# The Syntax of Agreement in the Shupamem DP and Greenberg's Universal 20

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## Abstract

This paper describes and explains newly found data from Shupamem that provide significant counterevidence to Cinque's (2005:315) theory of Greenberg's Universal 20 that basically claims that 'Of the 24 mathematically possible orders of the four elements demonstrative, numeral, adjective, and noun, only 14 appear to be attested in the languages of the world.' Cinque's grammar explicitly asserts that there can't be more than 14 orders cross-linguistically. Data from Shupamem show, contra Cinque's hypothesis, that not only are 18 out of 24 possible orders claimed to be grammatical and derivable, but also that previous theories devised to account for Greenberg's Universal 20, whether LCA-based or not, do not actually hold on empirical ground. I argue that the spec-head agreement relation hypothesis developed in Kayne's LCA is a crucial feature driving movement operations within the DP in general. This paper proposes a theory of movement that is better equipped to explain why certain sequences involving a phrasal movement of the head noun and a number of other noun modifiers are grammatical while others are ruled out. My discussion of word order variation will explore Rizzi's (2006, 2008) Freezing Principle to explain a body of restrictions imposed on XP movement across a number of functional projections internal to the DP.

## 1 Introduction

This paper presents a case study of word order variation observed in Shupamem noun phrases that combine the demonstrative, the numeral, the adjective and the head noun. The minimalist theoretical analysis is explored here to account for the trigger of a number of movement operations. Specifically, it is demonstrated, contra previous theories such as Greenberg's Universal 20 (Greenberg 1963); Hawkins (1983); Rijkhoff (1990, 2002); and Cinque (2005) that 18 orders are actually claimed to be grammatical in data from Shupamem. Building on Greenberg's (1966) Universal 20 discussed in references like Cinque (2005), Abels and Neeleman (2006, 2009) where it is argued that only 14 orders are attested and derivable in UG, I offer an alternative approach that is meant to not only describe the 18 acceptable orders, but also provide principled explanations of why the remaining order possibilities are ruled out. Thus, the central questions addressed in this analysis are the following:

- (a) What is the internal syntactic structure of a DP in Shupamem with respect to the surface position of the head noun and its modifiers (e.g., the demonstrative, the numeral and the adjective)?
- (b) Granting that Shupamem is a language with a noun class system, what role does noun class prefixes play in a number of syntactic movement operations observed within the DP?

(c) What is the nature of syntactic movement operations? In other words, are movement operations internal to the DP phrasal constituents (XP) or heads (X)?

To answer these questions, it will be assumed that NP movements apply either for semantic reason (e.g., information structure effects such as focus or topic) or morphological reason (e.g., agreement in number or noun class). The *Agreement Trigger* (henceforth AT) approach adopted here shows that previous hypotheses about word order alternation internal to the DP were too restrictive and did not actually hold on empirical ground, at least for a language like Shupamem. I conclude that the apparent word order freedom of nominal modifiers observed in Shupamem is due to agreement morphology (e.g., noun class prefix, definite article) which determines the surface form of the whole DP. In terms of the analysis that is developed here, I argue that Shupamem data provide empirical evidence for a functional projection (e.g., AgrP) located below D, and that its specifier position may serve as the landing site for any of the constituent (e.g., head noun and its modifiers). I will maintain Kayne's (1994) key assumptions of the Linear Correspondence Axiom that (a) with respect to base generation, specifiers universally should come before lexical heads which in turn precede their complements and that (b) concerning syntactic movement operation, all movement is to the left.<sup>1</sup>

Concerning Greenberg's Universal 20, I argue contra Cinque (2005) that of the twentyfour logically possible orders that combine the demonstrative, the numeral, the adjective and the head noun, eighteen are actually claimed to be grammatical in Shupamem. Thus, Cinque's analysis needs to be updated in order to account for the extra unexplained four order possibilities available in Shupamem. I will show that phrasal movements that give rise to word alternation in Shupamem are subject to Rizzi's (2006, 2007) freezing effects. That is why I will explore some aspects of Rizzi's insight about the Freezing Principle in my explanation of a body of restrictions imposed on phrasal movements within the DP. I explore the agreement mechanism in the lines of Chomsky (2000, 2001, 2004, 2005). Although demonstrative and possessive pronouns occasionally come before the head noun in Shupamem, the structure in (1) will be viewed as a plausible working hypothesis for the unique universal canonical order, realized in the S-structures of English-type DPs, where no overt movement has taken place.

<sup>&</sup>lt;sup>1</sup>In this analysis, I will only present the core idea of the LCA. See Kayne (1994) for the original discussion of the asymmetry approach. Note in particular as discussed in Kayne's (1994) monograph, the Linear Correspondence Axiom (LCA) together with a particular definition asymmetric c-command predicts only SVO and OVS as underlying orders in UG. Typically, the LCA assumes that SVO is the universal underlying word order from which other possible orders are derived as a result of movement to the left. The centerpiece of the LCA is based on three different concepts: (a) (Asymmetric) c-command, (b) the dominance relationship of an order pair of non-terminal nodes (X, Y) and (c) linear ordering. The original definition of the LCA can be summarized as follows:

<sup>(</sup>i) Linear Correspondence Axiom

Let P be a phrase marker, T the set of P's terminals and A a maximal projection of ordered pairs {<X, Y>} such that X and Y are non terminals in P and X asymmetrically c-commands Y. Then d(A) is the linear ordering of T (Adapted from Kayne 1994:3-6).

# (1) [DemP [NumP [AP [NP ]]]]

Among the concrete issues discussed here are those related to the trigger for movement and the technical implementation of unwarranted derivations in Shupamem. Previous attempts to account for word order alternations exploring the Minimalist framework of Chomsky (1995, 1999) have failed to provide a clear explanation of the impact of agreement morphemes on phrasal movements within the DP. None of those accounts had taken seriously the significance of noun class prefixes occurring before the noun modifiers in their explanation of structural properties of DP constituents in UG. On the empirical side, the findings I present here are important for the theory of word orders within the DP in Grassfield Bantu in general and Shupamem in particular in that they show the implication of agreement effects on movement operations (e.g., freezing effects).

This paper is organized as follows. Section 2 provides a brief overview of a number of prominent analyses pertaining to account for Greenberg's Universal 20. Section 3 discusses the key premises of the *Agreement Trigger* approach proposed here. Its core assumption is this: the apparently free word order attested in Shupamem DP follows from the obligatory movement of the noun phrase to the specifier position of the functional projection dominating the agreement head which encodes the definite article preceding the noun modifier. Sections 4 and 5 discuss the morphosyntax of the noun phrase where details about Shupamem noun classes are offered. Section 6 provides a detailed account of the *Freezing Principle* with respect to the derivation of marked orders as well as unmarked ones in a way that naturally highlights the cartography of the left periphery of Shupamem NPs. Section 7 discusses the derivations of grammatical as well as ungrammatical sequences in comparison with Cinque's (2005) typology. It is shown that many phrasal movements are subject to some freezing effects. The last section summarizes all the findings of the study.

#### 2 Previous Analyses of Greenberg's Universal 20

Greenberg's (1963) word order universals have received significant attention of formal grammarians as well as historical linguists trying to uncover and account for 'cross-language word order patterns' (Hawkins 1983:3) in what can be viewed today as the theory of word order universals in generative grammar. This section briefly comments on three major contributions of research on Greenberg's Universal 20, initially devised to account for word order and movement operations internal to the noun phase. In what follows I offer a cursory overview of (a) Greenberg's Universal 20 and its revisited version proposed in Hawkins (1983), (b) Cinque's (2005) LCA-based approach and (c) Abels and Neeleman (2006, 2009) non-LCA approach.

## 2.1 Greenberg's Universal 20

In language typology research, a linguistic universal is a very general statement that is meant to be true for an impressive number of natural languages. This section comments on one of Greenberg's implicational universals describing correlations between features within the noun phrase. It was first highlighted in Greenberg's (1966) work describing word order universals and other grammatical correlations across typologically different languages. In his definitions of the so-called language universals, Greenberg (1966:87) writes about the universal order of elements in the *Noun Phrase* that:

(2) Universal 20 (Greenberg 1966:87, see also Hawkins 1983)

When any or all of the items—demonstrative, numeral, and descriptive adjective—precede the noun, they are always found in that order. If they follow, the order is either the same or its exact opposite.

In other words, to the left of the N only one ordering is possible (cf. (3a-b)), while to its right both the same ordering, (3c), or its mirror-image, (3d), are possible:<sup>2</sup>

- (3) a. Dem > Num > A > N
  - b. \*A > Num > Dem > N
  - c. N > Dem > Num > A
  - d. N > A > Num > Dem

The first part of this statement remained unchallenged as interpreted in Cinque's (2005) LCA-based approach, till researchers like Heine (1981) and Hyman (1979:70) reported the existence of the order N>Num>A>Dem, which conforms neither to N>Dem>Num>A, nor to N>A>Num>Dem. Hawkins (1983:119), citing Hyman (1979: 27), mentioned the existence in Aghem (Grassfield Bantu) of the order N>A>Dem>Num, which again conforms neither to N>Dem>Num>A, nor to N>A=Num>A, nor to N>A=Num>Dem. Hawkins (1983:119), citing Hyman (1979: 27), mentioned the existence in Aghem (Grassfield Bantu) of the order N>A=Num, which again conforms neither to N>Dem>Num>A, nor to N>A=Num>Dem. He also reported from Hyman (1981: 31), that Noni (Grassfield Bantu), in addition to N>Dem>Num>A, displays the order N>Dem>A=Num, again unexpected under Greenberg's formulation. Informally, on the basis of these counterexamples to Greenberg's universal 20, Hawkins proposed a revised version of the same universal which reads as follows (cited in Cinque (2005:02)).

(4) Revised Greenberg's Universal 20 (Hawkins 1983)

When any or all of the modifiers (demonstrative, numeral, and descriptive adjective) precede the noun, they (i.e., those that do precede) are always found in that order. For those that follow, no predictions are made, though the most frequent order is the mirror-image of the order for preceding modifiers. In no case does the adjective precede the head when the demonstrative or numeral follow (= (20') of Hawkins (1983, 119f)).

It is important to clarify these observations from Hawkins (1983) pertaining to word sequencing within the noun phrase typologically. According to Hawkins' (1983) generalization in (4), only four major patterns are attested in over 350 typologically different languages when one considers the ordering of modifiers (e.g., numeral, adjectives, demonstrative) with respect to the head noun (Aboh 2004). The four major patterns from Hawkins's database are repeated in (5) for convenience. Specifically, the sequence in (5a) corresponds to languages

<sup>&</sup>lt;sup>2</sup>Dem= demonstrative; Num= numeral; A= attributive adjective; N= noun.

where modifiers come before the head noun (i.e., Demonstrative > Numeral > Adjective> Noun). The sequence in (5d), on the other hand corresponds to the frequent order in languages where the modifiers appear after the head noun. In other words, (5d) is the mirror image of (5a). The starred sequences in (5) represent unattested orders in natural languages according to Hawkins' (1983) database.

(5) Typological combination of Dem-Num-Adj-N in Hawkins (1983)

(a)	3 Modifiers on the left, 0	on the 1	right
	Dem-Num-Adj-N	VO: OV:	English, German, Norwegian, Russian, Finnish, Syrian Arabic (1), Taiwanese, Mandarin, Palauan, Shupamem Turkish, Korean*, Japanese, Alambak (1), Ouechuan*
(b)	2 Modifiers on the left and	d 1 on t	he right
	(i) Dem-Num-N-Adj	VO:	French, Italian, Spanish, Mam, Shupamem
	(ii) * Dem-Adj-N-Num	VO:	Syrian Arabic (2), Shupamem
	(iii) * Num-Adj-N-Dem	VO:	Shupamem
(c)	1 Modifier on the left and	2  on th	ne right
	(I) Dem-IN-Adj-Indin	VO:	Karbadian, warao, Lanu (1), Hualapai (1) Shunamem
	(ii) Num-N-Adj-Dem	VO:	Shupamem, Irish, Welsh, Hebrew, Basque, Maori, Vietnamese, etc.
	(iii) * Adj-N-Num-Dem	OV:	Ute
		VO:	Shupamem
(c)	0 modifiers on the left and	d 3 on t	he right
	(i) N-Adj-Num-Dem	VO:	Yoruba, Igbo, Turkana (?), Lamang (?), Kusaiean, Selepet, Shupamem
		OV:	W. Greenlandic, Amele, Manam (1)
	(ii) N-Dem-Num-Adj	VO:	Kikuyu
	(iii) N-Adj-Dem-Num	VO:	Aghem, Shupamem
	(iv) N-Dem-Adj-Num	VO:	Noni

Notice that Hawkins's revised version of Greenberg's Universal 20 above predicts that all starred sequences should be ruled out in UG. As it turns out, many of the orders predicted to

be ungrammatical, are viewed as grammatical in Shupamem. I have added Shupamem as well as languages found in Heine's (1983) database to confirm or infirm Hawkins' (1983) predictions. The findings of this study suggest that, not only do we have evidence for the existence of unattested orders in Hawkins' system, but also, data from Shupamem seem to be significantly at odds with the generalization in (4), granting that 18 possible orders are perceived as grammatical. This actually implies that previous assumptions made in linguistic typology about DP internal word orders were not quite accurate. To this end, I ask the following two questions: (a) what is the internal structure of the left periphery of the DP in Shupamem (just as in Scandinavian or Modern Greek)? Before answering these questions, let me first turn to the theoretical status of Cinque's (2005a) *LCA-based* approach also devised to derive Greenberg's Universal 20.

## 2.2 Cinque's (2005) LCA-based Approach

In his discussion of Greenberg's Universal 20 using Kayne's (1994) *Linear Correspondence Axiom*, Cinque (2005) made an implicit claim that the *Adjectives-as-Specifiers* approach should be universal, even for superficial head-final languages. Cinque's (2005) marked and unmarked possible orders are reproduced in (6) for convenience. The " $\checkmark$ " and "\*" before the DP sequences in (6) show whether the order exists or does not exist respectively. The " $\emptyset$ " and references following some of the DP sequences point out that the sequence in question is viewed as not attested at all cross-linguistically.

