

The syntax of number and modification:

An investigation of the Kipsigis DP

by

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DEDICATION

For my parents, Tina and Dimitris

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ABSTRACT

This dissertation is an in-depth investigation of DP structure in Kipsigis, an extremely understudied Southern Nilotic language spoken in Kenya. All data come from original fieldwork, and the theoretical focus is on the following three broad areas: number morphology, the syntax of adjectives, and the syntax of determiner spreading.

Kipsigis has a tripartite system of number marking: some nouns are morphologically unmarked in the singular and form their plural with a plural suffix, some nouns are unmarked in the plural and form their singular with a singulative suffix, while a third class of nouns always have a singulative suffix in the singular, and a plural suffix in the plural. I argue that this pattern is due to the existence of a noun classification system based on number features on little *n*, which interact with number features on Num in a way that generates the three types of number marking. My analysis corroborates the existence of number-based noun classification, which has been argued before for Tanoan languages (Harbour 2007). I also show that the Kipsigis morphological number classes are orthogonal to the mass/count distinction in the language, contra Grimm's (2012; 2018) claims for Nilo-Saharan. Finally, I argue that the term 'singulative' is misleading, with at least two types of singulatives cross-linguistically: true allomorphs of singular (e.g., in Kipsigis) or morphemes with a classifier-like function in the syntax (e.g., in Ojibwe).

Adjectives in Kipsigis can only modify a noun as predicates inside a relative clause, despite overwhelming evidence that they constitute a morphosyntactic category distinct from (stative) verbs in the language. The Kipsigis data, thus, provide strong support for Baker's (2003a) claims that adjectives are a universal lexical category and that direct nominal modification is not their flagship property. They also support a separationist view of adjectival syntax, along the lines of Cinque's (2010) – among many others – direct vs. indirect modification distinction, and provide clear

evidence for the analysis of the latter type of adjectives in terms of a relative clause structure. Kipsigis is also added to a list of languages that completely lack direct modification adjectives, and I briefly discuss why the syntax of direct modification might be unavailable in some languages.

In Kipsigis each adjective or full relative clause that modifies the noun must be preceded by one of four determiners; three of these determiners are demonstratives, making Kipsigis a rare example of a language with demonstrative spreading (as opposed to the common spreading of definite articles; cf. Alexiadou 2014). I argue that the complex distribution of these determiners is best captured by an analysis of relative clauses as D's with a clausal complement (Kayne 1994 among others), with my analysis of determiner spreading being close to Alexiadou & Wilder's (1998) analysis of determiner spreading in Greek. I discuss the implications of the Kipsigis data for the typology of determiner spreading (also called definiteness agreement in the literature), and I conclude that a relative clause structure is key to the understanding of the phenomenon, even in languages that are often analyzed in terms of agreement/concord (e.g., many Semitic languages). Finally, I show that demonstratives in Kipsigis are best analyzed as D heads, and conclude that demonstratives can be either heads or phrasal depending on the language.

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LIST OF GLOSSING ABBREVIATIONS

1/2/3	1 st /2 nd /3 rd person
AG	agent nominalization
AGEN	antigenitive case
AN	animate
ANAPH	anaphoric demonstrative
APASS	antipassive
APPL	applicative
CLASS1/2	1 st /2 nd conjugation class
C(OMP)	complementizer
COP	copula
D	dual
DEF	definiteness marker
DIST	distal demonstrative
FEM	feminine
HAB	habitual
I	inverse
IN	inanimate
INF	infinitive
IPFV	imperfective
LK	linking vowel
LOC	locative
M(ASC)	masculine
MED	medial demonstrative
N	nominalizing suffix
NEG	negation
NOM	nominative
P	preposition
PAST1/2/3	current/recent/distant past
PAT	patient nominalization
PFV	perfective
PL	plural
POSS	possessive morpheme
PRED	predicative case
PROX	proximal demonstrative
Q	question particle
REINF	reinforcer
REL	relativizer
SEC	secondary suffix
SG	singular
SUBJ	subjunctive
TH	thematic suffix
TOP	topic marker

Chapter 1: Introduction

1. Themes

This dissertation is fundamentally about the internal syntax of noun phrases, with a focus on the syntax-morphology interface in the expression of grammatical number and the syntax of adjectival modification, especially in its interaction with determiners. I specifically address the following questions: (a) Where are number features (responsible for the singular vs. plural distinction) generated in the syntax, and how do they interact with the interfaces? (b) Are adjectives a universal lexical category? If so, how does their syntax vary from language to language? (c) How can we account for the presence of multiple determiners inside the DP in the context of modification in many languages?

