a quantifier phrase in the matrix clause, as in (66).

(66) [Sukuuni biara]$_i$ pɛ Kofi [$_{\text{RC}}$ áà ɔ-yɛ no$_i$ advisor asem] .
student every like Kofi REL 3SG-COP 3SG.OBJ advisor issue
lit' Every student like Kofi, who is his advisor.'

DRCs have received the least attention in the literature of the three types of relative clauses. As as a result, there has been little work done on the semantics of these relative clauses. Del Gobbo (2004, 2005) proposes that DRCs, like RRCs, are predicates of type $\langle e, st\rangle$. In addition, as in the case of RRCs, they adjoin to the noun they modify and thus combine via predicate modification. The primary distinction between RRCs and DRCs is that a DRC's head NP is a singleton set. Proper names have type$\langle e, st\rangle$ meanings when they head DRCs, as in (67), where is it understood as a predicate that true of just one individual (Quine, 1960; Partee, 1986; Chierchia, 1998).

(67) John who is from Ghana



This section concludes by arguing that Akan, like Chinese and Austro-Bavarian German, has two types of relative clauses: RRCs and DRCs. I am not ruling out the possibility that Akan RCs may also have appositive readings. However, we only have evidence of descriptive and restrictive RCs in the absence of no comma intonation or other prosodic cues to separate NRRCs from DRCs.

5.4 Summary of chapter and conclusions

The chapter had three primary objectives. The first was to demonstrate that the variants of the definite determiner *nó* that appear clause-finally in Akan relative clauses were clausal determiners rather than nominal determiners. I demonstrated that, while all nominal determiners were allowed after the head noun in DET_1, only *nó* was allow clause-finally in DET_2. In addition, we saw that three determiners can be used in a relative clause with the sequence *NP+ bí nó*$_1$ + RC + *nó*$_2$. In this case, there is no basis in Akan syntax to argue that all three determiners are nominal determiners. Finally, we observed intriguing differences in the interpretation of inherently unique nouns such *president* when they occur in an *NP+ nó*$_1$ + RC +$\emptyset$ order verses an *NP+* $\emptyset$ + RC + *nó*$_2$ order. The order *NP+ nó*$_1$ + RC +$\emptyset$ is non-unique.

After establishing the clause-final determiner's status, I demonstrated how the choice of determiners in the two positions affects the interpretation of the relative clause. In terms of the discourse status of the referent of the head NP, definite relative clauses convey that the referent is discourse-old/familiar, whereas indefinite and bare relative clauses convey that the head NP

is discourse new. The distinction between a discourse-new and a discourse-old head NP is due to the nature of the first determiner; the determiner at the end of the relative sentence, i.e., the clausal determiner, has no effect. The clausal determiner's scope is limited to the relative clause CP. It conveys that the information encoded by the relative clause is discourse old. These interpretations are summarized in table 4 below.

Table 4: The discourse status of the head NP

	Definite	Indefinite	Bare
+RC-nó	NP referent familiar	NP referent non-familiar	NP referent non-familiar
-RC-nó	NP referent familiar	NP referent non-familiar	NP referent non-familiar

Finally, I discussed the function of relative clauses in Akan. In contrast to Saah (2010), I demonstrated that Akan relative clauses exhibit a mix of restrictive and non-restrictive relative clause functions, as well as syntactic traits shared by both, but the restrictive functions are more prevalent. Concentrating on the mixed features, I argued that relative clauses in Akan are better described as descriptive relative clauses rather than non-restrictive relative clauses, which have been found to have mixed properties in other languages. However, because the distinctions presented here between descriptive and restrictive relative clauses are semantic rather than syntactic, separating the syntactic structures underlying each interpretation is required before pursuing a formal analysis of descriptive relative clauses in Akan. This is a subject for future research.

Chapter 6

Conclusion

6.1 Major contributions

The primary goal of this dissertation has been to shed more light on the topics of definiteness and definiteness marking across domains. To do this, I examined the semantics of Akan definite determiner *nó*, which occurs in both the nominal and clausal domains. The following section summarizes the major points of the dissertation.

To begin, I consider the definite determiner *nó* that occurs in the nominal domain. Previously, Arkoh and Matthewson (2013) claimed that *nó* is a strong definite article (while the bare NP in Akan is a weak definite article). I presented data that contradicted this claim and demonstrated that the variation can be explained without relying on the strong-weak distinction. The account I present supports Bombi (2018)'s arguments against Arkoh and Matthewson (2013), but goes beyond that to provide more empirical coverage of the *nó*-NP, the demonstrative construction *saa...nó*, and bare definites. For example, one piece of evidence I provide against the analysis of *nó* as a strong definite article, demonstrated with (1), is that *nó* is unable to combine with a predicate and its negation, a property Schwarz (2009) demonstrates German strong definite articles possess.

(1) #Abofra **nó** nim adeɛ paa ɛna abofra **nó** abɔn.
child DEM know thing INT. CONJ child DEM not.smart
'The child is very intelligent and the child is not smart.'