The sequence in (6a) represents the merge order which is very common in many languages of the world, whereas both combinations in (6b-c) are the result of NP movement through the DP various functional projections. Crucially, the NP may move by successive cyclic movement or in a "roll-up" fashion through pied-piping. The former movement produces the order in (6d) which occurs only in a few languages, while the latter produces the very common word order in (6x). The key questions in Cinque's (2005a) inquiry are the following:

- (a) Of the conceivable 24 orders summarized in (6), which ones are actually attested in natural languages?
- (b) How are the sequences attested in many languages derived in the LCA-based approach?
- (c) How do we account for the ungrammatical sequences?

The hypothesis developed then was based on the fact that the possible combinations of Dem, Num and A with the head noun generate 24 options (4!:4x3x2x1). Among them, only 14 were actually attested in the languages of the world according to Cinque. Crucially, although Cinque's NP raising approach was designed to derive all the 14 attested orders while predicting the impossibility of deriving the 10 remaining unattested ones, there is no overt morpheme triggering NP movement.

(6)	All	possible	combinations	s with <i>De</i>	m >Num	$> A > \Lambda$	attested in	natural	languages.
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a.	$\checkmark$	Dem	Num	А	Ν	(very many languages)
b.	$\checkmark$	Dem	Num	Ν	А	(many languages)
c.	$\checkmark$	Dem	Ν	Num	А	(very few languages)
d.	$\checkmark$	Ν	Dem	Num	А	(few languages)
е.	*	Num	Dem	А	N	(Ø – Greenberg 1963; Hawkins 1983)
f.	*	Num	Dem	Ν	А	(Ø – Greenberg 1963; Hawkins 1983)
g.	*	Num	Ν	Dem	А	(Ø – cf. Lu 1998,183)
h.	*	Ν	Num	Dem	А	(Ø – cf. Greenberg 1963; Lu 1998,162)
i.	*	А	Dem	Num	N	(Ø – Greenberg 1963; Hawkins 1983)
j.	*	А	Dem	Ν	Num	(Ø – Greenberg 1963; Hawkins 1983)
k.	$\checkmark$	А	Ν	Dem	Num	(very few languages)
1.	$\checkmark$	Ν	А	Dem	Num	(few languages)
<u>m.</u>	*	Dem	A	Num	N	(Ø ? Greenberg 1963; Hawkins 1983)
m. n.	*	Dem Dem	A A	Num N	N Num	(Ø? Greenberg 1963; Hawkins 1983) (very few languages)
m. n. o.	*	Dem Dem Dem	A A N	Num N A	N Num Num	(Ø ? Greenberg 1963; Hawkins 1983) (very few languages) (many languages)
m. n. o. p.	*	Dem Dem Dem	A A N Dem	Num N A A	N Num Num Num	<ul> <li>(Ø? Greenberg 1963; Hawkins 1983)</li> <li>(very few languages)</li> <li>(many languages)</li> <li>(very few languages – possibly spurious)</li> </ul>
m. n. o. p.	*	Dem Dem N	A A N Dem	Num N A A	N Num Num Num	(Ø ? Greenberg 1963; Hawkins 1983) (very few languages) (many languages) (very few languages – possibly spurious)
m. n. o. p. q.	*	Dem Dem N	A A N Dem	Num N A A Dem	N Num Num N	<ul> <li>(Ø? Greenberg 1963; Hawkins 1983)</li> <li>(very few languages)</li> <li>(many languages)</li> <li>(very few languages – possibly spurious)</li> <li>(Ø? Greenberg 1963; Hawkins 1983)</li> </ul>
m. n. o. p. q. r.	*	Dem Dem N N Num	A A N Dem A A	Num N A A Dem N	N Num Num N N Dem	<ul> <li>(Ø ? Greenberg 1963; Hawkins 1983)</li> <li>(very few languages)</li> <li>(many languages)</li> <li>(very few languages – possibly spurious)</li> <li>(Ø ? Greenberg 1963; Hawkins 1983)</li> <li>(very few languages)</li> </ul>
m. n. o. p. q. r. s.	*	Dem Dem N N Num Num	A A N Dem A A N	Num N A A Dem N A	N Num Num N Dem Dem	<ul> <li>(Ø ? Greenberg 1963; Hawkins 1983)</li> <li>(very few languages)</li> <li>(many languages)</li> <li>(very few languages – possibly spurious)</li> <li>(Ø ? Greenberg 1963; Hawkins 1983)</li> <li>(very few languages)</li> <li>(few languages – but see fn.32)</li> </ul>
m. n. o. p. q. r. s. t.	*	Dem Dem N Num Num Num	A A N Dem A A N Num	Num N A A Dem N A A	N Num Num N Dem Dem Dem	<ul> <li>(Ø? Greenberg 1963; Hawkins 1983)</li> <li>(very few languages)</li> <li>(many languages)</li> <li>(very few languages – possibly spurious)</li> <li>(Ø? Greenberg 1963; Hawkins 1983)</li> <li>(very few languages)</li> <li>(few languages – but see fn.32)</li> <li>(few languages)</li> </ul>
m. n. o. p. q. r. s. t.	*	Dem Dem N Num Num Num	A A N Dem A A N Num	Num N A A Dem N A A A	N Num Num N Dem Dem Dem	<ul> <li>(Ø ? Greenberg 1963; Hawkins 1983)</li> <li>(very few languages)</li> <li>(many languages)</li> <li>(very few languages – possibly spurious)</li> <li>(Ø ? Greenberg 1963; Hawkins 1983)</li> <li>(very few languages)</li> <li>(few languages – but see fn.32)</li> <li>(few languages)</li> </ul>
m. n. o. p. q. r. s. t. t.	*	Dem Dem N Num Num Num N	A A Dem A A N Num	Num N A A Dem N A A A Dem	N Num Num N Dem Dem Dem	<ul> <li>(Ø? Greenberg 1963; Hawkins 1983)</li> <li>(very few languages)</li> <li>(many languages)</li> <li>(very few languages – possibly spurious)</li> <li>(Ø? Greenberg 1963; Hawkins 1983)</li> <li>(very few languages)</li> <li>(few languages – but see fn.32)</li> <li>(few languages)</li> <li>(Ø – Greenberg 1963; Hawkins 1983)</li> </ul>
m. n. o. p. q. r. s. t. u. v.	*	Dem Dem N Num Num Num Num A A	A A N Dem A A N Num Num	Num N A A Dem A A A Dem N	N Num Num N Dem Dem Dem N Dem	<ul> <li>(Ø? Greenberg 1963; Hawkins 1983)</li> <li>(very few languages)</li> <li>(many languages)</li> <li>(very few languages – possibly spurious)</li> <li>(Ø? Greenberg 1963; Hawkins 1983)</li> <li>(very few languages)</li> <li>(few languages – but see fn.32)</li> <li>(few languages)</li> <li>(Ø – Greenberg 1963; Hawkins 1983)</li> <li>(Ø – Greenberg 1963; Hawkins 1983)</li> </ul>
m. n. o. p. q. r. s. t. t. u. v. w.	*	Dem Dem N Num Num Num N A A A	A A N Dem A A N Num Num Num N	Num N A A Dem N A A Dem N N Num	N Num Num N Dem Dem Dem N Dem Dem	<ul> <li>(Ø? Greenberg 1963; Hawkins 1983)</li> <li>(very few languages)</li> <li>(many languages)</li> <li>(very few languages – possibly spurious)</li> <li>(Ø? Greenberg 1963; Hawkins 1983)</li> <li>(very few languages)</li> <li>(few languages – but see fn.32)</li> <li>(few languages)</li> <li>(Ø – Greenberg 1963; Hawkins 1983)</li> <li>(Ø – Greenberg 1963; Hawkins 1983)</li> <li>(Ø – Greenberg 1963; Hawkins 1983)</li> <li>(very few languages)</li> </ul>

The most important feature of Cinque's (2005) analysis is, I believe, its demonstration that Kayne's (1994) LCA hypothesis can be used to account for grammatical sequences and rule out those that are ungrammatical as well. Cinque argues that this is possible if the following two basic assumptions are adopted:

- (7) Cinque's (2005) key assumptions
  - a. The following fixed merged order of nominal modifiers: [[<sub>WP</sub> Dem [<sub>XP</sub> Num [<sub>YP</sub> AP [<sub>NP</sub> N ]]]]] should be considered as the universal basic order.
  - b. NP may move partially or totally with or without pied-piping through the extended nominal projection. Furthermore, head movement or movement of a

phrase which does not contain an NP is not possible (i.e., remnant movement are banned).

On the basis of (6a-b), Cinque confronts the facts that go by the name Greenberg's Universal 20 with Kayne's (1994) *Linear Correspondence Axiom* (LCA) which key assumptions are repeated in (8).

- (8) LCA assumptions
  - a. Concerning base generation, specifiers universally precede heads and heads universally precede their complements.
  - b. Only leftward movement is permitted.

Thus, Cinque explicitly made it clear that (a) the syntactic structure in which DemP, NumP, and AP are generated in a universally fixed order to the left of the head noun, each in the specifier of agreement projection, (b) only 14 orders are derivable in UG and that (c) unattested orders are derived via remnant movement (i.e., moving a constituent from which the head noun has been already extracted) which is not allowed in UG according to him.

In Cinque's (2005) system, the prohibition of remnant movement significantly weakens the predictability power of his theory in that unexpected orders discovered in other natural languages are supposed to be derived via remnant movements. For instance, nothing in Cinque's system provides any explanation as to why Shupamer displays four extra word order options predicted to be typologically impossible. The findings of this analysis clearly show that Shupamem offers 18 grammatical options out of the conceivable 24 possibilities when one combine the head noun with the demonstrative, the numeral, and the adjective. As a matter of fact, noun modifiers may come before or after the head noun in Shupamem as I will show later in my illustration of Shupamem DP sequences summarized in (9). Cinque's (2005) LCA-based approach was initially designed to account for not only the 14 grammatical orders among the 24 available options, but also those that are ungrammatical as well. The contrast between Cinque's (2005) database and Shupamem's repeated in (9) clearly demonstrates that there is considerable variation with respect to Greenberg's Universal 20 than what has been predicted so far in previous theories. It is not clear in Cinque's theory why and where remnant movement cannot apply. It is even inconsistent with an exhaustive derivation of Cinque's own typology, since, remnant movement is necessarily required to derive the unpredicted grammatical sequence such as (6i) A > Dem > Num > N attested in Shupamem.

The alternative approach I propose here provides a way of preserving remnant movement in the grammar by appealing to the Freezing Principle where pied-piping is abundantly used as a syntactic repair strategy. Thus, the unattested orders in Cinque's system that are claimed to be grammatical in Shupamem will be explained using various types of movement operations that are subject to the freezing effect. This way, a grammatical sequence such at (6p) N>Dem>A>Num attested in Shupamem left unexplained in Cinque's system will be accounted for by assuming that the NP is allowed to move cyclically through specifier position of the functional projections encoding agreement features and the definite articles (e.g., AgrP) (see section 6 for the details about cyclic movement of NP within the DP).

As we can observe in (9), Cinque's system is very inconsistent with Shupamem data.<sup>3</sup> For instance, there are grammatical sequences in Cinque's system that are ungrammatical in Shupamem (e.g., (9c), (9d), and (9p)). There are also other sequences that are ungrammatical in Cinque's system that are grammatical in Shupamem (e.g., (9e), (9f), (9i), (9m), (9q), (9u) and (9v)). It is therefore open to debate how to analyze word order alternation within the DP in Shupamem in a way that accounts for both grammatical sequences as well as ungrammatical ones. It is clear that the ordering data for Shupamem DP is more complex with a flexible system in which the appropriate syntactic structure follows from the accurate distribution of morphological agreement prefixes with both 'universal' and 'mirror-image' orders appearing under certain circumstances.

C	inque (2005)	Other Languages		Shupamem		
a. √	Dem Num A N	(very many languages)	a. √	∫i kpà mìŋkét pòn		
b. √	Dem Num N A	(many languages)	b. √	∫i kpà pón (pÌ) mÌŋkèt		
c. √	Dem N Num A	(very few languages)	c. *	∫i pón pí́kpà (pì) miŋkèt		
d. √	N Dem Num A	(few languages)	d. *	pón ∫i pí́kpà (pì) miŋkèt		
e. *	Num Dem A N	(Ø-Greenberg, 1963, Hawkins 1983)	e. √	kpà ∫í míŋkèt pòn		
f. *	Num Dem N A	(Ø-Greenberg, 1963, Hawkins 1983)	f. √	kpà ∫ì pón (pí́) míŋkèt		
g. *	Num N Dem A	(Ø-Lu 1998:183)	g. *	kpà pón ∫í (pi) míŋkét		
h. *	N Num Dem A	(Ø-Greenberg, 1963, Lu 1998:162)	h. *	pon pikpa ∫i (pi)miŋkɛt		
i. *	A Dem Num N	(Ø-Greenberg, 1963, Hawkins 1983)	i. √	miŋkɛt ∫i kpa pon		
j. *	A Dem N Num	(Ø-Greenberg, 1963, Hawkins 1983)	j. *	miŋkɛt ∫i pon pikpa		
k. √	A N Dem Num	(very few languages)	k. √	miŋkɛt pon ∫i pikpa		
1. √	N A Dem Num	(few languages)	l. √	pon (pi)miŋkɛt ∫i pikpa		
m. *	Dem A Num N	(Ø-Greenberg, 1963, Hawkins 1983)	m. √	∫i mìŋkét kpà pón		
n. √	Dem A N Num	(very few languages)	n. 🗸	∫i mìŋkét pón pí-kpa		
0. 🗸	DemN A Num	(many languages)	0. 🗸	∫ì pón pí-miŋkɛt pí-kpa		
p. √	N Dem A Num	(very few languages-possibly spurious)	p.(*)	pón ∫í (*pi)miŋkɛt pí́-kpa		
q. *	Dem A Num N	(Ø-Greenberg, 1963, Hawkins 1983)	q. √	kpà mÌŋkét ∫i pón		
r. √	Dem A N Num	(very few languages)	r. √	kpà miŋkét pón ∫ầ		
s. √	DemN A Num	(few languages)	s. √	kpà pón pí́-mľŋkét ∫ῒ		
t. √	N Dem A Num	(few languages)	t. √	kpà pón pí́-mìŋkét ∫ì̀		
u. *	Dem A Num N	(Ø-Greenberg, 1963, Hawkins 1983)	u. √	míŋkèt kpà ∫ì pón		
v. *	Dem A N Num	(Ø-Greenberg, 1963, Hawkins 1983)	v. 🗸	mí́ŋkèt kpa pon ∫i		
w. √	DemN A Num	(very few languages)	w. √	míŋkèt pón pí́-kpà ∫ì		
x. √	N Dem A Num	(very many languages)	x. √	pón pí́-mìŋkɛt pí́-kpà ∫ì		

(9) Comparison of Shupamern data with Cinque's (2005) typology

 $<sup>{}^{3}</sup>fi$  = Demonstrative 'this'; kpà = Numeral 'four'; minkét = Adjective 'dirty'; pón = Noun 'children';

p-i = agreement head consisting of the noun prefix p- and the definite article -i.