I answer these questions through an in-depth morphosyntactic investigation of noun phrases in Kipsigis, a Southern Nilotic language spoken in Kenya. The Kipsigis data come from original fieldwork, and most of them are reported for the first time in the literature. Nilotic languages are severely understudied, especially in the theoretical literature, and the dissertation, thus, significantly contributes to our knowledge of the empirical landscape in variation in DP structure. I provide a description and analysis of the intricate system of nominal number morphology in Kipsigis, and I investigate carefully the properties of adjectival modification in the language. As I will discuss in detail throughout the dissertation, the syntax that I propose for noun phrases in Kipsigis has ramifications for our theory of DP structure and variation more generally.

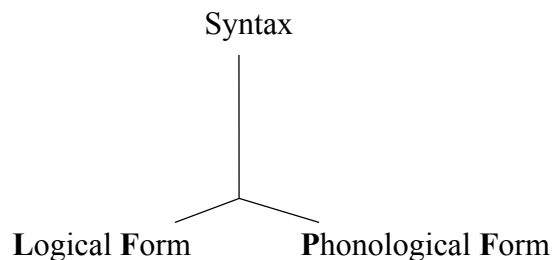
The remainder of the introduction is structured as follows: in section 2, I briefly present the theoretical assumptions made in this dissertation, while in section 3, I describe the sources of the Kipsigis data and the methodology for data collection; in section 4, I provide a brief description of each chapter of the dissertation.

2. Theoretical assumptions

In this section, I outline the basic theoretical assumptions that I adopt regarding syntax, morphology, and their interface. Assumptions that are crucial for particular aspects of my analysis will be discussed in the relevant chapters, and this section is meant to only briefly specify the theoretical framework in which my work is situated.

Throughout the dissertation, I adopt (for the most part) the assumptions of the Minimalist Program (Chomsky 1995; 2000; 2001), supplemented by the architecture of Distributed Morphology (Halle & Marantz 1993). More specifically, I adopt the well-known Y- (or T-) model of grammar, illustrated in (1), and I assume that both phrases and words are built in the syntactic component. I, therefore, reject the existence of a generative lexicon as a separate component for constructing words. Syntactic structures are interpreted semantically at LF, and are assigned phonological material at PF.

(1) Architecture of the grammar



According to DM, the syntactic component can only manipulate terminal nodes that consist of formal features (or bundles of features), which do not have phonological material when they enter the derivation. Once the syntactic operations are complete, morphological operations can manipulate feature bundles at the terminal nodes in a post-syntactic component. After the completion of all syntactic and post-syntactic operations, vocabulary items – which have a phonological form – are inserted into the terminal nodes; Late Insertion is a fundamental claim of

DM.¹ Vocabulary Insertion follows Halle's (1997) Subset Principle, which in brief specifies that the phonological exponent of a vocabulary item can be inserted if the item contains all or a subset of the features present at the terminal node, while at the same time the item must have no feature that is absent from the node. In the case that several items compete for insertion, the one that matches the most features of the terminal node will be inserted.

A DM assumption of particular importance to the topics under investigation in this dissertation is that lexical categories are composed of a categorizing head and a category-neutral root (Marantz 1997; 2001; Arad 2003; 2005; Embick and Noyer 2007; Harley 2014 among others). For example, nouns are built by merging a nominalizing head (little *n*) with a category-neutral root. This assumption will play an important role in chapters 3 and 4, and will be discussed in more detail in the relevant sections.

Finally, in relation to the syntax of noun phrases – which are the focus of this dissertation – I adopt Abney's (1987) influential DP hypothesis, according to which noun phrases are headed by the determiner, a functional element. This assumption is almost universally accepted in modern generative syntax (although see Bruening 2009 and Bruening, Dinh, and Kim 2018 for a different perspective).