The analysis I have proposed differs from earlier analyses in two significant ways. One, it incorporates the anti-uniqueness presuppositions associated with demonstratives into the meaning of *nó*. Furthermore, it separates the IOTA operation from the meaning of *nó*. I proposed that *nó* is

a non-saturating definite, analogous to Coppock and Beaver's analysis of English *the*. The determiner encodes two presuppositions: a weak familiarity presupposition(Roberts, 2003) and a non-uniqueness presupposition (Robinson, 2005; Dayal and Jiang, 2020), as shown in (2). The difference between definite vs demonstrative readings is introduced by the D that selects *nó*. In definite contexts, a null D with the denotation of IOTA (3) selects for *nó*. The situation pronoun is set to the default situation. *Saa* is the D in demonstratives. Its denotation includes also IOTA but the associated situation pronoun is fixed to a non-default situation (4).

(2) **Nominal *nó***

$[\![\text{nó}_y]\!]^g = \lambda P \lambda x \lambda s : \underline{x = g(y) \wedge \exists s' s \leq s' | \{x \mid P(x)(s')\}| > 1.}\ P(x)(s)$

Presuppose that there is x is familiar and that the cardinality of P in an extended situation (s') is greater than 1.

(3) $[\![\text{D}]\!] = \lambda s \lambda P . \iota x [P(x)(s)]$

(4) $[\![\text{saa}]\!] = \lambda s_r \lambda P . \iota x [P(x)(s_r)]$

Only inherently unique nouns such as *sun*, *moon*, *mother*, *father*, and superlatives function admit bare definite readings in Akan.

The (*saa*)*...yi/nó* constructions display properties associated with demonstratives.

With respect to the indefinite determiner *bí* in Akan, most analyses of the determiner contrast it with the bare noun, arguing that *bí* has specific indefinite readings while the bare noun has non-specific readings. On its specific reading, *bí* is argued to be epistemically specific, —that is, the speaker has a particular referent in mind (Amfo, 2010) and also has wide-scope readings (Arkoh, 2011). The data I present in Chapter 3 shows that, contrary to previous analyses, *bí* indefinites have certain characteristics that are typically attributed to non-specific indefinites. For instance, *bí* indefinites may take scope below intensional predicates for opaque readings and may be interpreted in the scope of conditionals in conditional sentences. Although like a typical wide-scope specific indefinite, *bí* indefinites take also the widest scope with respect to negation and the universal quantifier. It, therefore, shows mixed properties between a specific and non-specific indefinite. I propose that *bí* is a skolem choice function with both

individual and world variables, that can be bound or remain free. In the presence of an individual quantifier, we get a variable scope reading of the indefinite; a wide-scope reading for when the individual skolem index is unbounded, and a narrow-scope reading for when the individual skolem index is bounded by the quantifier. In the case of multiple quantifiers, we get intermediate-scope readings. Similarly, in the presence of world quantifiers, the world skolem variable will be bound for a narrow-scope non-specific reading, and when unbound, it will get wide-scope specific reading. Akan *bí* indefinites, unlike indefinites in English, can co-occur with the definite determiner *nó* either in the order *NP bí nó* for a definite reading or *NP nó bí* for a partitive reading. The possibility of *nó* to co-occur with *bí* is further evidence that *nó* has different lexical semantics from English definite determiner *bí*.

In Akan, the clausal determiner has garnered some attention in the literature, most notably in the context of relative clauses. I added declarative sentences to the list of syntactic structures that license the use of the clausal *nó*. I showed that *nó*-clauses are definite propositions that make two semantic contributions to a discourse: they presuppose that the clause's propositional content is familiar (it has previously been assigned a discourse referent) and they assert the clause's propositional content. As a result, *nó*-clauses are assertions. In contrast to Wespel (2008), I demonstrated that the *nó*-clauses cannot reintroduce a proposition that has already been introduced into the common ground. I demonstrate that the propositions that introduce discourse referents for *nó*-clauses only update the Common Propositional Space (where every proposition uttered is stored) and the Common Ground (where only true and mutually committed propositions are stored), based on Portner's (2007) notion that information is updated at two distinct levels in a conversation. A *nó*-clause indicates that a proposition in the Common Propositional Space should be transferred to the Common Ground. In contrast to definite CPs in languages, such as Hebrew Kastner (2015) and Greek Roussou (1991), the definite CP in Akan does not trigger factive presuppositions when they occur under non-factive verbs. Neither are they only licensed under Cattell (1978)'s Cattell (1978) factive embedding predicates.

Exploring of the determiners in Akan relative clauses showed some interesting results. First, I provide evidence in support of the argument that the variant of *nó* in DET_2 in the linear schema below is a clausal determiner, not a nominal one. Though this argument support the

main school of thought in the Akan literature, it contradicts the argument in Bombi et al., 2019.