It is important to stress that, based on the inconsistency I have shown in the contrast between Cinque's database and Shupamem in (9), a straightforward implementation of an NP-raising approach à la Cinque (2005) is therefore not adequate for Shupamem. As we can observe in (9), the demonstrative, the adjective, and the numeral may precede or follow the head noun with a number of other sub-option possibilities. When they precede the head noun, there is no need to mark the noun class agreement, but when they follow, the noun class is obligatorily marked (e.g., the agreement head p-i) in which case the noun phrase is in the specifier position of the functional phrase (e.g., Agreement Phrase) dominating the noun modifier (e.g., demonstrative, adjectives and numerals). I conclude that word order alternation observed in Shupamem follows naturally from the presence versus absence of an agreement head that encodes the definite article. The paradigms in (9) summarize the contrast between Cinque's (2005) database and Shupamem. I will return to the discussion of the contrast between Shupamem data and Cinque's (2005) typology in section 7. For the time being let me go over the key arguments of Abels and Neeleman's non-LCA alternative approach.

## 2.3 Abels & Neeleman's (2006, 2009) non-LCA approach

Abels & Neeleman (2006, 2009) is a further development of Cinque's (2005) LCA-based right-branching hierarchical ordering: Dem[onstrative]> Num[eral]>A[djective]>N[oun]>. Its basic line of reasoning is that Kayne's (1994) LCA is too restrictive and should be dispensed with to allow rightward movement. Thus, according to Abels and Neeleman, typological patterns can equally be well derived from Cinque's (2005) assumptions at least if the fourth assumption replaces the LCA. In other words, there is no need to appeal to Kayne's LCA, but rather to 'a theory which allows branching to the left and to the right but restricts (at least certain kinds of) movement to the left' (Abels & Neeleman 2009:1). The outcome of the reformulated set of assumptions is repeated in (10) and conspires to allow the fourteen attested orders, while excluding the ten unattested ones.

- (10) a. The underlying hierarchical order of Dem, Num, A, and N in the extended nominal projection is Dem>Num>A>N, where > indicates c-command;
  - b. all (relevant) movements move a sub-tree containing N;
  - c. all movements target a c-commanding position;
  - d. all (relevant) movement are to the left (LCA is not relevant here)

Abandoning the LCA in favour of (10d) according to these authors will base-generate eight of the fourteen attested linear strings, simply by allowing cross-linguistic variation in the linearization of sister nodes in the hierarchical structure described by (10a). This is inconsistent with the agreement facts observed in Shupamem DP syntax where the noun class concord correlates with word order between the head noun and its modifiers. The challenge that these facts pose for Abels and Neeleman's (2005) theory should be obvious: if the head noun moves past its modifier only if an overt agreement morpheme (e.g., noun class prefix and or number prefix) is spelled out, then nothing in a simple cross-linguistic

variation in the linearization of sister nodes in Abels and Neeleman's system can explain why the definite article for instance is always post-nominal in Shupamem.

Furthermore, it is argued that seven of the eight orders are derived through movement in Cinque's system. Abels and Neeleman (2006) claim that non-terminal nodes should be unlabeled. Therefore, the demonstrative, numeral and adjective are not introduced by dedicated functional heads. This is because nothing in their argument hinges on the label of the nodes in the extended projection of the noun or the existence of dedicated functional heads hosting DEM, NUM, and A as specifiers. It is important to recognize that a system like Abels and Neeleman's (2006) says little about the trigger of movement internal to the DP. This does not mean that such an approach is useless, but rather there is nothing in such a system where base-generation is more freely, that explains why certain sequences are grammatical and others are not in a language like Shupamem. More importantly, Abels and Neeleman (2006), just like the alternative approaches presented so far all failed to predict more than 14 possible orders cross-linguistically.

On the basis of the frameworks proposed in earlier theories, the question we need to address is the following:

(a) What word orders out of the conceivable 24 orders in Cinque's system is grammatical in Shupamem?

That is, we must seek to define all and only the grammatical sequences of Shupamem. Once we have answered the first question, we must then address the more explanatory question:

(b) Why does Shupamem only select these orders as grammatical rather that the other remaining sequences?

At issues then is how to reconcile Shupamem facts with existing data from previous theories in a way that explains the trigger of movement operations within the DP.

## **3** Proposal

In this section, I introduce the main proposal of this analysis concerning the internal syntax of Shupamem DP. I will basically outline the key assumptions of the Agreement Trigger approach developed here in order to show how relevant agreement inflections (e.g., noun class prefixes) attested in Shupamem impact on word order alternation within the DP in general. I will also summarize Rizzi's (2006) Freezing Principle and show how its extension to the left periphery of the noun phrase is more likely to explain why a number of orders are ruled out in Shupamem.

# 3.1 The Agreement Trigger (AT) Model

The Agreement Trigger (AT) approach's main assumptions are summarized in (11).

# (11) AT key assumptions

- a. Shupamem adjectives are indeed merged following a universal hierarchy of functional projections;
- All noun modifiers (demonstratives, numerals, adjectives etc) project their own functional projections (DemP, NumP, AP) and are located at the specifier position of those projections;
- c. All noun modifiers agree in noun class with the head noun whenever they follow it.
- d. The Agreement Phrase (AgrP) projects whenever an agreement affix is overtly spelled out between the head noun and its modifier (e.g., demonstratives, numerals and adjectives).

Without moving into Kayne's (1994) detailed demonstration of the LCA, it is important to recognize, as pointed out in Fortuny (2008:18), that 'the LCA cannot be formulated in a bare phrase structure, which dispenses with the distinction between maximal, intermediate and maximal categories'. I will therefore not attempt any reformulation of LCA as proposed in Fortuny (2008), rather I will maintain all levels of projections in my discussion of word order alternation in a way that highlights how each order attested in Shupamem is derived. Thus, assuming Kayne's (1994) universal hypothesis that all languages are of the type specifier-head-complement, it follows that the order DEM > NUM > ADJ > N will be basic in Shupamem and all the other sequences will be obtained via movements of different kinds (e.g., head/phrasal movement or pied piping). (For similar proposals, see Hawkins 1983; Abney 1987; Szabolcsi 1987, 1994; Carstens 1991, 2000; Cardinaletti 1994; Ritter 1991, Solini 1991, Kayne 1994; Cinque 1994, 2005; Aboh 2004, among others). I will further assume that the structure in (12) is the configuration where no movement has taken place.

# (12) $[DP [_{AgrP} DemP [_{AgrP} NumP [_{AgrP} AP] NP]]$

While it is a standard assumption in the literature that determiners encode (in)definiteness and need to project their own functional projection, namely the Determiner Phrase (DP), I will claim in this analysis that the definite article is encoded in the head of the Agreement Phrase (AgrP) that I indicates as indexes of DemP, NumP, and AP in (12). It follows that the overt realisation of an agreement head (e.g., noun class prefix) in Shupamem is responsible for the NP movement within the DP. Thus, in the structure in (12), DemP, NumP, AP, and NP represent the maximal projections of the demonstrative, the numeral, the adjective and the head noun respectively dominated by AgrP which phi-features may attract the NP to its specifier position. AgrP may surface recursively depending on the number of NP movements taking place. If for instance, the NP moves all the way up to the highest AgrP dominating the demonstrative, the DP will have three noun classes that give rise to definite spreading in Shupamem.<sup>4</sup>

<sup>&</sup>lt;sup>4</sup>Shupamem behaves more like Greek, Scandinavian or Swedish where noun modifiers (e.g., adjective and numeral) may surface with a determiner or a determiner like particle. See Alexiadou (2003), Delsing (1993) and references therein for an in-depth discussion of definite spreading with relevant examples.

The idea that AgrP is recursive within the DP has a rather interesting implication for the internal structure of the DP in Shupamem. For instance, how do we account for definiteness spreading in Shupamem? In a noun phrase containing more than one modifier at the same time, if both modifiers come after the head noun as shown in (13), two definite agreement morphemes are obligatorily licensed, each one preceding the noun modifier.

(13)	a.	món	ø-í	mbòkét	ø-i	si	pâ	ndà:	rànľ
		1.child	1 1-def	1-nice	1-def	black	be.PR	ES very	smart
		'The n	ice blac	k child i	s very	smart.	,		
	b.	pón	p-í	mbòkét	p-í	sí	sí	pâ	ndà: ràni
		2.child	12-DEF	2-nice	2-def	black	black	be.PRES	very smart
		'The n	ice blac	k childro	en are v	very si	nart.'		

In (13a-b), the definite article not only is obligatory in the NP > AP sequence, but also agrees in noun class (class 1 for singular (13a) versus class 2 (13b) for plural). On the contrary, when the adjective comes before the head noun, the definite article is absent, and the DP is thus interpreted as indefinite as shown in (14).

- (14) a. pòkét sènkèt mòn pà: ndà: ràni nice black 1.child be.PRES very smart
   'A nice black child is very smart.'
  - b. pòkét sènkèt pòn pà: ndà: ràni nice black 2.child be.PRES very smart 'A nice black child is very smart.'

The contrast between the examples in (13) and (14) directly follows from the Agreement Trigger approach which claims that the noun phrase obligatorily moves past the noun modifier only if the agreement head that encodes the definite article is overtly spelled out. It follows from these observations that Shupamem, like the many Scandinavian languages, Romanian and Albanian places it definite article after the head noun. It is important to note that NP movements are subject to the freezing principle. As I show in the following section, the freezing principle offers a body of constraints that account for why certain forms are unacceptable in UG.

## 3.2 Overview of Rizzi's (2004, 2007) Freezing Principle

This analysis establishes some parallel between the left periphery of the noun phrase (NP) and that of the IP in terms of the rendition of agreement relations internal to the DP. It is now common practice among the Minimalists to consider Rizzi's (2006, 2007) Freezing Principle as probably the most intuitive theory of phrasal movement at the sentential level.<sup>5</sup>

<sup>&</sup>lt;sup>5</sup>In this analysis, I discuss only the general argument about the Freezing Principle that I have adopted to explain the paradigms illustrating word order alternations within the DP. See Rizzi (2004, 2007); Rizzi and Slonsky (2007) or Bošković (2008) for the original descriptions of this principle with adequate illustrations. Note, in particular, that under the Freezing Principle, when a XP moves into a specifier position of a targeted functional phrase, it is frozen in place and cannot move further.

But the sense in which this principle can be extended to the nominal left periphery just as it is the case to the sentential left periphery needs to be commented on, by distinguishing phrasal (XP) movement (which is subject to the freezing effect) from remnant movement (which is not). More precisely, building on Agree mechanism put forward in Chomsky (2000, 2001, 2004, 2005) that accounts for phrasal movement possibilities in a given sentence, Rizzi argues that it is impossible to sub-extract out of a phrase (or constituent) that has been previously been moved in what he defines as the Freezing Principle schematically summarized in (15). Put another way, the Freezing Principle stipulates that once a constituent is moved, it is frozen in its targeted landing position where it stands in spec-head agreement relation as shown in (15).

(15) 
$$\begin{bmatrix} *\mathbf{XP}_{2},\ldots \end{bmatrix} \cdots \begin{bmatrix} \mathbf{YP}_{1},\ldots \\ \mathbf{XP}_{2} \end{bmatrix} \begin{bmatrix} \mathbf{ZP} \ldots \\ \mathbf{YP}_{4} \\ \ldots \end{bmatrix}$$

Under (15), once YP moves to the specifier position of XP, it forms a constituent which is frozen in place, and no further extraction is allowed from that frozen position. The freezing principle is also known as *Criterial Freezing* (Rizzi 2006:112) defined as in (16).

(16) Criterial Freezing

A phrase meeting a criterion is frozen in place.

Criterial freezing can be better understood as a version of Chomsky (2000, 2001) Activation Condition repeated in (17).

(17) Activition Condition

Inactive elements (i.e., elements whose features are already checked) are inaccessible for further operations.

At an explanatory level, Rizzi's (2006) Freezing Principle was originally designed as a principle of UG that accounts for a number of movement operations such as wh-movement, focalization, topicalization, quantifier raising or NPI movement that usually give rise to operator-variable relations (Bošković 2008:250) (for related data and additional discussion, see Collins 1997, Epstein 1992, Müller & Sternefeld 1996, and references therein). It is clear based on Rizzi's explanations that the Freezing Principle requires a spec-head agreement relation with respect to the features of the relevant class of functional projections in the left periphery (e.g., Force, Topic, Focus etc) in general. Concretely speaking, the Freezing Principle offers a theoretical framework that accounts for subject/non-subject asymmetries based on the syntactic properties of what Rizzi (2006, 2007) refers to as "Criterial position" (i.e., the Subject Phrase where the nominative case is usually assigned). Thus, under Criterial Freezing, it is proposed that once an XP reaches a Criterial position, it is systematically frozen in place and cannot move any further. This is what explains a number of "freezing effects" encountered cross-linguistically wherein any XP which undergoes a A'-movement is barred from undergoing a further A'-movement (cf. Wexler and Culicover 1980, Bošković

2008, Chomsky 2008, Boeckx 2009). The most recent version of Criterial Freezing is defined in (18).

(18) Criterial Freezing (Rizzi 2007: 149)In a criterial configuration, the Criterial Goal is frozen in place.

It is this exception that Rizzi and Shlonsky (2007) exploit to explain subject/non-subject asymmetries, arguing that they arise as a repair strategy to circumvent the Criterial Freezing configuration in SubjP. In short, as Gallego (2009:33) puts it, criteria freezing can be better understood as "an interface constraint precluding XPs from being assigned multiple interpretations of the same type, for legibility/convergence reasons ultimately related to the Principle of Full Interpretation".

# 4 The Nominal Inflection Domain in Shupamem

Before turning to the analysis of word order within the DP, it is very useful to provide a brief description of how noun modifiers such as possessives, numerals, adjectives, demonstratives and relative pronouns are inflected in noun class whenever they occur after the head noun. Note that under this analysis, the NP movement above the noun modifier is always triggered by the agreement head that encodes the definite article. I will show this in the following section.