3. Data sources

Unless otherwise indicated, the Kipsigis data in this dissertation come from my own fieldwork. A few data points come from Toweett's (1975; 1979) descriptive work on the language, while mentions are often made to the related dialect Nandi, which is well-described in Creider & Creider (1989).

¹ In some versions of DM, some operations take place after Vocabulary Insertion (e.g., Local Dislocation in Embick & Noyer 2001).

The fieldwork data were collected during three field trips to Kenya, one long stay in New Haven, as well as Skype interviews and/or e-mail conversations with native speakers located in Kenya. More specifically, I spent three weeks in Kenya in July – August 2016, during which I had regular elicitation interviews with three native speakers in the town of Migori, while I also visited a rural area in Bomet County, where I stayed in a rural home for two days and visited the local elementary school, where I had the chance to speak with the local teachers about the status of the language (and its teaching in the country). I then spent four months in Kenya in the fall semester of 2017 and one month in July 2018, where I had elicitation interviews with five native speakers in the town of Kilifi and with five native speakers in Nairobi. I also had occasional Skype interviews or conversations over e-mail with two native speakers in Kenya, and I had elicitation interviews with one native speaker based in New York and one native speaker based in New Haven. As for the demographics of my consultants, they were all between the ages of 19 and 31, and Kipsigis was their native language. However, most of them were also fluent in English and Swahili, and five of them had lived in the US for four or more years.

Most of the data were collected through elicitation interviews, but two short stories from Chesaina's (1991) collection of short stories were also recorded and transcribed, while I tried to pay attention to spontaneous conversation between my Kipsigis consultants (and hosts) when I was in Kenya. The majority of elicitation interviews were recorded, and a conscious effort was made to transcribe everything as phonetically accurately as possible (more details on transcription will be given in the next chapter). However, for those elicitation interviews that were conducted over Skype and for the few data that I obtained through e-mail conversations, I could not transcribe tone accurately. As a result, tone transcriptions are missing in a few of my examples.

All Greek data in the dissertation come from my own native judgments.

4. Overview of the dissertation

In **Chapter 2**, I provide basic information on Kipsigis, its genetic affiliation and areal influences. The chapter also includes a long descriptive section on the phonology of the language (which includes an explanation for my transcription choices), and a basic sketch of the grammatical properties that the reader will notice in various examples throughout the dissertation. This chapter is mainly descriptive in nature and can be skimmed (or skipped) by those readers who are more interested in the theoretical chapters to follow. The chapter is included due to the lack of general knowledge and descriptive materials on Kipsigis (and Nilotic more generally), especially in the theoretical literature.

In **Chapter 3**, I describe and analyze the intricate system of number morphology in Kipsigis: some nouns are unmarked in the singular and marked by a plural suffix in the plural, some nouns are unmarked in the plural and marked by a singulative suffix in the singular, while a few nouns are always marked (by a singulative in the singular and by a plural in the plural). I argue that nouns in the language come with inherent number features on the nominalizing head *n*, which are used to sort nouns into different classes. My analysis corroborates the existence of noun classification based on number, which has only been argued before for Kiowa and Jemez (Harbour 2007), and significantly adds to our understanding of how these systems work. I also compare the singulative in Nilo-Saharan to the singulative in other languages (e.g., Arabic), and I show that there are at least two types of singulatives cross-linguistically, which correspond to different syntactic structures: singulatives with an individualizing/ classifier-like function, and singulatives that are allomorphs of a singular Num node, and are orthogonal to the mass/count distinction.

In **Chapter 4**, I argue that adjectives are a universal lexical category, based on the properties of adjectives in Kipsigis. Adjectives in the language are very similar to verbs and can only modify

a noun in a relative clause. However, a number of diagnostics show that they constitute a distinct morphosyntactic category. I discuss the implications of adjectives of the Kipsigis type for our theory of lexical categories.