(5) NP (+DET) + Relative Clause (+DET)

When DET_1 is occupied by *nó*, the whole relative clause is interpreted as definite and it is presumed that the referent of the head noun is discourse-old/familiar. Whereas when DET_1 is occupied by an indefinite or is bare, the relative clause is interpreted as indefinite and the referent of the head noun is discourse-new. Akan relative clauses exhibit a mix of restrictive and non-restrictive relative clause functions, as well as syntactic traits shared by both, but the restrictive functions are more prevalent. Concentrating on the mixed features, I argued that relative clauses in Akan are better described as descriptive relative clauses rather than non-restrictive relative clauses, which have been found to have mixed roles in other languages.

6.2 Going forward

The main purpose of this dissertation, while looking at the *nó* in nominal and clausal determiners, is to provide support for the emerging literature on cross-categorial definite determiners. As we have seen, both determiners are head-final, and presuppose familiarity. Because of the similarities between the two determiners, it is desirable to pursue a uniform analysis where the determiner has one core semantics, only differing in the type of complements they combine with. This is the kind of analysis proposed by Renans (2016, 2019) for Ga definite determiner *nó*. However, as we saw in Chapter 2, in addition to a weak familiarity presupposition, a non-uniqueness restriction must be satisfied in order to license the nominal determiner. In (6) and (7), the lexical entries for the two determiners are repeated.

(6) **Nominal *nó***

$[\![\text{nó}_y]\!]^g = \lambda P \lambda x \lambda s : \underline{x = g(y) \wedge \exists s' s \leq s' | \{x \mid P(x)(s')\}| > 1.} \; P(x)(s)$

Presuppose that there is x is familiar and that the cardinality of P in an extended situation (s') is greater than 1.

(7) **Clausal *nó***

$[\![\text{nó}_q]\!] = \lambda p \lambda w : p = q. \; p(w)$

The difference in presupposition begs the question of whether we can indeed pursue a uniform analysis of the two determiners. On the one hand, the two determiners share a common property, which causes a familiarity presupposition, but there is an undeniable difference: only nominal *nó* encodes a non-uniqueness presupposition.

In the literature, we have seen analyses of definite descriptions where a common core is argued for while still allowing for semantic differences due to the distribution of the definite descriptions. The central claim of analyses such as Postal (1966), Elbourne (2005), and Roberts (2002, 2010) is that all definite descriptions are anaphoric expressions, that is, they encode familiarity, but definite determiners, pronouns, and demonstratives have different lexical entries. In English, for example, the lexical entry for pronouns must encode gender information.

Similarly, when used as a nominal determiner, pronoun, or clausal determiner, Akan *nó* has the same core meaning but slightly different lexical entries. While they share a similar feature, each form serves a distinct discourse function, imposing constraints on its semantics. For example, given the animacy constraint on the pronoun's phonological realization, it is plausible to assume that the pronoun stores an animacy condition as part of its conventional meaning. With regards to the non-uniqueness constraint on the nominal determiner, we have already established that this restriction is caused by the determiner's demonstrative use. Recall that *nó* is one of the two demonstratives markers in the bipartite demonstrative *saa...nó*. While *saa* cannot occur independently with a nominal demonstrative reading, *nó*, when accompanied by a pointing motion, can be used as a demonstrative. While the uniform analysis I pursue does not ascribe a single semantics to the definite determiner across domains, it captures the fact that they share common properties while also capturing the difference in discourse functions. Furthermore, the analysis adequately explains why nominal *nó* has a demonstrative function, which is missing in the clausal domain.

Finally, a puzzle left unresolved in this research is the fact that the clausal determiner licenses only definite determiners. As was established in the chapter on relative clauses, the indefinite determiner bi cannot serve as a clausal determiner. This restriction on indefinite determiners in the clausal domain is present in all languages for which clausal determiners have been argued. What does this constraint reveal about the nature of indefinites and, more

crucially, the distinction between the 2 kinds of determiners? It has already been noted in the literature that syntactically definite and indefinite determiners are different. Clausal determiners allow us to delve deeper into this distinction.

Appendices

Appendix A

Bare nouns in Akan

Akan distinguishes between plural and singular nouns. In most contexts, there is some morphological markings of both singular and plural nouns, although the singular is sometimes unmarked. Descriptive literature on Akan offers an extensive discussion of number marking in Akan (Dolphyne, 1988; Osam, 1994a; Appah, 2003; Bodomo and Marfo, 2002; Boadi, 2005, a.o). Number marking in Akan, according to Osam (1994a) and Bodomo and Marfo (2002), is reminiscent of noun class systems. Nouns in different noun classes have different singular and plural markings, as illustrated by the table below from Bodomo and Marfo (2002).