## 4.1 Shupamem Noun Class Prefixes

In this section, I describe the morphology of Shupamem noun class system. Different classes are encoded by affixes on the noun stem and/or concord elements on the noun modifiers (e.g., possessives, definite articles, demonstratives, adjectives, relative pronoun and numeral). The Shupamem noun class system summarized in Table 1 significantly confirms Watters' (2003:242) hypothesis of noun class mergers in Eastern Grassfields. Specifically, it is shown that Shupamem has merged class IIIa (3) with class IIIb (7), and class IVb (8) with IVa (9). Let me point out that a simple common noun in Shupamem, that is the one used in citation form, is a complex structure that can be decomposed into several overt morphemes that illustrate the configuration of noun classes within the DP. The nominal root is lexically specified in noun class either by a prefix or a zero morpheme.

As we can observe in Table 1, there are 9 major noun classes in Shupamem, though not all of these classes have overt prefixes attached to the noun stem. The noun class prefixes here have various phonological shapes and may sometimes overlap in meanings. The morphological configuration of the noun class system in Table 1 reads as follows:

- (19) Morphological shape of noun class prefixes
  - a. five classes (1, 2, 6, 8, and 9) have no prefix on the noun stem at all;
  - b. five classes (1, 3, 6, and 9) surface as an homorganic nasal N- (usually assimilating in place with the following segment) on the noun stem;

- c. two classes (1 and 9) have a CV prefix *mù* on the noun stem;
- d. and one class (2) takes a C(V) prefix to encode  $p\dot{u}$ -/p- as noun class prefixes.

NOUN CLASSES		Noun	Ex	amples	Possessive Concords	
Shupamem	PB	Prefixes				
Ia	1 *mu-	N- mù- Ø-	ŋ-gùn <u>mù</u> -ŋgbié <u>ø</u> -үén	'stranger' 'woman' 'thief'	ø- + Possessive	
Ib	9 *mʊ-	N- mù- Ø-	<u>p</u> -3ùùt <u>mù</u> -sî <u>ø</u> -têt	ʻgoat' ʻbird' ʻpot'	S-+ Possessive	
Ш	2 *ba-	рш- р- Ø-	p <u>ù</u> -ŋgbié p-ón ø-sún	'women' 'chidren' 'friends'	p- +Possessive	
IIIa IIIb	3 *gu- 7 *ki-	N- Ø-	<u>n</u> -dám ø-pàm	ʻnet' ʻbag'	Ø- Possessive	
IVa IVb	10, (4/7) *yi 8 *bi	N- pш- Ø-	n-zàm pŵ-sì	ʻax' ʻbirds'	S-Possessive	
V	6 *ga	Ø-	ø-pùm	'egg'	S- Possessive	
VI	6, (4/7) *ga	N-	m-bùm	'eggs'	m-Possessive	

Table 1: Shupamem Noun Class System (Adapted from Hombert 1980)

On the basis of this, Hombert (1980:147) concluded that the nine classes attested in Shupamem are subdivided into five classes for singular (Ia, Ib, IIIa, IIIb, V) and four classes for plural (II, IVa, IVb and VI). The following bare nouns in (20) will have a morphological structure such as (21).

(20)	a.	mùi-ŋ 1-wor 'A/the	gbÌé nan woman'	b.	pǔi-ŋg 2-won 'Wome	bìé nen en/the women'
(21)	a.	N N	P	b.	N.   	P
		N <sub>class1</sub>   mùi- Class 1	N <sub>stem</sub>   ŋgbìé woman	N C	N <sub>class1</sub>   pŭi- Class 2	N <sub>stem</sub>   ŋgbìé women

As we can see, the structures in (21) have a desired effect of showing the breakdown of the head noun into a noun class prefix and a noun stem. These configurations include the

necessary information about the head noun and its inherent prefixes which may be overt or zero as shown in Table 1. The remainder of this analysis discusses how the head noun combines with its modifiers to form a bigger constituent. In particular, I illustrate how the noun class prefix agrees with the noun concord on the stem of noun modifiers such as the possessives, the demonstratives, the adjectives, the numerals, and the relative pronouns.

# 4.2 Possessive Pronouns/DPs and the noun class Prefixes

This section describes the morphosyntactic properties of possessives with respect to the head noun. Possessive pronouns in Shupamem may surface as pre-nominal or post-nominal. Whenever they are post-nominal, they always demonstrate concord with the noun class prefixes of the head noun. However, if they are pre-nominal, there is no need for them to agree in noun class. It follows that the morphological properties of the possessive pronouns are overridden when they are pre-nominal. Let me repeat all the possessive pronouns in Table 2 for convenience. What Table 2 shows is the fact that the phonological shape of the possessive pronouns basically depends on its surface syntactic position.

PERSON	PRENOMINAL	PRENOMINAL POSSESSIVES					
	POSSESSIVES	NOUN CLASS CONCORDS	-Possessive				
<b>1sg</b> 2sg 2sg	já jú jí	Class Ia&b: {ø-, ∫-} Class II: {p-}	-à -ù -ĭ				
Dual 1pl-incl. 1pl-excl. 2pl 3pl	jútà júpwè jý jún jáp	Class IVa&b: {∫-} Class V: {ø- or ∫-} Class VI: {m-}	-útà -ùpwə -ỳ -ùn -àp				

#### Table 2: Possessive pronouns and Noun concords in Shupamem

Examples of nouns modified by possessive pronoun are given in (22) through (24). I have paired all the noun classes described in Table 1 into singular-plural to show how they differ with respect to their syntactic position within the DP. For ease of exposition, I will only focus on one example per noun class.

- (22) a. mù-tờ? m-ón ø-à 1-small 1-child 1-Gen.1sg 'My small child.'
  - b. pú-tš? p-òn p-á
     2-small 2-child 2-Gen.1sg
     'My small children.'
  - c. j-à mù-t5? m-ón Gen.1sg 1-small 1-child 'MY (own) small child.'
- (23) a. h-tàm ø-pàm ø-à 3-long 3-bag 3-Gen.1sg 'My long bag.'
  - b. ǹ-tǎm ǹ-tǎm ø-pǎm ∫-á
    4-small 4-long 4-bag 4-Gen.1sg
    'My long bags.'
  - c. jà ntàm ø-pàm Gen.1sg 1-long 1-long 'MY (own) long bag.'
- (24) a. ø-lá: ø-pùm ø-à 5-large 5-egg 5-Gen.1sg 'My large egg.'
  - b. ø-lá: ø-lá: m-bům m-á 6-small 6-long 6-bag 6-Gen.1sg 'My large eggs.'

- a'. \*ø-à mùì-tǒ? m-ón Gen.1sg 1-small 1-child 'MY (own) small child.'
- b'. \*p-à pǔ-t5? p-ón 2-Gen.1sg 2-small 2-child 'MY (own) small children.'
- c'. jà ptǔ-tš? p5n Gen-1sg 2-small 2-children 'MY(own) small children.'
- a'. \*ø-à n-tàm ø-pàm Gen.1sg 3-long 3-bag 'MY (own) long bag.'
- b'. \*∫-à n-tăm n-tăm ø-pàm
  4-Gen.1sg 4-long 4-long 4-bag
  'MY (own) long bags.'
- c'. jà n-tăm n-tăm ø-pàm Gen-1sg 4-long 4-bag 'My (own) long bags.'
- a'. \*ø-à ø-la: ø-pùm Gen.1sg 5-small 5-child 'MY (own) large egg.'
- b'. \*m-à ø-lá: ø-lá: m̀-bùm sg 6-Gen.1sg 6-long 6-long 6-bag 'MY (own) large eggs.'
- c. já ø-lá: pùm c'. jà ø-lá: ø-lá: mì-bùm Gen-1sg 5-large 5-egg Gen.1sg 6-long 6-eggs 'MY (own) large egg.' 'MY (own) large eggs.'

These examples follow naturally from the Agreement Trigger hypothesis that post-nominal modifiers obligatorily show agreement in noun class with the head noun that is fronted to the specifier position of the functional projection governing the agreement head.

A less apparent but more significant implication one can draw from the above examples is the status of the internal structure of the possessive DP in Shupamem. What is for instance, the basic order of elements within the possessive DP? Consider the examples in (25) and (26). The first general observation is that possessive nouns behave differently from possessive pronouns with respect to how noun class prefixes are encoded. Moreover, Shupamem does not have any special morphology to distinguish between 'inherent' and 'extrinsic' possessives (Barker 1995) as shown in (25) and (26).

(25) Inherent possessives

	a. môn mfðn 1-Son 3-king 'The king's son'	a'. *mfòn món 3-king 1-child
	<ul> <li>b. kǔt mfôn</li> <li>6-leg 3-king</li> <li>'The king's leg'</li> </ul>	b'. *mfðn kút 3-king 6-leg
	<ul> <li>c. jéyèn n∫ỳt</li> <li>3-courtyard 3-palace</li> <li>'Palace's courtyard'</li> </ul>	c'. *nʃỳt jéjén 3-palace 3-courtyard
	<ul> <li>d. ndù tèbè</li> <li>3-top 3-table</li> <li>'The table top'</li> </ul>	d'. *tèbè ndù 3-table 3-top
	e. fitú mfðn 3-picture 3-king 'The king's picture.'	e'. *mfðn fitù 3-king 3-picture
(26)	Extrinsic possessives	
	a. năm mfôn 1-horse 3-king 'The king's cat.'	a'. *mfðn nàm 3-king1-horse
	<ul> <li>b. màtwà mfốn</li> <li>3-car 3-king</li> <li>'The king's car.'</li> </ul>	b'. *mfðn màtwà 3-king 3-car
	c. ndà mfòn 3-House 3-king 'The king's house'	c'. *mfõn ndàp 3-king 3-house

On the basis of the examples in (25) and (26), one would predict that the noun that stands for the possessum always comes before the one that denotes the possessor. This is not always the cases as evidenced by additional examples in (27) that suggest that the order between the possessum and the possessor may be reversed. When that happens, the whole possessive DP has a different meaning.

(27)	a. kún nztừ 3-Bed 3-bamboo 'The bamboo bed' (A bed made of bamboo)	a'. nztù kún 3-bamboo 2-bed 'The bamboo for bed.'
	<ul> <li>b. lápá? ŋgùp</li> <li>3-Shoe 3-leather</li> <li>'The shoe made of leather'</li> </ul>	<ul> <li>b'. ŋgǔp lápá?</li> <li>3-leather 3-shoe</li> <li>'The leather for shoes'</li> </ul>
	c. môn mfồn 1-son 3-king 'The king's son'	c'. mfồn môn 3-king 1-son 'The king who is a child'

Granting the contrast between possessive pronouns and posssessive DPs highlighted in the above examples, I adopt Dikken's (1998) idea that possessive DPs of the English types such as *John's dogs* should be treated like a small clause. Thus, a Shupamem example such as (25a) will have the structure in (28) where the possessum NP *món* 'child' moves to the specifier position of the Possessive Phrase (PossP) dominating the possessor NP *mfòn* 'king'.



The derivation in (28) is consistent with the fact that in Shupamem, a definite article may follow the head noun that precedes a noun modifier of any kind. This is seen in the following example in (29) where the possessive DP is modified by an adjective and a demonstrative at the same time.

(29) môn mfòn ø-ì mbókér -ø-ì
 1-child 3-king 1-DEF 1-nice 1-DEM
 'The king's nice son.'

In short, no matter what the correct analysis of the internal syntax of possessive DPs in Shupamem may be, it is reasonable based on the derivation in (28) and the agreement facts in (29) that the final position of the possessive pronouns illustrated in (30b) results from NP movement to the specifier position of AgrP dominating the Possessive Phrase (PossP), as in (30c).



From what we have seen so far, it appropriate to conclude that the feature composition of Shupamem determiners (possessives, definite articles, numerals etc) is quite complex. For the purpose of this study, it is very important to briefly present what has been proposed in typologically related languages to Shupamem where noun classes also play a role in the internal syntax of the DP. The next section provides a brief summary of previous analyses available on agreement facts internal to the DP in Bantu languages.

#### 4.3 Previous works on DP Internal Agreement

The studies of agreement system internal to the DP in Bantu and the type of concord discussed here that I am aware of include Hyman (1972b), Hombert (1980), and a number of syntactic analyses on languages such as Nweh by Nkemnji (1995), Kiswahili by Carstens (1991, 2000) and Bafut by Tamanji (1999, 2006). Nkemnji (1995) proposes to analyze agreement in Nweh DPs as involving a spec-head relation.

Nkemnji reanalyzes the noun phrase as consisting of a new phrase, namely the Class Phrase (ClassP). He also projects a Genitive/Operator Phrase (G/OP) above NumP. Under Nkemnji's (1995) approach, there are three XP movement processes (e.g., NP, ClassP, NumP movement) and three head raising processes (e.g., Num<sup>0</sup>, G/O<sup>0</sup> and D<sup>0</sup>) that account for observed word order facts in Nweh.

Carstens (2000) offer an alternative analysis to Nkemnji's approach. Based on her examples from Swahili, she argues for  $N^0$ -to-Num<sup>0</sup>-to-D<sup>0</sup>- raising for Bantu akin to the type observed in Romance languages. It is also argued that the more articulated feature-checking theory developed in Chomsky (1995) provides a better account of Bantu DP concord since checking relations are more numerous in this framework and are intrinsically symmetrical.

Adopting the Government Transparency Corollary (Baker, 1988), Carstens assumes that D inherits the Government Domain of Num and N. From D, the complex [D+Num+N] transmits gender plus number agreement feature to every constituent within the C-command Domain of D, Num and N, aside from item with their own gender.

In contrast, Tamanji (1999, 2006), another important study on Bafut, a closely related language to Shupamem, argues for two structural configurations with respect to the syntax of DP and agreement facts, namely: spec-head and head-head. According to this argument, the head-head relation is needed to check agreement on lexical categories via covert raising of features of adjectives and genitives, in a head-to-head fashion, to the noun in Num<sup>0</sup>. Moreover, features of functional categories (determiners and quantifiers) are checked via movement of NumP to spec-DP through spec-QP in the familiar way of spec-head agreement. The model the author is arguing for could be extended to Romance and Bantu DPs. Adopting Chomsky's (1995) proposals for checking  $\varphi$ -features on arguments in clauses to the checking of non-argument agreement relations in the DP, Tamanji suggests a way of dealing with a really rich agreement system without resorting to the projection of agreement phrases. Following this line of reasoning, it is argued that the account of agreement follows naturally from the internal syntax of Bafut DPs. Therefore, variation in distribution and interpretation of constituents of the DP results from movement to positions that correlate with different interpretations. Configurationally, NP is embedded inside four functional projections: FocP, DP, QP and NumP. N-raising to Num<sup>0</sup> and subsequent movement of NumP to Spec-QP and Spec-DP yield the unmarked noun-initial word order commonly attested in Bantu. Further raising of functional heads to Foc<sup>0</sup> produces the contrastive focus interpretation when functional heads exceptionally precede the noun.