In **Chapter 5**, I discuss Determiner Spreading (DS) in Kipsigis. Every adjective modifying the head noun is introduced by a determiner, which can be either a relativizer or one of the three demonstrative morphemes in the language. I argue that there is independent evidence for analyzing adjectives as relative clauses, and for treating the relativizer and demonstratives as determiners that take a CP complement (Kayne 1994 among others). I argue that multiple determiners in the language are D heads that are present in the syntax, and are responsible for introducing the adjectival modifiers. I discuss the implications of my analysis for the typology of DS (cf. Alexiadou 2014) and conclude that there is a strong link between the phenomenon and a relative clause structure. Furthermore, I argue that DS is possible with demonstratives in Kipsigis because demonstratives are D heads in the language, unlike demonstratives in European languages (and Semitic) which are phrasal.

In **Chapter 5**, I conclude by recapitulating the main contributions of the thesis. The particular analysis of DP structure defended in this thesis highlights that Number, demonstratives and adjectives do not have the same syntax in all languages. Number can be found in different parts of the extended projection of the noun (cf. Wiltschko 2008), demonstratives can be heads or specifiers depending on the language, and adjectives may be identical to relative clauses in some languages.

Chapter 2: Background on Kipsigis

1. Basic information

Kipsigis is the major dialect of Kalenjin, a Southern Nilotic language spoken primarily in Kenya. The following are the rest of the Kalenjin dialects: Nandi, Keiyo, Terik, Tugen, Endo-Marakwet, Pökoot, Sebei (also called Sabaot and Kupsabiny), and Okiek. Even though they are usually called dialects (or dialect clusters), not all of them are mutually intelligible. Franciscar & Phylis (2012: 65) report that Kipsigis speakers use Kalenjin 100% of the time when speaking to Nandi speakers, 91% of the time when speaking to Keiyo speakers, and 85% of the time when speaking to Tugen speakers, but they only use Kalenjin 39% and 15% of the time when they speak to Marakwet and Pökoot speakers respectively. If we consider this data as a proxy for mutual intelligibility, we can conclude that at least Pökoot and Endo-Marakwet are not mutually intelligible with Kipsigis, while Nandi, Keiyo and Tugen are linguistically closer to it. The Kipsigis speakers that I have consulted mention Nandi and Keiyo as the dialects that they (impressionistically) consider the most similar to Kipsigis, confirming Franciscar & Phylis' (2012) results.

With the exception of Sebei, which is also spoken in Uganda, and Okiek, which is also spoken in northern Tanzania, all Kalenjin dialects are spoken in the Rift Valley region of Western Kenya. The map in Figure 1 shows the geographical area where Kipsigis is spoken, while the one in Figure 2 is a language map of Kenya as a whole, indicating where the rest of the Kalenjin dialects are spoken, and showing other Kenyan languages spoken in the vicinity. Kalenjin has approximately 5 million speakers; the two dialects with the highest number of speakers are Kipsigis, with 2 million speakers, and Nandi, with almost 1 million speakers (Lewis et al. 2015). Given the dominance of these two dialects (in terms of number of speakers) and their linguistic proximity, a

mix of Nandi and Kipsigis elements are present in the language used in the Kalenjin translation of the Bible.



Figure 1 – Kipsigis-speaking area (Lewis et al. 2015)