Table 1: Akan noun class system, adapted from (Bodomo and Marfo, 2002)

Classes	Stem	Singular Form	Plural Form
1			
ɔ-/N-	-baa	ɔbaa ‘female’	mmaa ‘females’
	-kwaduo	ɔkwaduo ‘antelope’	nkwaduo ‘antelopes’
	-taadeɛ	ataadeɛ ‘cloth’	ntaadeɛ ‘clothes’
a-/N-	-kuma	akuma ‘axe’	nkuma ‘axes’
(e)-/N-	-dua	(e)dua ‘tree’	nnua ‘trees’
(ɔ)-/N-	-kraman	(ɔ)kraman ‘dog’	nkraman‘dogs’
2			
Ø - /N-	-bepɔ	bepɔ ‘mountain’	mmepɔ ‘mountains’
3			
ɔ- /A-	-hini	ɔhini ‘king’	ahini ‘kings’
o- /A-	-puro	opuro ‘squirrel’	apuro ‘squirrels’
(e)- /A-	-fie	(e)fie ‘house’	afie ‘house’
4			
Ø- /A-	-densu	densu ‘whale’	adensu ‘whales’
	-duku	duku ‘headgear’	aduku ‘headgear’
5 (kinship terms)			
(o)-/A...num	-nua	(o)nua ‘sibling’	anuanum ‘siblings’
a-/A...num	-gya	agya ‘father’	agyanum ‘fathers’
Ø /Ø...num	-wɔfa	wɔfa ‘uncle’	wɔfanum ‘uncles’
	-sewaa	sewaa ‘aunt’	sewaanum ‘aunts’
6 (identity/occupation)			
(o)-ni/A...foɔ	-hia	(o)hiani ‘poor person’	ahiafoɔ‘poor people’
	-tikya	(o)tikyani ‘teacher’	atikyafoɔ ‘teachers’
	-sogyani	(o)sogyani ‘soldier’	asogyafoɔ ‘soldiers’
7			
(o)...ni/N...foɔ	kramo	(o)kramoni ‘moslem’	nkramofoɔ ‘moslems’
	-dedua	(o)deduani ‘prisoner’	adeduafoɔ ‘prisoners’
(ɔ)/N...foɔ	-saman	(ɔ)saman ‘ghost’	nsamanfoɔ ‘ghost’
	-panin	(ɔ)panin ‘elder’	mpaninfoɔ ‘ghost’
8 Mass			
/N-	-frama		mframa ‘air’

Osam (1993), Osam (1994a), and Osam (1996) observe that some nouns have lost or are losing their singular morphemes. For instance, certain class one nouns can drop their singular marker, *edua* → *dua*,'tree', *ɔkraman* → *kraman* among others.[1] Also, notice that for some noun classes, the plural is a zero morpheme. In those cases, the singular and the stem/base are the same. Moreover, nouns that started with a plural/singular distinction have lost that distinction. For example, the plural and singular forms for 'lion' are the same *gyata*, though there used to be a plural form *agyata*.

A.1 Semantics of number marking in Akan

A proper analysis of the semantics of number marking in Akan requires extensive research, which is impossible to do in an appendix. My goal here is much more modest, I will explore the semantics between (1-a) and (1-b). For the nouns I refer to as singular, they may not have singular morphology for the reasons discussed in the previous section.

In neutral contexts, (1-a) implies that Kofi has no more than one dog. We will call this a non-multiplicity inference. On the other hand, (1-b) implies that he has more than one dog, a multiplicity inference.

(1) a. Kofi wɔ (ɔ)**-kraman**.
Kofi have SG-dog
'Kofi has a dog.'

b. Kofi wɔ **n-kraman**.
Kofi have PL-dog
'Kofi has dogs.'

Let us assume that the characterization of singulars and plurals above is right. We can associate singular nouns with atomic entities and plural nouns with their sum, (Link, 1983). In a model with three dogs *a,b,c*, the singular dog refer to the set of atoms $\{a,b,c\}$ and the plural will denote the set of their sums $\{a+b,\ a+c,\ b+c,\ a+b+c\ \}$. The singular exclusively denotes singulars, and the plural exclusively denotes plurals. However, there is reason to believe that the domain of plurals also includes atomic entities, i.e., plurals have an inclusive reading. I will illustrate this

[1] Among young speakers, the singular for dog has completely disappeared.

with English here, but I show this is also true for Akan plural nouns. Compare (2) with the bare plural with (3). (2-b) is an odd answer to (2), but (2-a) is a good answer. When the inference is overtly stated, (3-a) is no longer a good response.

(2) Do you have kids?

a. Yes, I have one.

b. #No, I have one.

(3) Do you have more than one kid?

a. #Yes, I have one.

b. No, I have one.

If the domain of plurals excluded atomic entities, (2) and (3) will have similar implications. We can revise our denotation of dogs to include atoms,$\{a, b,c, a+b, a+c, b+c, and\ a+b+c\}$.

Coming back to the Akan, Akan bare plural nouns also lack the multiplicity inference in downward entailing contexts. Assuming we went to a petting zoo that had just one rabbit, it is odd to answer (4) with (4-b).