The following examples in (31) through (33) from Kiswahili (Carstens 2000), Bafut (Tamanji 2006) and Nweh (Nkemnji 1995) respectively, are illustrative data showing agreement in noun classes in Bantu languages:

Agreement in class (Sg-DP)				Plural DPs			Languages		
(31)	a.	kiti 7-chair 'my chair'	change 7-my	b.	viti 8-chair 'my chairs'	vyangu 8-my	Swahili (Carstens 2000)		
(32)	a.	fi-ndzóó 19-frog 'a white frog	fi fùù 19-white	b.	mɨ́-ndzóó 6-frog 'white frog	mɨ fùù 6-white s'	Bafut (Tamanji 2006)		
(33)	a.	afû 7-medicine 'sweet medic	à-lií 7-sweet cine'	b.	mbzaŋ 9-peanuts 'dry peanut	n-juŋŋ 9-dry ts'	Nweh (Nkemnji 1995:97)		

My treatment of agreement between the head noun and its various modifiers will be somehow similar to the one proposed in Nkemnji (1995), especially the projection of ClassP/AgrP and G/PossP (Genitive/Possessive Phrase) except that I will not necessarily project a Class Phrase to simplify my analysis. I argue that Shupamem DP has a more flexible word order and that all Phrasal/XP-movements within the DP are subject to the Freezing Effect. For the purpose of this analysis, I will make the following set of assumptions, the first three of which are similar to the first three made by Cinque (2005) with minor changes. I will add the principle explaining XP movements internal to the DP:

- (34) a. The underlying hierarchical order of Dem, Num, A and N in the extended nominal projection is Dem>Num>A>N, where > indicates c-command.
  - b. All (relevant) movement is XP movement.
  - c. All movements target a c-commanding position.
  - d. All (relevant) movements are to the left in the LCA sense.
  - e. The Agreement Phrase is only licensed in a context where the head noun precedes its modifiers (adjective or numeral).
  - f. Morphological agreement triggers the movement of the head noun or any of functional projection hosting it.
  - g. Phrasal movements are subject to the freezing effect.

The above assumptions lead to two main (and welcome) results: (i) they involve fewer restrictions than the previous assumptions and therefore result in a superset of permitted derivations with respect to the set of derivations in Cinque's approach, and (ii) the linear asymmetry in the order of elements within the extended nominal projection still follows from the LCA but also from the restrictions on movement described above. Unlike Tamanji (1999, 2006), I consider the projection of AgrP to be crucial in configuration where there is any number agreement within the DP (e.g., multiple instances of definite morphemes). XP movement and as well as remnant movement are permissible as long as they do not violate the Freezing effect. These fairly natural assumptions seem to force us to the conclusion that Greenberg's Universal 20 and subsequent theories seem to be inconsistent with Shupamem for two main reasons: (a) that the participial adjectives create a room for more word orders (Pre-Nominal or Post-nominal); (b) the post-nominal adjective is the direct consequence of a cyclic movement of AgrP to Spec-AgrP creating a criterial freezing configuration between Spec-AgrP and Agr. Following Chomsky (1995:281), if we assume that the features of the target which enters into checking relations are uninterpretable, it follows that the AgrP head bears uninterpretable  $\varphi$ -features which must be checked at the latest by LF. To ensure that the checking occurs in overt syntax, I assume further that this optional feature picked up by an agreement head as it enters the numeration is STRONG (or it has an obligatory EPP feature). Now that I have outlined the key assumptions of my proposal, let me move on to the internal syntax of Shupamem DP.

## 5 The Linear Order of Elemements in Shupamem DPs: Synthesis

This section discusses the relative order of noun modifiers (e.g., demonstrative, numeral, adjective) with respect to the surface position of the head noun. Our analysis of word order

variation in general within the DP is grounded in the conceptual considerations which underpin and motivate the Antisymmetry research program initiated in Kayne (1994). If one considers the surface order of the head noun and a noun modifier, one can think of the variation in word order within the DP as a direct consequence of movement. Assuming Kayne's (1994) LCA is correct, it follows that the base component of a given DP in Shupamem would be universally configured as [XP YP [X ZP]] where YP is a specifier and ZP a complement. Following this line of reasoning, if the order Determiner > Modifiers (Adjectives, Numeral, Demonstrative) > Noun is taken to be basic as I assume below, then the order displayed by various elements within Shupamem DPs and related languages must be (transformationally) derived. One way of showing this is to consider each noun modifier from Cinque's (2005) sequences in (6) and other noun dependents (e.g., quantifiers, intensifiers, relative pronouns, etc) in isolation and combine them with the head noun to see what the predictions are about word order within the noun phrase. Let me stress in the outset that the major characteristic of the noun phrase in Shupamem is that the head noun may either follow or precede its modifiers. Only relative clauses are strictly post-nominal.

# 5.1 Adjective Modifiers in Shupamem

In Shupamem as in many other Bantu languages, adjectives are subdivided into two groups, namely (a) simple adjectives and (b) verb-like adjectives (i.e., participial adjectives). Simple adjectives are those that are listed in the lexicon as inherent adjective contrary to participial adjectives that are always derived from lexical verbs. The adjective classes are summarized in Table 3 below. The list of adjectives given in Table 3 is not exhaustive. Its purpose is to establish some generalizations about the distributional properties of Shupamem adjectives. The distinction between the adjective types offered here is based on morphological and syntactic factors. Type 1 adjectives (i.e., participial adjectives) are productively derived from lexical verbs and may precede or follow the head noun. Unlike Type 1 adjectives, Type 2 adjectives are listed in the lexicon as inherent adjectives and are always pre-nominal. They lack any kind of morphological complexity and never inflect in noun class because of their pre-nominal surface position within the noun phrase. Type 3 are also inherent adjectives but only surface post-nominally, thus inflect for noun class.

For this analysis, I will only focus on the discussion of the participial adjectives that are either interpreted as definite or indefinite depending on their surface position. Since there seems to be more lexical options in describing a state in Shupamem, it is important to mention that a state like the English adjective *big* may be encoded by either a lexical verb such as *vá*? 'be big' or a nominal adjective *ngbàm* 'big' which also corresponds to a pre-nominal participial adjective *vá*?*két* 'a big' or a post-nominal participle adjective i-ngá?*két* 'the big'.

The morphosyntactic properties of adjectives in Table 3 clearly suggest that adjectives in Shupamem do not seem to belong to a single lexical category. They may show some morphosyntactic properties of nouns or verbs depending of the context. Syntactically speaking, when an adjective whether it is a participial adjective or an inherent adjective occurs after the head noun, it systematically agrees in noun class with the head noun (36a-b). Simple adjectives are either strictly pre-nominal or strictly post-nominal as shown in (35) and (36) while participial adjectives may occur before or after the head noun as show in (37).

All Adjective	Predicative adjectives				Attribute adjectives				
Classes	Takes- két participle	Plural	Can follow a copula	A>N	N>A	AGR <sub>SG/PL</sub> i/-∫i	AGR <sub>SG/PL</sub> ji- /pi-	Translation	
a. Participial adj. V-et	a.pókét b.púkét c.ràànó d.Jù?ró	pókét pókét púkét púkét ràànó ràànó Jù?ró Jù?ró	NO	YES	YES	YES	YES	'Beautiful' 'Bad/ugly' 'Smart' 'Stupid'	
ь. <i>Nominal</i> Pre-N adj.	a. kúm b. mfé c. réŋkét d. ŋgbèm e. ntám	kúm kúm mfě mfě réŋkét réŋkét ŋgbàm ŋgbàm ntám ntám	NO	YES	NO	YES	NO	'Old' 'New' 'Ancient' 'Big' 'Long'	
c. Nominal Post-N Adj	a. sí b. fú c.p≚tó d. ntám e.ŋgùrð	sísi f <del>úfú</del> pắtə pắtə ntăm ntăm ŋgŭt ŋgùrə	YES	NO	YES	NO	YES	'Black' White 'Red' 'round' 'Big'	

Table 3: Adjective classes in Shupamem

- (35) a. ŋgbàm món 1- big 1-child 'The/a big child.'
  - b. ŋgbàm ngbàm pón
    2-big 2-big 2-children
    'The/ big children.'
- (36) a. nsèn (ø-1) ŋgùrð 3-forest 3-Def 3-large 'The/a large forest.'
  - b. nsên nsên (p-i) ŋgût ŋgùrà 6-forest 6-forest 2-Def 6-big 6-big 'The/ large forests.'

a'. \*món ŋgbòm 1-child 1-big

- b'. \*pôn ŋgbàm ŋgàm 2-children 2-big 2-big
  - a'. \*ŋgùrà nsèn 3-large 3-forest
- b'. \*ŋgût ŋgùrə nsèn nsèn 6-big 6-big 6-forest 6-forest

(37)	a. sénkêt mòn	a'. món ø-ĭ nsénkét				
	black 1-child	1-child 1-Def. black				
	'A black child.'	'The black child'				
	b. sénkêt pòn	b'. pón pí nsénkét				
	black 2-children	2-chidren 2-Def. black				
	'Black children.'	The black chidren'.				

It is very important to point out that a strictly pre-nominal adjective is ambiguous between a definite and an indefinite reading as shown in (35a-b). However, all post-verbal adjectives (whether it is a simple adjective or a participial adjective) are interpreted as definite DP as exemplified in (36a-b) and (37a'-b'). Note that a pre-verbal participial adjective is systematically interpreted as an indefinite DP as shown in (37a-b). These findings are consistent with Vázquez-Rojas's (2008) proposal that what appears to be an agreement head in all post-nominal adjectives is actually a definite article. The distribution of the definite article described in the above examples is very consistent with the existential or There be sentences or the have-constructions test that are usually explored by linguists to determine the distinction between indefinite versus definite DPs. Under these tests, only the examples in (35a-b) which are ambiguous and those in (37a'-b') would meet the conditions for the indefinite interpretation. The next question, given the distribution of those adjectives, is how to derive post-nominal versus pre-nominal adjectives in a way that accounts for the existence of post-nominal definite article observed in Shupamem. I propose that (37a-b) for instance will have the following derivations in (38) where the noun phrase moves higher up to the specifier of AgrP.



(38b) thus yields the order NP>AP by means of NP movement to spec-AgrP. This actually shows that head movement in this analysis is reduced to phrasal movement. Moreover, the agreement head consists of the noun class prefix p- and the definite article -i. I argue that variations in word order are used in Shupamem to make one part of the DP more prominent

than another. For instance, the elements of the DP in (39) can be rearranged in various ways to produce different shades of meaning.

(39)	a.	màpón fá ŋkè nà [ <sub>DemP</sub> ∫í [ <sub>NumP</sub> kpà [ <sub>AP</sub> pókɛt pókɛt
		Mapon give water to DEM.PL four handsome handsome
		[ <sub>NP</sub> pón ]]]]
		2-children
		'Mapon gave those four handsome children some water.'
	b.	màpón fá ŋkè nə̀ [ <sub>DemP</sub> ∫í [ <sub>NumP</sub> kpà [ <sub>NP</sub> pón [ <sub>AP</sub> (pí)
		Mapon give water to DEM.PL four 2-children 2-DEF
		m-bókét ]]]]
		2-nice
		'Mapon gave those four nice children some water.'

The example in (39a) has a reading by which the children are treated as handsome via the A-N order, while (39b) has a reading by which the children are treated as nice (extrinsic reading) via N-A order. Moreover, the adjective in (39a) is doubled to mark the plural agreement while in (39b), the plural agreement in indicated by a number agreement prefix. I show in the next section that numerals behave exactly like adjective modifiers in terms of their surface position with respect to the head noun.

# 5.2 Numerals and Definiteness

In Shupamem, numerals may precede or follow the head noun. A pre-nominal numeral has an indefinite interpretation while a post nominal numeral is interpreted as a definite numeral. This is consistent with Shupamem numerical system (e.g., cardinal and ordinal numerals) summarized in Table 4 below.

FIGURES	CARDINALS		SERIES	ORDINALS
	PRE-NOMINAL POST-NOMINAL			
1	mò?/nđì	ø-i-mò?	First	pùm-ø-ì
2	mbă/pè?	p-i-pà:	Second	mbá:rờ í-pà:
3	tét	p-i-tét	Third	mbá:rð í-tét
4	kpà	p-i-kpà	Fourth	mbá:rờ í-kpà
5	tèn	p-i-tèn	Fifth	mbá:rə i-tèn
6	ntú	p-ì-ntú:	Sixth	mbá:rð í-ntú
7	sàmbà	p-i-sàmbà	Seventh	mbá:rə í-sàmbà
8	fămờ	p-ì-fà:mò	Eight	mbá:rờ i-fá:mớ
9	vý	p-ì-vỹ?	Ninth	mbá:rð í-vў?

Table 4: Cardinals and Ordinal Numbers and noun class prefix agreements in Shupamem

The contrast between numerals taken in isolation and those that occur are post-nominal suggests that the default noun class prefix is only added to the numeral stem when it appears after the head noun. In the later section of this analysis, I will use the label numeral (Num) to represent cardinal numbers. Table 4 is crucial in that it shows that numerals that occur before the head noun lack any noun class prefix while those that occur after the head noun always carry a noun class prefix (e.g., zero for singular and p- for plural). It is very important to note that ordinal numbers differ from numerals in that they have a definite article but do not vary in noun class as is the case with numerals. Cardinal numbers in Shupamem, by and large, display a freedom of occurrence just as in Hebrew where it may precede or follow the head noun (see Slonsky 2004). Our findings that pronominal numerals are associated with indefiniteness while post-nominal numerals are associated with definiteness are consistent with Vázquez-Rojas (2008) conclusion in her discussion of the semantics of numeral in Shupamem. Accordingly, the acceptability judgements about cardinal numerals and ordinal numerals suggest that only the former may occur before or after the head noun while the later is confined to a pre-nominal position, otherwise the sentence will be ungrammatical as in (41b).