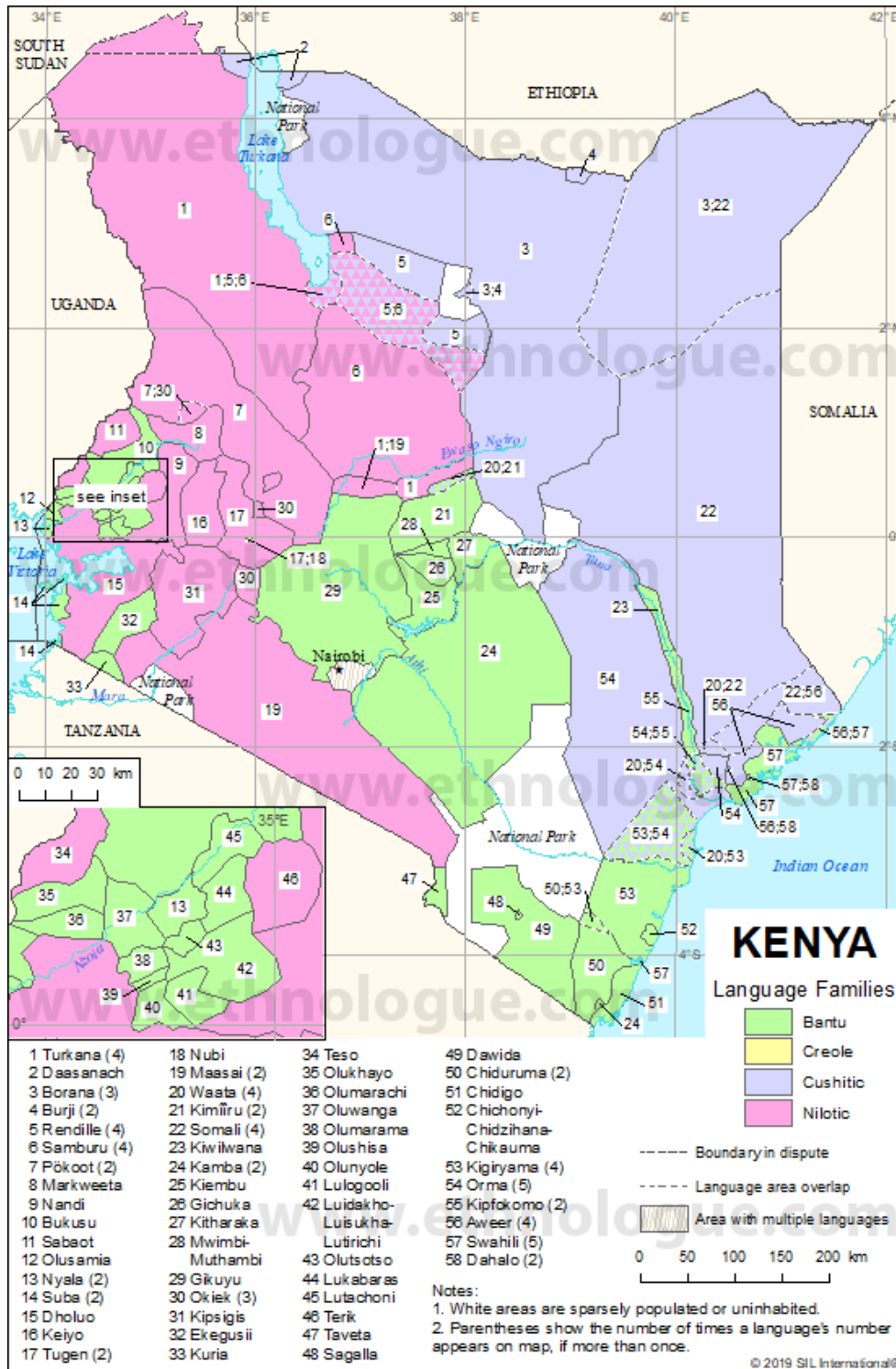


Figure 2 – Languages spoken in Kenya (Lewis et al. 2015)

With the exception of the Okiek, who are hunterers (and whose language is highly endangered), all other Kalenjin tribes are pastoralist, with cattle playing a fundamental role in their culture. The term Kalenjin (which means ‘I say to you’ in the language) was coined in order to unite the various Kalenjin tribes for political reasons (Lynch 2011). The Kalenjin are nowadays among the most prominent Kenyan ethnicities; they represent 14% of the Kenyan population, which means that they are one of the four largest ethnic groups in the country (behind the Kikuyu, the Luo, and the Luhya). Moreover, they have relatively strong political power: the longest-ruling Kenyan president since independence, Daniel arap Moi, was a Tugen, and it is generally agreed that during his time in office the Kalenjin gained significant power (Lynch 2011). Finally, the vast majority of the long-distance runners who have made Kenya famous in world athletics are Kalenjin, with various studies seeking an explanation for their athletic prowess (e.g., Saltin et al. 1995).²

Despite the prominence of the tribe in Kenya and the increased interest in their athletic capabilities, less (if any) attention has been given to their language, with all Kalenjin dialects being severely underdocumented and understudied, and without official status in Kenya. This is part of a more general problem when it comes to indigenous languages in Kenya. More specifically, as can be seen by Figure 2 above, a large number of indigenous languages (belonging to three of the major African language families: Nilo-Saharan, Niger-Congo, and Afro-Asiatic) are spoken in Kenya, yet only English and Swahili have official status. Abdulaziz (1982), among many others, notes that English remains the most prestigious language in the country and is dominant in business and education, while Swahili is mainly used in politics and social interactions between speakers

² The Kalenjin make up less than 0.1% of the world population, yet they have won more than 50 Olympic medals in running, and they win approximately half of all international long-distance running competitions (Ross & Richerson 2014).

of different tribes. Indigenous languages are mainly used as vernaculars, and are dominant in rural areas.