(4) Wo-hu-u n-nanko?
3SG-see-PST PL-rabbit
'Did you see rabbits.'

a. Aane, me-hu-u baako.
Yes, 3SG-see-PST one
'Yes, I saw one.'

b. #Deebi, me-hu-u baako pɛ.
No, 3SG-see-PST one only
'No, I saw only one.'

We have established that bare plural nouns in Akan have an inclusive reading. What about bare singular nouns? In (1-a), the bare singular noun has a non-multiplicity inference so we concluded that its domain only includes atoms. In downward entailing contexts, however, they lose this inference. (5-a) is an odd answer to even if I saw two rabbits at the petting zoo.

(5) Wo-hu-u a-danko?
3SG-see-PST SG-rabbit
'Did you see a rabbit.'

a. Aane, me-hu-u mmienu.
Yes, 3SG-see-PST two
'Yes, I saw two.'

b. #Deebi, me-hu-u mmienu.
No, 3SG-see-PST two
'No, I saw two.'

The data is consistent with the claim in the previous section that Akan is losing the distinction between singular forms and the base form.

Let us try to reconstruct the distinction that used to exist in Akan. The base form of the noun was semantically neutral, refer to atomic entities and their sum. The singular exclusively referred to atomic entities, and the domain of plurals was inclusive. The base form does not occur in sentences, so there was no competition between the base form and the plural.

(6) a. $[\![\text{kraman}]\!] = \{a, b, c, a \oplus b, b \oplus c, a \oplus c, a \oplus b \oplus c\}$

b. $[\![\text{ɔ-kraman}]\!] = \{a, b, c\}$

c. $[\![\text{n-kraman}]\!] = \{a, b, c, a \oplus b, b \oplus c, a \oplus c, a \oplus b \oplus c\}$

Since singular and the base forms are now combined, the domain has been reduced to two. Following Swart and Farkas (2010), I assume overt plural morphology makes it semantically marked. Plural morphology signals that the witness of the nominal must include sums. The proposal makes specific predictions about the distribution of bare singular and plural nouns. First, we predict that the singular and the plural are equally acceptable in contexts that include atomic entities and their sum (mixed referent contexts) (Sauerland, Anderssen, and Yatsushiro, 2005). We also predict that in contexts where the number of nominals is unknown, both forms are also possible. Because the plural is marked for plurality, we predict that when a context excludes sums, the plural is infelicitous. Finally, the plural is preferred if the context excludes atomic entities, but the singular is acceptable too.

- When context excludes sums, the plural form is not acceptable. The singular/base form

is required.

(7) Kofi has a German shepherd. Ama knows that Kofi has one dog. Kwame who is afraid of dogs in general tells Ama his plan to visit Kofi. Ama says...

a. Kofi wɔ (ɔ)**-kraman**.
Kofi have SG-dog
'Kofi has a dog.'

b. #Kofi wɔ **n-kraman**.
Kofi have PL-dog
'Kofi has dogs.'

- Prediction 2: When context include sums, both forms are possible.

(8) Kofi has two German shepherds. Ama knows that Kofi has two dogs. Kwame who is afraid of dogs in general tells Ama his plan to visit Kofi. Ama says... says...

a. Kofi wɔ **kraman**.
Kofi have dog
'Kofi has a dog.'

b. Kofi wɔ **n-kraman**.
Kofi have PL-dog
'Kofi has dogs.'

- Prediction 3: In mixed referent contexts, both forms are felicitous.

(9) Context: A directive came from the government to ask people to take their children to the clinic to be immunized. The government knows for a fact that some people have one child and others have multiple children.

Obiara m-fa ne **ba/m-ma** n-kɔ clinic.
everyone IMP-take 3SG.POSS child/PL-child IMP-go clinic
'Everyone must take their children to the clinic.'

- Prediction 4: If the context is such that it is unknown whether the witness of the noun refer to both atomic entities and their sum, both forms are also equally available.

(10) Entering the bedroom and seeing droppings on the fall...

a. **A-kura** a-ba ha.
SG-mouse PERF-come here
'There is a mouse here.'

b. **N-kura** a-ba ha.
PL-mouse PERF-come here
'There are mice here.'

The data is consistent with the view that the singular and plural are both semantically number neutral. The plural is marked for number, while the singular/base form is not marked for number.

The singular/base form of the noun is, however, syntactically singular. First, singular pronouns and plural pronouns can only refer back to singular nouns and plural nouns, respectively (11). Secondly, nouns agree in number with adjectives in Akan, and the singular nouns show singular agreement (12). Finally, when two singular nouns are conjoined, they obligatorily require the plural form (14).

(11) a. Kofi wɔ ɔ-kraman. ɔ/*ɔmmo ho yɛ fɛ.
Kofi have SG-dog 3SG/3PL body COP beautiful
'Kofi has a dog. It/*they are beautiful.'

b. Kofi wɔ n-kraman. ɔ/*ɔmmo ho yɛ fɛ.
Kofi have PL-dog 3SG/3PL body COP beautiful
'Kofi has a dog. It/*they are beautiful.'