- (40) a. (mó?) kpà pŵ-mvì IND four 2-goat 'four goats'
  - b. (\*mɔ́?) pû-mvì p-í kpà IND 2-goat 2-DEF four 'the four goats'
- (41) a. pùm pûi-mvì first 2-goat 'the first goats'
  - b. \* pŵ-mvì pùm 2-goat first

It is clear from the above examples that cardinal numerals have similar morphosyntactic properties as modifying adjectives. If the configuration in (38) is correct, it follows that the pre-nominal cardinal numerals and post-nominal cardinal numerals will be derived as in (42). Here, if cardinal numeral precedes the head noun, the corresponding structure of such a configuration can be represented as in (42a). From (42a), the inverse order where the numeral follows the head noun is derived as in (42b) by raising NP to the specifier position of AgrP dominating NumP.



Quite obviously, the projection of AgrP in (42b) triggering the movement of NP to its specifier position suggests that the agreement head has a strong feature and also indicates an instantiation of definiteness distinction. Then we can conclude that Shupamem includes the noun class prefix among its determiner features (e.g., the zero versus *p*- distinction before the definite morpheme in Table 4 or in (40a-b)). Next, let us turn to the syntax of demonstrative constructions to see what the predictions are for the surface position of the definite article.

#### 5.3 Demonstrative and (In)definiteness

Determiners are commonly used by many linguists for definite and indefinite articles, as well as other functional elements such as demonstrative determiners and possessive pronouns. Lyons (1999:1) for instance claims that the element that encodes definiteness or indefiniteness "may be a lexical item like the definite and the definite articles in English (*the*, *a*), or an affix of some kind like Arabic definite prefix *al*- and indefinite suffix -*n*." Notice, however that this kind of a characterisation of the term 'determiner' is better reserved for languages like English or French where there are functional categories which articles do no co-occur with, like demonstrative determiners and possessive pronouns (e.g., *\*the my house; \*the this bag*). If one assumes the determiner corresponds to the set of such words that surface in the same position in the noun phrase (e.g., specifier of the noun phrase), and do not co-occur with each other in languages such as English or French, then defining the status of determiners in a language like Shupamem will face a serious problem with respect to such a characterisation of the determiner in general.

Shupamem distinguishes two kinds of demonstratives, namely (a) the proximal demonstratives jii 'this' and fii 'these' and (b) their distal counterparts juo 'that' and fuo 'those'. Those demonstratives can be used to indicate referentiality. One first major point about Shupamem is that, it may allow demonstrative determiners to co-occur not only with the definite article (43), but also with the indefinite one (44). Thus, I stress that the definite article is morphologically marked by the suffix -*i* that occurs before any post-nominal modifier (e.g., adjective, numeral) while the indefinite is marked by a zero morpheme or the morpheme  $m \delta ?$  'a'. In Shupamem, demonstrative modifiers can appear either in pre-nominal position as in (43c) and (44c) or in post-nominal position as in (43a) and (44a). Morphologically, when the demonstrative follows the head noun, it obligatorily shows agreement in noun class with the head noun (see the (a) examples in (43) though (46)). But, if the demonstrative comes before the head noun, there is no need for it to agree in noun class with the head noun otherwise the sentence will be ungrammatical (see the (c) examples in (43) through (46c)). Note also that all pre-nominal demonstratives are interpreted as focused.

(43)	a. m-òn	ø-i	b. *ø-i	ø-mòn	c. ji	ø-món
	1-child	1-Dem	1-De	em 1-child	Der	m 1-child
	'This ch	ild (here).'	'THIS	S child (here)'	'THI	S child (here).'
(44)	a. p-ðn	p-ĩ	b. *p-i	p-ón	c. ∫i	p-ón
	2-child	ren 2-Dem	2-De	m2-children	Der	n 2-child
	'These cl	hildren (here).	' 'THE	SE children (here)'	'TH	ESE children (here).

Distal demonstratives behave the same as proximate demonstratives as shown in the following examples.

(45)	a. m-ón ø-wó	b. *ø-wó ø-món	c. juó ø-món
	1-child 1-Dem	1-Dem 1-child	Dem 1-child
	'That child (over there).'	'THAT child (over there)'	'THAT child (over there).'
(46)	a. p-ón p-wó 2-children 2-Dem 'These children(over there).'	<ul> <li>b. *p-wó p-ón</li> <li>2-Dem2-children</li> <li>'THOSE children (over there)'</li> </ul>	c. ∫wó p-ón Dem 2-child 'THOSE children (over there)

It is important to point out that Shupamem has a semantic/pragmatic difference between pre-nominal and post-nominal demonstratives (with formal differences other than position). While emphatic demonstratives can precede the head noun, normal demonstratives can only follow it. Judging from the following examples in (47), 'emphatic demonstrative' here can mean that the demonstrative expresses contrastive focus (the emphatic demonstrative is underlined).

- (47) a. á mã nji ŋi món ø-ì páyi, á ji nà pó ji món páyi It Neg eat 3sg 1-child 1-Dem<sub>sg</sub> food, it eat PFV Foc Dem<sub>sg</sub> 1-child food.
  'It is this not this child who ate the food, it is THIS CHILD who did it'
  - b. á mâ nji ni pón p-i páyi, á ji nà pó  $\int \underline{i}$  pón páyi It Neg eat 3sg 2-children 2-Dem<sub>pl</sub> food, it eat PFV Foc Dem<sub>pl</sub> 2-children food. 'It this not these children who ate the food, it is THESE CHILDREN who did it'

The examples in (43) through (47) suggest some similarities in nature between demonstratives and noun modifiers like adjectives and numerals. Like adjectives and numerals, demonstratives agree in noun class with the head noun if they follow it. Granting the idea that all regular demonstratives are post-nominal in Shupamem, it follows that the NP>Dem order is always obtained via a movement of NP to spec-AgrP dominating the demonstrative phrase as illustrated in (48).



Strictly speaking, as we can see in the derivation in (48b), under the analysis, in terms of the distribution of the definite article with respect to the demonstrative, the surface form of the NP suggests that when the demonstrative is post-nominal, the definite article which agrees in class with the head noun precedes the demonstrative. This is a very surprising fact that is reminiscent to Leu's (2008:23-24) hypothesis that demonstratives in West Germanic "are adjectival in some sense" therefore are incorporated into the DP. While the author agrees with the hypothesis that demonstratives are phrasal and may consist of an adjectival component and a definite marker morpheme as argued in Dryer (1992, p.120ff), Delsing (1993, chapter 4.3), Chomsky (1995, p.338), Bernstein (1997, p.93), Elbourne (2005), Julien (2005) among others, he also stresses that they are morphologically complex, thus spelling out different heads in an extended adjectival projection. While such a proposal is obviously appealing, there is evidence from Shupamem data shows that demonstrative may co-occur with an indefinite article as shown in (49) and (50).

<b>x</b> 4					
Ind.	silly	1-child	1-Dem	drink.Past	beer
'That	silly chi	ld (over ther	e) drank be	eer.'	
b. mó?	lỳ?kết	p-ón	p-wó	nwó	nzù?
Ind. 'These	silly e silly cl	2-children hildren (over	2-Dem there) dram	drink.Past nk beer.'	beer
	Ind. 'That b. mó? Ind. 'Thes	<ul> <li>Ind. silly</li> <li>'That silly chi</li> <li>b. m5? lỳ?két</li> <li>Ind. silly</li> <li>'These silly cl</li> </ul>	<ul> <li>Ind. silly 1-child</li> <li>'That silly child (over ther</li> <li>b. m5? lỳ?két p-ón</li> <li>Ind. silly 2-children</li> <li>'These silly children (over</li> </ul>	<ul> <li>Ind. silly 1-child 1-Dem</li> <li>'That silly child (over there) drank be</li> <li>b. mó? lỳ?két p-ón p-wó</li> <li>Ind. silly 2-children 2-Dem</li> <li>'These silly children (over there) drank</li> </ul>	<ul> <li>Ind. silly 1-child 1-Dem drink.Past</li> <li>'That silly child (over there) drank beer.'</li> <li>b. mó? lỳ?két p-ón p-wó nwó Ind. silly 2-children 2-Dem drink.Past</li> <li>'These silly children (over there) drank beer.'</li> </ul>

(50)	a. mó?	lỳ?kết	m-ón	ø-i	nwó	nzù?
	Ind.	silly	1-children	1-Dem	drink.Past	beer
	'This	silly ch	ild (here) dra	ank beer.'		
	b. mó?	lỳ?kết	p-ón	p-i	nwó	nzù?
	Ind	silly	2-children	2-Dem	drink.Past	beer
'These silly children (here) drank beer.'						

As we can observe in (49) and (50), the demonstrative agrees in class with the head noun when it immediately follows it but yet is still compatible with an indefinite article m37 'a'. Although Shupamem confirms Leu's (2008) proposal the demonstrative is adjectival and is complex, due in part to the fact that it may co-occur with the definite article, I will argue that the demonstrative projects its own functional projection and surfaces in the specifier position of that functional projection. It may certainly agree in noun class with the head noun, in which case a functional projection (e.g., AgrP) is projected to attract the lower NP into its specifier position as we have shown in (48b). Such NP movement yields a surface order where the demonstrative comes after the head noun. The definite article is always post-nominal but comes before the demonstrative.

## 5.3.1 Quantifiers, Intensifiers and Relative pronoun

In this section, I will address the issue of what the surface position of other noun modifiers correspond to. As far as Shupamem data is concerned, the label noun modifiers used here covers lexical words that occur beyond determiners. There are two sets: (a) modifiers 1 (e.g., numeral and quantifiers) and (b) modifiers 2 (e.g., adjectives, intensifiers and relative clauses). In what follows, I will provide a brief discussion of the how quantifiers, intensifiers and relative clauses combine with the head noun.

## 5.3.2 Quantifiers

Shupamem has three lexical words playing the role of quantifiers as repeated in (51).

(51)	a. ŋgù: pón All 2-chilren 'All childen'	b. *pôn ŋgù: children all		
	<ul> <li>b. m\u00e7ki\u00e7t p\u00f3n</li> <li>few 2-children</li> <li>'Few/little children'</li> </ul>	b'. *pón mèkièt 2-childen few		
	c. rěn/jàm/ŋkwăt pon many 2- children 'Many/a lot of children.'	c'. *pón rěn/jǎm/nkwǎt 2-children many		

As can be observed from the examples in (51), quantifiers differ from numerals and other modifiers such as demonstrative, and possessive pronouns in that they always come before

the head noun, otherwise the sentence will be ungrammatical. Moreover, they are always interpreted as indefinite, thus never agree in noun class as it was the case with other noun modifiers. For reason of space, I will not be able to offer a full analysis of these examples. However, the fact that quantifiers are always pre-nominal implies that they are the topmost node dominated by the DP.

## 5.3.3 Intensifiers

Intensifiers are adverbs that denote degrees (Mwihaki 2007:28). I will adopt Givon?s (2001) label of intensifiers that refer to the three adverbs in (52) usually used to intensify the meaning of the lexical items they modify.

(52)	a ndà: lò?kèt pòn Very stubborn 2-child 'Very stubborn children'	a'. *líkét pón ndà: stubborn 2-child very				
	<ul> <li>b. ndà: pòn p-ì n-dó?két</li> <li>Very 2-child 2-Def. 2-stubborn</li> <li>'The very stubborn children'</li> </ul>	b'. * pón p-ĭ n-dòkét ndà: 2-child 2-Def. 2-stubborn very				

As we can observe in (52), intensifier also comes before the head noun. What about the relative pronoun?

## 5.3.4 Relative clauses

Shupamem distinguishes 2 types of relative pronouns, namely (a) the relative pronoun  $j\dot{u}\dot{o}$  'who/that' that takes the shape of the distal demonstrative presented earlier, usually used to modify both non locative expressions and locative expressions (53) and (b) the relative pronoun  $\eta\dot{a}$  which only modifies locative expressions (53a-b). Morphologically, only the relative pronoun  $j\dot{u}\dot{o}$  agrees in noun class with the head noun. In any event, no matter which type of relative pronoun is considered, all of them follow the head noun.

- (53) a. món ø-wó î ſéſé nó pà: ràni
   1-Child 1-Rel 3sg commission COMP be smart
   'The child that he commissioned is smart.'
  - b. pón p-wó î  $\int \oint f$  nó pâ: ràni 2-Child 2-Rel 3sg commission COMP be smart 'The children that he commissioned are smart.'
  - c. \*món ná 1 ∫é∫á ná pà: ràní 1-Child Rel 3sg commission COMP be smart 'The child that he commissioned is smart.'
  - d. \*pón ná î ∫é∫ó nó pâ: ràni
     2-Child Rel 3sg commission COMP be smart
     'The children that he commissioned are smart.'

(53')	a. ndáp 3-house 'The hou	ŋá Rel. Ise where t	léra? 1-teacher l he teacher st	ỳ-∫ù PTCP-stay ays is clean	ná p COMP b 1.'	pâ: rénké e clean	éri
	<ul> <li>b. ndáp</li> <li>3-house</li> <li>'The house</li> </ul>	ndâp e 6-house uses where	ŋá Rel. the teacher	léra? 1-teacher P stays are cl	ŋ̀-∫ù 'TCP-stay ean.'	ný j COMP b	pâ: rénkéri be clean
	c. ndáp 6-house 'The hou	ø-wó 3-Rel. se where th	lera? 1-teache ne teacher st	jún r buy.PST ays is clean	ná COMP	pâ: rénl be clear	kérî 1
	d. ndáp 6-house	ndáp 6-house	∫-wó 6-Rel.	lera? 1-teache	jún r buy.PST	nớ COMP	pâ: rénkérî be clean

'The houses where the teacher stays are clean.'

I.

As a summary of what we have presented so far with respect to the internal structure of Shupamem DP, if we were to combine the head noun with all its modifiers (e.g. the quantifier, the intensifier, the demonstrative, the numeral, the adjective and the relative pronoun), one would obtain a structure like (54b) where the quantifier precedes the demonstrative which in turn is immediately followed by the intensifier. Note that the intensifier is always adjacent to the adjective modifier and precedes it while the relative clause is adjacent to the head noun but always follows it.

(54) ŋgù: ndà: ji pókét kpà pón p-wó lérà? jéjó nò pà: ràni All very these nice four 2-children 2-Rel teacher commission.Past COMP be smart 'All these very nice four children that the teacher commissioned are smart.'