(12) a. Kofi wɔ n-kraman. ɔ-yɛ fitaa.
Kofi have PL-dog 3SG-COP white
'Kofi has a dog. It/*they are beautiful.'

b. Kofi wɔ ɔ-kraman. ɔ-yɛ n-fitaa n-fitaa.
Kofi have PL-dog 3SG-COP PL-white PL-white
'Kofi has dogs. They are white.'

(13) Ama ne Akua yɛ m-maa/*ɔ-baa.
Ama CONJ Akua COP PL-woman/SG-woman.
'Ama and Akua are woman.'

I conclude in this section that bare singular nouns in Akan are number neutral. They are, however, syntactically singular. As will become evident in the subsequent sections, this analysis

makes the right prediction about the distribution and interpretation of bare singulars.

A.2 The scope of bare nouns

I examine the scope of the bare nouns in contexts initially discussed in Carlson (1977). I show that Akan bare nouns pattern with English bare plurals against indefinites. Bare nouns lack a transparent reading under opacity inducing predicates and are interpreted below negation and other quantifiers.

A.2.1 Opaque contexts

In opacity inducing contexts, English bare plural nouns (14) and Akan bare singular (14) and bare plural (15) nouns have opaque readings.

(14) John wants to meet policemen.

a. *Opaque reading*: any policeman will do.

b. #*Transparent reading*: John has a particular policeman in mind.

(15) Kofi pɛ sɛ ɔ-hu ɔ-polisi-ni.
Kofi want COMP 3SG-see SG-police-SG
'Kofi wants to see policeman.

a. *Opaque reading*: any policeman will do.

b. #*Transparent reading*: John has a particular policeman in mind.

A.2.2 Negation

The scope of bare nouns and indefinites also differ with respect to negation. Bare nouns are always interpreted in the scope of negation (16). Indefinites are ambiguous between a reading where the indefinite is interpreted below negation (17-a) and an interpretation where it is interpreted above negation (17-a).

(16) John saw did not see cats.

a. $\neg$ [$\exists x$ [book$(x) \wedge$ John saw(x)]]

b. #$\exists x$ [book(x) $\wedge$ $\neg$John saw(x)]

(17) Kofi a-n-hu n-kra.
Kofi PERF-NEG-see PL-cat
'Kofi did not see cats'

a. $\neg$ [$\exists x$ [book(x) $\wedge$ John saw(x)]]

b. #$\exists x$ [book(x) $\wedge$ $\neg$John saw(x)]

The non-availability of the wide scope reading, where the existential is above negation is highlighted by the ungrammaticality of (18-b) in a context with two cats.

(18) a. #Cats are in the room and cats aren't in the room.

b. A cat in the room and a cat isn't in the room.

Replacing the indefinite with bare an indefinite as in (19) results in a grammatical sentence.

A.2.3 Nominal quantifiers

We notice similar differences between indefinites and bare plurals in both languages in the quantified NPs. Indefinites are ambiguous between a wide scope reading and narrow scope reading, while bare plurals only have narrow scope.

(19) Everyone read books on caterpillars.

a. $\forall x$[person(x) $\rightarrow$ $\exists y$[book(y) $\wedge$ x read y]]

b. $\exists y$ [book(y) $\wedge$ $\forall x$[person(x) $\rightarrow$ x read y]]

(20) Obiara hu-u n-kraman/ɔ-kraman.
everyone see-PST PL-dog//SG-dog
'Every saw dogs/ a dog.'

a. $\forall x$[person(x) $\rightarrow$ $\exists y$[book(y) $\wedge$ x read y]]

b. $\exists y$ [book(y) $\wedge$ $\forall x$[person(x) $\rightarrow$ x read y]]

A.3 Interpreting bare nouns

Akan allows bare plural and singular nouns in argument positions. The distribution of bare nouns are unrestricted. In this section, I explore the readings associated with the bare singular and plural nouns in Akan. I compare Akan bare nouns to bare nouns plurals in English.

English bare plural nouns and mass nouns have the three readings as noted by Carlson (1977): kind-reference, generic, and existential or indefinites. The semantics of bare singulars are obscured by the unmarked forms, so I focus on only bare plurals. I show that bare plurals in Akan have similar interpretations as English bare plurals.

A.3.1 Bare nouns as Kinds

Carlson (1977) proposed that we treat bare nouns as names of kinds, analogous to proper names. They combine with kind-level predicates such as *be.extinct, be.common and be.rare*, as shown in (21). As kinds, bare nouns refer to the specifies as a whole. Kinds are comparable to natural class. The designated property characterizes all and only members in the natural class. For instance, the kind *dog* is the natural class of entities with the dog property. This natural class will include all dogs breeds and exclude wolves. If a predicate combines with the kind, it cannot refer to a subset of the natural class. Kind-level predicates cannot apply to individual members of the species, as illustrated in (21-c) or some subset of the species (21-d).

(21) a. Dinosaurs are extinct.

b. Gold is rare.

c. #Fido is extinct.

d. #Some dogs are extinct.

Building on Carlson's (1977), Chierchia (1998) models kinds as individual concepts, functions from world (or situations) into the sum of all instances of the kind,$\langle s, e\rangle$. Mass nouns are marked as kind terms in the lexicon. Plural nouns, on the other hand come from the lexicon as properties, $\langle s, \langle e, t\rangle\rangle$ but can turn into names of kinds via the nominalization or down operator $^{\cap}$. The $^{\cap}$ operator is defined as follows:

(22) For any property P and world/situations s,

$^{\cap}$P= $\lambda s \iota x[P_s(x)$ is in the set K of kinds]

undefined otherwise. (Chierchia, 1997, p. 351)

Kind is the intensionalization of the maximal sum of the atoms in the plural. When $^{\cap}$ is applied to the plural property *dinosaur*; for instance, it produces the kind *Dinosaur*. Assuming that $^{\cap}$ is freely available as a shift type, bare plurals can freely shift to a kind-level reading. The mass noun, as a kind term, is able to combine with the predicate extinct directly. Bare plurals combine with a kind-level predicate after the $^{\cap}$ has applied, as illustrated by the English and Akan examples in (23) and (23) respectively

(23) a. Dinosaurs are extinct.

b. extinct ($^{\cap}$ dinosaurs)

(24) a. N-kraman ho a-yɛ na.
PL-dog PERF-do extinct
'Dogs are extinct.'

b. extinct ($^{\cap}$ dinosaurs)

A.3.2 Bare nouns as generics

Generic sentences express regularities, as opposed to an instance from which one infers a regularity. For instance, the generalization, 'dogs barks' expresses a regularity, while 'Fido barked this morning' expresses an instance. The truth of generic sentences is not context-dependent. The sentence 'dogs barks' is true whether or not a dog is barking now. Generics are closely related to kinds, but they allow exceptions. For instance, (25) is true though not all ducks lay eggs, and only male lions have a mane. Generics are something of a universal quantifier or most; they allow for exceptions.

(25) a. Ducks lay eggs.

b. Lions have mane.

Both Akan bare plurals and singulars are accepted in generic sentences, as shown in (26).

(26) a. N-kokɔ di aburo.
PL-fowl eat.HAB. corn
'Fowls eat corn.'

b. A-kokɔ di aburo.
SG-fowl eat.HAB. corn
'A fowl eats corn.' (Afriyie, 2014, p. 38)

On the generic interpretation, the bare noun is in the restriction of the generic operator (*Gn*). In this position, it introduces variables that are bound by *Gn*. Combine with the predicativizer or up $^{\cup}$ operator defined below, we derive the generic interpretations.

(27) Let d be a kind. Then for any world/situation s,

$^{\cup}$d = $\lambda x[\, x \leq d_s]$, if d_s is defined

$\lambda x[$ FALSE otherwise]

where ds is the plural individual that comprises all of the atomic members of the kind.

(Chierchia, 1998, p. 350)

The $^{\cup}$ operator takes a kind and returns instantiations of the kind at a given situation.

(28) a. N-kraman po.
PL-dog bark
'Dogs bark.'

b. $Gn\ x, s[\, ^{\cup} \cap \text{dogs}(x) \wedge C(x, s)][\, \text{bark}(x, s)]$

A.3.3 Bare nouns as indefinites

Bare nouns have an existential or indefinite reading in episodic contexts. In these contexts, they combine with state-level predicates; predicates that do not refer to the kind as whole but instantiations of the kind. The sentence is understood with existential quantification over these instances. Dogs, in example (29) refer to a particular group of dogs in a particular context, not to the whole specifies.

(29) Dogs are running in the yard.

(30) a. N-kokɔ re-di aburo.
PL-fowl PROG-eat corn
'Fowls eat corn.'

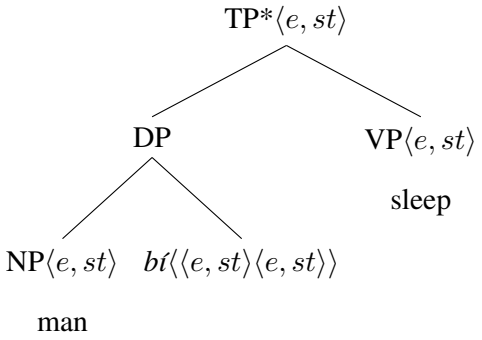
b. A-kokɔ re-di aburo.
SG-fowl PROG-eat corn
'A fowl eats corn.' (Afriyie, 2014, p. 38)

As kinds, bare plural nouns are not compatible with stage-level predicates. The sortal mismatch between the kind referring nouns and stage-level predicates is resolved by the repair operation Chierchia (1997) refers to as the *Derived Kind Operation* (DKP) defined in (31).