The example in (54) is the most natural sequence. However, other word order possibilities can be used depending on the context. I propose the following template in table 5 as the basic order of all elements within the DP in Shupamem prior any NP movement. The elements I refer to as pre-nominal or post-nominal within the DP suggest that they are strictly so regardless of whether the NP has moved or not. However, those that are characterized as pre/or post-nominal imply that their surface ordering will naturally depend on whether the NP has overtly moved or not. Data on Shupamem actually confirms Givon's (2001:02) hypothesis that adjectives, numerals, possessives, determiners and even the relative pronouns follow a hierarchical ordering in Bantu in general.

Now that we have outlined the syntactic distribution of noun modifiers taken in isolation, let us now move to the discussion of the internal the DP in Shupamem.

Modifiers of	type 1	Articles	Modifiers of t	type 2 (variable		Modifiers of Type 3
(invariable)	and strictly	(pre or post-	and pre or post	nominal)		(variable and strictly
pre-NP		NP)			6 <sup>th</sup>	post-NP)
1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>	Nouns	7 <sup>th</sup>
Quantifiers	Intensifiers	Determiners				(a) Relative pro.
						(b) Post-nominal
						adj.
						(c) Preposition
(generally		(a) Poss.	Cardinal/Ordi	Pre-nominal	1	
indefinite)		(b) Dem.	nal numerals	Adj.		

Table 5: Relative order of elements within the DP in Shupamem prior NP movement

# 6 Explaining Shupamem DP Internal Word Order Variation in Relation to Greenberg's Universal 20

It has become a tradition in generative grammar to study cross-linguistic as well as language internal word order in terms of syntactic movement of lexical categories within the noun phrase. This section intends to account for word order variation within Shupamem DPs in terms of constituency and adjacency. My analysis of the noun left periphery in Shupamem offers a different version of Cinque's (2005) cartographic model that integrates Carstens's (1991, 2000) theory of agreement in Bantu DPs and the extension Rizzi's (2004, 2007) Freezing Principle to the internal structure of DPs. Although I also integrate many aspects of Kayne (1994) LCA assumptions, I do not adopt his syntactic analysis en bloc. This is due to the fact that Shupamem DP elements (e.g., demonstrative, numeral, adjectives and the head noun) seem to have a more complex structure than what was originally proposed in Cinque's (2005) system. I will therefore follow the dominant idea in the field that project the functional DP as the topmost node dominating other functional phrases encoding various inflections within the noun phrase (cf. Abney 1987; Longobardi 1994; Stowel 1989, Szabolcsi 1987, 1994). This section answers two main theoretical questions. First, what kind of movement (head movement or phrasal movement) better accounts for word order variation within the DP? Second, does Shupamem exhibit a choice between head movement and phrasal movement within the DP? In this analysis, I claim (a) phrasal movement and (b) roll up movement will be necessary to account for a number of word order variations observed in Shupamem.

## 6.1 XP Movements and the Freezing Effects in Shupamem DPs

In this section, I consider DPs including more than one noun modifiers to see what the predictions are with respect the movement of the head noun over a modifier to a specifier position of a functional phrase (e.g., AgrP) dominating that modifier. It naturally follows from the Agreement Trigger hypothesis developed here that in Shupamem, whenever the head noun comes first in the noun phrase as a result of movement, each subsequent noun modifier will agree in class with it. Thus, an overt definite article is systematically spelled out whenever the head noun moves past its modifier. What I am trying to accomplish in this section is to account for the syntactic derivation of the mirror image of a DP sequence such as Modifier<sub>1</sub> > Modifier<sub>2</sub> > Noun using two of the three noun modifiers, namely: the demonstrative, the numeral, and the adjective when they combine with the head noun. Let me start with what happens when a demonstrative in addition to a numeral are combined with the head noun.

## 6.1.1 Demonstrative > Numeral > Noun

At first sight, it seems that, all the 6 mathematically possible orders combining the 3 elements Dem, Num, and N (factorial 3: 3x2x1=6) are grammatical in Shupamem, unless the noun class agreement is incorrectly spelled out (see (57b-c). Any violation of the freezing effect (57c) will generate an ungrammatical DP sequence as well. I repeat all the possible sequences in (55)-(57) to show how crucial are the agreement morphemes to DP well-formedness in Shupamem.

(55) a. ∫i	(m5?) kpà	pón	(DEM>NUM>N)
Dem	Ind. four	2-children	
'THES	SE four childre	n.'	
b. ∫i	pón	p-1 kpà	(DEM> N> NUM)
Dem	2-children	2-Def four	
'THES	SE four childre	n (specific).'	
(56) a. kpà	∫i pa	ón	(NUM>DEM> N)
four	Dem 2-0	children	
'THES	E four children	1. '	
b. kpà	pón	p-1-ì	(NUM> N> DEM)
four	2-children	2-DefDem	
'THES	SE four childre	n.'	
c. *kpà	p-î-ĭ	pón	(NUM> DEM> N)
four	2-DefI	Dem 2-children	
'THE	SE four childre	en.'	
d. *kpà	pón	∫i	(NUM> N> DEM)
four	2-childre	en Dem	
'THE	SE four childre	en.'	

r
(N> NUM> DEM)
(N> DEM> NUM)
(N>NUM>DEM)
em

As can be observed in the above examples, Shupamem noun class prefixes also participate in a pervasive concordial agreement system where a post-nominal demonstrative agrees with the head noun in terms of it class features. The examples in (55) through (57) demonstrate that all 6 possible orders combining the demonstrative, the numeral and the head noun are grammatical. Moreover, they demonstrate how the agreement system works with respect to the indication of the definite article (suffix), NP movement and the co-occurence of the demonstrative with the definite article. Configurationally, when a NP moves to the functional projection dominating either NumP or DemP, the morpheme  $p-\hat{i}$  (agreeing in person and number) with the noun class prefix is overtly spelled out as shown in (55b), (56b), and (57a-b). However, when the NP stays in situ (i.e., when it follows the demonstrative and/or the numeral), the morpheme  $p-\hat{i}$  is not needed.

Evidence for movement to the functional projection comes from word order variations between DPs with overt definite articles (55b, 56b) and (57a-b) and those without (55a, 56a). If we assume that the order Dem>Num>N is the basic order, it follows that the order in (55b) must be derived by movement. Based on examples like (55a) and Cinque's (2005) observations about the universal basic hierarchy of elements within the DP, I propose that (55b) is derived from (55a) as shown in (58). The derivation in (58b) explains among other things why the definite article occurs right after the head noun. When the head noun moves to spec-AgrP, the agreement head is overtly spelled out as a definite article which agrees in noun class. I argue that the AgrP head should be split into a phi feature which encodes the singular (zero) or the plural (p-) and the definite article which spells out as -i.

In (56a-b), the numeral comes first. The only difference between those two examples is that of word order between the head noun and the adjective. (56a) is derived via the movement of the numeral to spec-DP where the adjective and the head noun remain in situ as shown in (59a). In such a configuration, no noun class agreement is required. But in (56b), we have a complex {Num+N} moving as a constituent into spec-AgrP as shown in (59b).

(58) a. Dem> Num> NP = Zero movement



b. Dem> NP>  $[_{AgrP}$  Num = NP movement



However, (56c-d) are ungrammatical just because of the incongruence of the noun class agreement showing up on the demonstrative. In (56c), the demonstrative bear a noun class without having any head noun preceding it. But in (56d), the demonstrative lacks a noun class where it should have one because of the movement of the head noun into spec-AgrP as shown in the grammatical example in (56b). (56b) represented in (59b) shows that the agreement head is syntactically conditioned (e.g., it only spells out after the NP movement) and consists of the phi-feature *p*- and the definite article -i.<sup>6</sup> I argue that the agreement head in Shupamem has to do with definiteness and specificity of the noun phrase. It can only be used for things that are known or contextually given. Thus, it triggers the movement of the

<sup>&</sup>lt;sup>6</sup>Note that it is the combination of the definite article to the demonstrative that gives rise to a falling tone. The vowel -i that stands for the definite article bears an underlying high tone while the vowel i of the demonstrative morpheme has an underlying low tone.

head noun with or without its modifiers.

(59) a. [Num> Dem> NP]



b. [Num > NP > [AgrP Dem] = NP movement



I claim that NP movement is subject to the freezing effect. This is what explains why an example such as (57c) is ungrammatical. The head noun has moved away from it criterial position as shown in (60b). Note that, the NP once it moves to spec-AgrP, it stands in an agreement relation with both the noun class prefix and the definite article under the agreement head, thus can't move further. However, if there is a higher AgrP dominating the demonstrative as in (57a) represented in (61), an extra movement of the NP into the higher specifier position of AgrP is acceptable.

- (60) Freezing Effect Violation
  - a. Dem> NP> Num = NP movement



b. \*NP> Dem> Num= NP movement



The ungrammaticality of the word order in (57c) repeated in the derivation in (61b) suggests that the syntax of Shupamem DP does not allow any violation of the freezing principle defined in (18). Once the NP moves into the specifier of AgrP, it is frozen in place and any movement further away from that criterial position is ruled out unless there is a higher AgrP to host the fronted NP.





So, as we can observe in (61), the system developed here is constrained by the freezing principle which only allows cyclic movement through similar functional projection. The derivation in (61) unlike that in (60b) is permissible because the noun class prefix that precedes the definite article is recursive in Shupamem. That is what gives rise to definite spreading.

The grammaticality of the word initial position of the NP in (57a-b) can be accounted for easily because none of the derivations in those examples violates the freezing principle. (57a), as we have shown in (61) has two agreement phrases due to the licensing of two noun class prefixes. But, (57b) has a different derivation where the head noun first moves to spec-AgrP and then moves to spec-DP.

## 6.1.2 Demonstrative > Adjective > Noun

This section discusses the freezing effect in relation to the syntax of agreement and postnominal modifying adjectives. From a theoretical point of view, I will assume following Cinque's (2010) idea that adjectives in general enter the nominal phrase either as "adverbial" modifiers to the noun or as predicates of reduced relative clauses. I will also adopt Cinque's proposal that N-raising should be abandoned in favor of XP-raising in a language like Shupamem where the head noun agrees with modifying adjectives. Thus, when the head noun moves to a functional position (e.g., AgrP), it is barred from moving further due to the freezing effect imposed on movement operations within the DP. I argue that the distribution of adjectival phrases in Shupamem is empirical evidence that argues strongly in favor of phrasal movement of NP as shown in (62) through (64).

<ul> <li>(62) a. fi (mó?) nsénkét pòn</li> <li>Dem Ind. black 2-children</li> <li>'THESE four children'</li> </ul>	(Dem> A> N)
b. ſi pón p-i nsénkét Dem 2-children 2-Def four 'THESE black children'	(Dem> N> A)
c.* ∫i pón ø-ĭ nsénkét Dem 2-children Def four 'THESE back children'	(Dem> N> A)
<ul> <li>(63) a. sénkét ∫i pón</li> <li>black Dem 2-children</li> <li>'THESE black children'</li> </ul>	(A> Dem> N)
<ul> <li>b. *sénkét p-í-ì pón</li> <li>black 2-Dem 2-children</li> <li>'THESE black children'</li> </ul>	(A> Dem> N)
c. *sénkét pón ∫i black 2-children Dem 'THESE black children'	(A> N> Dem)
<ul> <li>sénkét pón p-î-ì</li> <li>black 2-children 2-Def-Dem</li> <li>'THESE black children'</li> </ul>	(A> N> Dem)
(64) a. pón p-i-ĭ p-i nsénkét 2-children 2-Def-Dem 2-Def. black 'THESE black children'	(N> Dem> A)
<ul> <li>b. * pón ∫ì pì nsénkét</li> <li>2-children Dem 2-Def. black</li> <li>'THESE black children'</li> </ul>	(N> Dem> A)
<ul> <li>c. pón p-í nsénkét ∫í</li> <li>2-children 2-Def. black Dem</li> <li>'These black children'</li> </ul>	(N> A> Dem)

If the freezing principle is correct, everything being equal, it follows that my account for the syntactic distribution of the numeral in (55) through (57) also holds for the syntactic distribution of the adjective in (62) through (64) that combine the demonstrative, the adjective and the head noun. I argue that there is a spec-head agreement relation between the fronted

NP and AgrP head and that all NP movement is subject to the freezing effect. For reasons of space, I will not repeat the derivations of the examples in (62) through (64). However, I will go over the details of similar structures in the next section where Shupamem sequences are compared with Cinque's typology.

## 7 Deriving Cinque's Typology in Shupamem

Let us now consider in more detail the derivation of all Shupamem sequences in (9) to establish how Rizzi's (2006) freezing principle straightforwardly accounts for a number of ungrammatical DP orders in the Agreement Trigger approach. Under Kayne's (1994) universal hypothesis that all languages are the type specifier-head-complement, it follows that only one basic order, the one in (9a) in Cinque's (2005) system exists. The main question in this section is the following: given Cinque's (2005) DP sequence Demonstrative > Number> Adjective > Noun that is hypothesized to be basic, how do we derived the 18 DP sequences of Shupamem summarized in (9) that are all described as grammatical? Moreover, how do we rule out the starred sequences that are viewed as ungrammatical?

Let me point out from the outset that a number DP sequences in (9) display internal double agreement as can be observed in (9c), (9d), (9h), (9l), (9o), (9p), (9t), and (9x). Note that each instance of NP movement over a noun modifier is associated with an agreement head that encodes the definite article. Thus, two instances of NP movement through two specifiers of the functional projections governing the definite article will give rise to two agreement heads. Such configurations are reminiscent to Greek "poly-definite" or "definite-spreading" constructions discussed in references like Alexiadou and Wilder (1998), Alexiadou (2001a), and Ramaglia (2007). A parallel that can drawn from Greek poly-definite exemplified in (65) with Shupamem double agreement in (9) is that in Shupamem, just like in languages such as Greek and Scandinavian/Germanic, a plain definite noun phrase does not usually feature a DP-initial definite article, but when the noun phrase is modified by an adjective or a numeral, the adjective or the numeral is preceded by a definite marker (see Leu 2008 for similar arguments).

(65) Poly-definite constructions

- a. to megalo to kokkino to vivlio the big the red the book 'the big red book'
- b. to megalo to vivlio to kokkino
- c. to kokkino to vivlio to megalo
- d. to vivlio to kokkino to megalo
- e. to vivlio to megalo to kokkino
- f. (\*) to kokkino to megalo to vivlio (Ramaglia, 2007:163)

The term "poly-definite" or definite spreading used to describe the examples in (65) suggests that there is more than one definite article in those examples. That is why in standard

descriptions of Greek, the morpheme *to* is taken to be a definite article. I will set aside the issue of definite spreading/poly-definite construction in Greek to focus only on what happens in Shupamem. See Alexiadou & Wilder 1998 and Campos & Stavrou 2004 for a detailed discussion of this phenomenon.