(31) *DKP*: If P applies to objects and *k* denotes a kind, then
P(k) = $\exists x[\ ^{\cup}\ \mathrm{k}(x) \wedge \mathrm{P}(x)]$

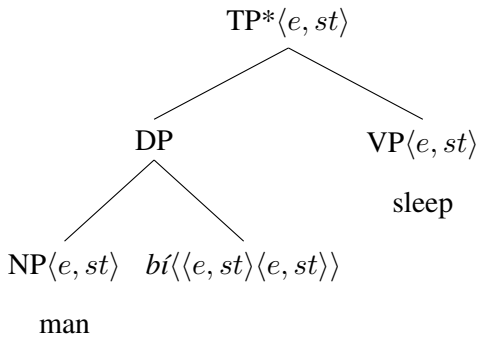
DKP adjust the sort of the predicate by locally introducing existential quantification over instances of the kind. Since DKP applies locally, the existential quantifier introduced is below every operator in the clause. On the existential reading, thus, the scope of bare nouns are inert compared to indefinites.

- Option 1
  - $[\![\text{bi}]\!] = \lambda P \lambda x \lambda s : CH(f_s).x = f_s(P(s))$.
  - Type $\langle\langle e, st\rangle\langle e, st\rangle\rangle$
  - *bí* can now be combined with *nó* without the need for type-shifting.

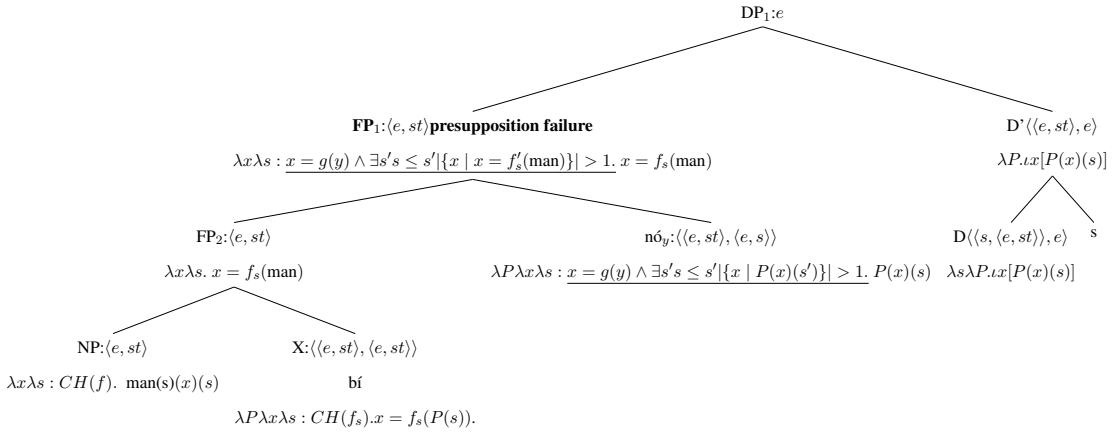


  - But when *bí* without *nó*, the types are wrong.

(32) If is *bí* is type $\langle\langle e, st\rangle\langle e, st\rangle\rangle$



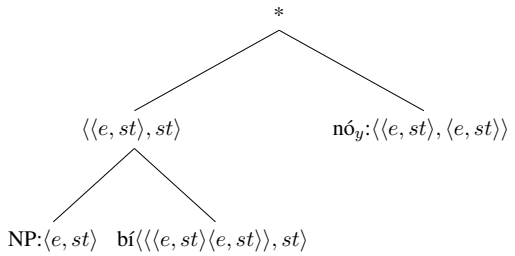
(33)



– In the literature where they use the singleton selection function, the determiner is usually defined as included an existential quantifier. For example Alonso-Ovalle and Menéndez-Benito (2003) define Spanish *un* in (34).

(34) $[\![\text{un}]\!] = \lambda f_{\langle\langle et\rangle\langle et\rangle\rangle}\lambda P_{\langle et\rangle}\lambda Q_{\langle et\rangle}.\exists x[f(P)(x) \wedge (Q)(x)\ ]$

– In the case of *bí*, though this will work for when *bí*, with modified types when it occurs without *n'o*, but then I think it will become a problem for when *bí* combines with *nó* first. The types will be wrong.



- Option 2: $[\![\text{bi}]\!] = \lambda P \lambda s : CH(f_s).x = f_s(P(s))$. Type $\langle\langle e, st\rangle\langle s, e\rangle\rangle$
- With type-shifting, this will work for *nó* with *bí* cases.
- Since $[\![\text{man bi}]\!] = \lambda s : CH(f_s).x = f_s(man(s))$. I will have to assume that there is a there is a situation variable in the syntax or a covert marker that saturates the λs before *man bí* combines with a VP. In the case of *nó*, I said the situation argument was supplied by *iota*. But IOTA cannot be used in this case because *man bí* is not definite.

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