## 7.1 The Linear Order of Elements in Shupamem DP: Synthesis

This section focuses on the syntactic derivations of the 18 possible DP sequences attested in Shupamem out of the 24 possible orders (4!=4x3x2x1) summarized in (9). In particular, it provides an in-depth description of the body of restrictions imposed on phrasal movements by Rizzi's (2006, 2007) freezing principle. So, the core issues that this section deals with are: (1) the distribution of agreement heads with respect to the definite article, (2) the Probe-Goal criterial relations (see Rizzi 2007) and (3) the freezing effect imposed on NP movement of any type (e.g., XP movement, pied piping). I claim that all movement within the DP in Shupamem are phrasal.

#### 7.1.1 Criterial Freezing and Agreement Relations

For the sake of clarity, I will discuss all the derivations of DP sequences in Shupamem by following the alphabetic order of the paradigms in (9). I assume that the underlying order in (9a) is represented as in (66a). The structure in (69a) has a nice and welcome consequence that it will help to reflect on how the alternative order possibilities combining the Demonstrative, the Numeral, the Adjective and the Noun are derived. For each example, I will compare Cinque's derivation with Shupamem system to see what the implication is for UG.

It curious to note that DP sequences such as (9a), (9b), (9c) and (9d) are claimed to be all attested and derivable in Cinque's typology. (9a) Dem >Num> A>N is claimed to be derived by moving nothing. (9b) Dem> Num > N> A is derived from (9a) by moving the NP one notch around A according to Cinque (2005:321). (9c) Dem> N>Num>A can be derived by moving the NP two notches around A and Num without pied piping and (9d) can be derived by moving the NP three notches around A, Num, and Dem without pied piping.

It can be pointed out that the above assumptions do not hold on empirical ground in Shupamem. Contrary to Cinque's predictions, of the examples (9a) through (9d), only (9a) and (9b) are viewed as grammatical. Under this analysis, I argue that the  $\varphi$ -features of a number of functional projections (e.g., noun class agreement, Focus, Specificity/Definiteness etc) in a three-layered DP representation of DP-XP-NP form are responsible for NP movement in general. Next, for obvious reasons, I also assume that the specifier of the functional projection that governs the agreement head is the landing site for NP movement of any type (Phrasal or pied piping).



Under (66a), no movement has taken place as stated in Cinque (2005). This order follows naturally from base generation of the four elements of the noun phrase. From (66a), (9b) can be derived as follows:

 $(66b) \qquad Dem > Num > N > A$ 



As can be observed in (66b), the NP *pón* 'children' moves to the specifier position of AgrP dominating AP. Spec-AgrP corresponds to the Criterial Probe in Rizzi's (2006, 2007) terms.

It is there that the NP enters into an agreement relation with the definite article -i that in turn takes the head noun class prefix *p*-. The configuration in (66b) does not violate the freezing principle defined in (18). Recall that under criterial freezing, the NP is frozen in place once it reaches spec-AgrP. That is why both (9c) and (9d) are ungrammatical. The DP sequence in (9c) Dem>N>Num>A can only be obtained via a phrasal movement of NP away from spec-AgrP where it stands in agreement with the AP. That extra movement is ruled out under criteria freezing as shown in (66c).



In a similar vein as shown above, note that (9d) N>Dem>Num>A is also ruled out under Criterial Freezing, because the NP undergoes a movement further to the spec-DP as shown in (66d). A cyclic movement of the NP all the way up to spec-DP is a double violation of the freezing effect.



Fronting NP further to Spec-DP would yield the expected order in (9d). But such a derivation is a fatal doubled violation of Criterial Freezing.

What is intriguing in Cinque's typology is its finding that the sequences such as (9e), (9f), (9g), and (9h) are all unattested and therefore not derivable cross-linguistically. Data from Shupamem on the contrary suggest that among those sequences claimed to be not derivable, (9e-f) are in fact grammatical in Shupamem. As a matter of fact, only the examples in (9g-h) are ruled out because they fatally violate the freezing effect. The order in (9e) Num > Dem> A > N can be derived if we assume that there is a phrasal movement of the numeral to the specifier of DP where it checks the focus feature under D as shown in (66e). From (9e), (9f) Num> Dem> N>A the head noun moves to spec-AgrP as shown in (66f).



$$(66f) \qquad Num > Dem > N > A$$



It is obvious from the derivations in (66e-f) that there is no violation of the freezing principle defined in (18). Once the NP  $p \acute{on}$  'children' moves to spec-AgrP, it enters in an agreement relation with the definite article -i that it c-commands and therefore cannot move further. However, the examples in (9g-h) are ungrammatical because of the fatal violation of the freezing effect as shown in (66g-h).



Descriptively, under criterial freezing, (9g) Num > N > Dem> A derived as in (66g) is ruled out because it has one illicit NP movement away from its criterial position (e.g., spec-AgrP). Similarly (9h) N> Num> Dem> A is ruled out because of 2 illicit NP movements. Thus, the ungrammaticality of (9g-h) is explainable and, in fact, fully predicted by the proposal made here: if the NP moves to the specifier position of AgrP to enter an agreement relation with the definite article, it is anchored and interpreted there, once it moves further away from that position, it generates a fatal violation of the freezing principle, therefore creates an illicit sequence.

Let us now turn to the sequences in (9i), (9j), (9k) and (9l) where the adjective is mostly fronted word initially. Cinque's findings suggest that (9i-j) are ungrammatical and cannot be derived. But (9k-l) are well-formed and could be derived by raising NP followed by pied-piping. As it turns out, all the sequences in (9i), (9j), (9k) and (9l) are grammatical in Shupamem. This is understandable, given that none of these examples is in conflict with the freezing effect. (9i) A> Dem > Num > N is derived by fronting the AP *minkét* 'dirty' to the specifier position of DP to check its focus feature under D as shown in (66i). However, (9j) A> Dem>N van is derived via two separate phrasal movements: (a) the NP movement to the specifier position of AgrP and (b) the AP movement to the specifier of DP as exemplified in (66j). Of the two movements, only NP movement project an agreement phrase because it has an inherent noun class feature that the adjective does not have.

 $(66i) \qquad A > Dem > Num > N$ 



 $(66j) \qquad A > Dem > N > Num$ 



The derivations of (9k-1) involve more complex strategies consisting of phrasal movements of different types: (a) the AP movement along with the head noun to the specifier position of the topmost AgrP dominated by DP (66k) and (b) the movement of AgrP to the specifier position of the upper AgrP (66l).

(66k) A > N > Num > Dem



 $(661) \qquad N > A > Num > Dem$ 



For all the grammatical sequences in (9i), (9j), (9k) and (9l), none of the derivations pertaining to account for their surface ordering ever violates the freezing effect. In fact, even in complex structures such as (66k-l), once a phrase is frozen in place after the first movement, it only moves further via a roll up movement where the functional projection (e.g., AgrP) also moves

along with the NP to the specifier of the upper AgrP to keep its agreement relations preserved. Thus, I conclude that the surprising grammaticality of the examples represented above follow from different strategies available in Shupamem to circumvent the freezing effect. Note that any instance of NP movement whether it is alone (66f), along with a modifier (66k) A> N> Dem >Num or incorporated into another AgrP (66l) N> A> Dem> Num always targets a specifier position of an agreement phrase where it can agree with a definite article.

With these observations in mind, let move on to the discussion of the sequences in (9m), (9n), (9o) and (9p) where the demonstrative comes first. In Cinque's system, (9m) Dem>A>Num>N is claimed to be unattested, therefore not derivable, but the remaining other order are predicted to be grammatical. Of these four sequences, only (9p) N>Dem>A >Num is at odd with the freezing effect and therefore ungrammatical. (9m) Dem A Num N and (9n) Dem > A> N > Num can be easily derived if we assume that: (a) the adjective undergoes a phrasal movement to a specifier position of a functional phrase dominated (e.g., Focus Phrase) by DemP in (9m) and (b) the adjective and the head noun moves as a constituent to the specifier position of AgrP as exemplified in (66m) and (66n).





 $(66n) \qquad \text{Dem} > A > N > \text{Num}$ 



The contrast between the derivation of (9m) and (9n) suggests that we are dealing with two separate kinds of movement to two different syntactic positions. In (66m), the adjective undergoes a phrasal movement to a focus position, but in (66n), the adjective along with the head noun move together to the specifier of AgrP giving rise to different orderings.

(90) Dem> N>A>Num has a slightly different derivation from the one exemplified in (66n). As we can see in the derivation of (90) illustrated in (660), the head noun undergoes a phrasal movement cyclically, giving rise to a single DP with two definite articles.

 $(660) \qquad \text{Dem} > N > A > \text{Num}$ 



(66p) \* N > Dem > A > Num



From (66p), it is easy to see why (9p) N>Dem> A> Num contrary to (9o) Dem> N> A> Num is ungrammatical. I argue that once AgrP moves along with the head noun modified by the adjective, it is frozen in place and can't move further, otherwise it will generate a fatal violation of the freezing principle which is not allowed in Shupamem.<sup>7</sup>

Consider now the sequences such as (9q), (9r), (9s) where the numeral comes first and (9t) where it comes second right after the head noun. Cinque (2005:324) claims that only (9q) Num> A > Dem > N cannot be derived, thus is not attested cross-linguistically. As it turns out, all those sequences are grammatical in Shupamem. (9q) Num> A > Dem > N and (9r) Num> A> N> Dem are derived as in (66q-r).

<sup>&</sup>lt;sup>7</sup>(9p) Dem> N> A> Num is systematically ruled out under criterial freezing, but if an agreement phrase is projected, the extraction of NP to its specifier position will makes the sequence perfectly acceptable, in which case the demonstrative surfaces as  $p-\hat{i}$ : (with p- encoding the noun class prefix and the falling tone indicating the combination of the demonstrative and the definite article) instead of  $f\hat{i}$ .





(66r) Num > A > N > Dem



The key distinction between (66q) Num> A> Dem > N and (66r) Num> A> N> Dem is the following. In (66q) there are 2 separate phrasal movements, namely: (a) AP movement to spec- AgrP and (b) NumP movement to spec-DP. In (66r) contrary to (66q), there is one single movement, namely the movement of AP along with the head noun to spec-AgrP. Note that in (66q), the AP does not form a constituent with the head noun. That is why the agreement head is zero. However, in (66r) AP agrees with the head noun therefore when it moves to spec-AgrP, the agreement head is overtly spelled out. I argue that none of these structures is at odd with the freezing principle defined earlier.

Let us now move on to the derivation of (9s) Num> N> A> Dem and (9t) N> Num > A>Dem represented as in (66s) and (66t).

(66s) Num> N> A> Dem



 $(66t) \qquad N > Num > A > Dem$ 



As we can observe in (66s), the numeral moves along with the adjective and the head noun to the spec-AgrP to enter in agreement relationship with the definite article that precedes the demonstrative. But, (66t) has a different derivation where AgrP moves along with the noun, the numeral and the adjective to the spec-DP to check its focus feature.

Let us now consider the sequences such as (9u), (9v), (9w) where the adjectives comes first and (9x) where it follows the head noun that surfaces word initially. In Cinque's (2005:324) typology, (9u) A >Num> Dem >N and (9v) A> Num >N >Dem are claimed to be unattested, thus cannot be derived in UG. He claims that (9w) A> N> Num> Dem can be derived via NP movement followed by pied piping while (9x) N> A >Num> Dem can be derived via NP movement followed by successive pied piping. Our findings suggest that contra Cinque's prediction, all the sequences in (9u) through (9x) are grammatical.

According to the current system, (9u) through (9x) have the following derivations in (66u) through (66x).

$$(66u) \qquad A > Num > Dem > N$$



(66v) A > Num > N > Dem



# (66w) A > N > Num > Dem



$$(66x) \qquad N > A > Num > Dem$$



(66u) is derived via two separate movements: (a) AP movement to spec-DP to check its focus feature and (b) NumP movement to spec-AgrP. No agreement phrase is needed because the head noun remains in situ.

Note that under this analysis, in (66v) through (66w) the demonstrative occurs in final position as a consequence of different types of movements. In (66v), the adjective moves to spec-DP followed by a phrasal movement of NumP along with the head noun, the numeral and the adjective trace to spec-AgrP dominating DemP. (66x) has a different derivation where AP moves to spec-DP followed by AgrP along with the head noun, the numeral and the trace of the adjective. (66w) has a more complex derivation where AgrP moves to spec-DP after the NP has moved to its own specifier position. Note that AgrP dominates the AP and the NumP. It is important to observe that in all these derivations, the demonstrative may surface as a bare form as shown in (66u), (66x) and (66w) or an inflected form. When the noun phrase moves past the demonstrative, an agreement phrase is projected and the definite article surfaces in a position where it precedes the demonstrative as shown in (66v). Evidence for this argument comes from the falling tone on the agreement head  $p-\hat{i}\cdot\hat{i}$  (noun class + Definite article + Demonstrative) in (66v).

## 8 Conclusion

In this analysis, I have expressed some scepticism about Greenberg's Universal 20 and previous theories designed to account for it. Based on data from Shupamem which allows 18 acceptable options out of the 24 possible sequences that combine the demonstrative, the numeral, the adjective and the head noun, I argue for an alternative theory, namely the Agreement Trigger approach which claims that word order alternation observed within the DP in Shupamem results from whether a noun class agreement morpheme (which encodes the definite article) is overtly spelled out or not. Although the issue of linearization of syntactic structures internal to the DP has been extensively investigated in previous approaches, we are still far from a comprehensive account. In this study, I have put forward an alternative way of capturing phrasal movements (e.g., NP, AP, NumP, and AgrP) internal to the DP where it is argued that XP movement in general is triggered by agreement morphology and that all phrasal movements are subject to the freezing effect. This amounts to saying that a strict replication of Cinque's (2005) approach and Abels & Neeleman (2006) to Shupamem DP-internal ordering is untenable. If correct, the Agreement Trigger approach adopted here suggests that phrasal movements involve feature checking in the lines of spec-head agreement relationship put forward in Kayne's (1994) LCA based approach. Typologically speaking, data on Shupamem (poly)-definite clearly suggest a cross-linguistic correlation between Bantu languages and languages like Greek, Scandinavian/West Germanic where definite spreading has been documented. This implies that the assumptions adopted here could also account for similar facts in those languages.

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