The 2010 Kenyan Constitution (Republic of Kenya 2010) clearly states that indigenous languages are protected. In the section called ‘National, Official, and Other Languages’, it is mentioned that ‘the State shall promote and protect the diversity of language of the people of Kenya’ (Republic of Kenya 2010: 13), while in a number of different chapters in the constitution, it is made clear that no discrimination based on language should be made in the country, and that any individual is free to use the language of his/her choice. Moreover, an arrested person has the right to be informed of the reasons of his/her arrest ‘in a language that the person understands’ (Republic of Kenya 2010: 32), and any citizen has the right to a free interpreter in court if he/she is not fluent in English or Swahili.

The situation is quite different in practice though. First, indigenous languages are completely marginalized in education. Second, there is little effort on the government’s part to document and study the languages spoken in Kenya. There are extremely few departments of African languages in the public universities, there is no official list of recognized indigenous languages, and the constitution simply refers to these languages as ‘other’ languages. Finally, even though there are radio stations in various local languages, there are no newspapers in indigenous languages, and the government strongly discourages the transmission of public news in any language other than Swahili and English, in fear of ethnic conflict (Muaka 2011).

As for the use of indigenous languages in education, the official language policy in Kenya states that from Grade 1 of primary school to university, English is the language of instruction, while Swahili is a mandatory and examinable subject. At the same time, in schools in monolingual areas, the indigenous language should be used in Grades 1-3, but a complete switch to English in

Grade 4 is obligatory. Moreover, even though the language of instruction is the indigenous language for the first three years of primary school, the textbooks and other teaching material are only written in English, which means that teachers have to be translating in class. Finally, there is a series of books aimed at teaching children how to read and write in their native language in those areas, called *Tujifunze Kusoma Kikwetu* (Kiswahili for ‘let’s learn how to read in our mother tongue’), which is currently available for 22 languages (Bunyi 1999; Muthwii 2004; Mwaniki 2014). However, Bunyi (1999) and Muthwii (2004) show that teachers rarely use the local language as the language of instruction, even in those schools where they should according to the official government policy. This means that the teachers use English from Grade 1 even in schools where the children have had no exposure to English before going to school. In some cases, the teachers even forbid their students from using their native language in school (Bunyi 1999), which is usually the only language that the children know how to speak at that point.³ Muthwii (2004) in a survey of teachers, students, and parents’ attitudes towards the teaching of Kalenjin dialects in school, found that everyone agreed that it was better to use English as the language of instruction from the beginning. In my own visit to a primary school in Bomet County in 2016, where all students were native speakers of Kipsigis, three teachers of lower grades of primary school informed me that they were not using Kipsigis in class, since they preferred to spend more time on the teaching of English and Swahili, which are, in their opinion, more useful. They also added that they did not even have the textbook on how to read and write in Kalenjin, and that this book is only available in a few schools.

³ One of my consultants confirms that in his elementary school (in a monolingual Kipsigis area), students were punished (sometimes by beating) if they spoke Kipsigis to their classmates during schooltime.

There is no standardized spelling system for Kalenjin dialects (Jerono et al. 2012 is a recent attempt towards one, but it has had no official recognition). As a result, the language is almost never used in written form, and even highly educated speakers are unable to read and write in Kalenjin. It comes as no surprise that there is no literary tradition in the language, though there is a long tradition of oral history and folk tales (Chesaina 1991), and a significant production of (modern) songs written in various Kalenjin dialects. There are also a couple of popular radio stations in Kalenjin. In general, the language is widely used as a vernacular, with the number of speakers being on the rise (mainly because of rapid population growth in rural areas of Kenya). For example, Rottland (1982) estimates the number of Kipsigis speakers at approximately 400,000 in the early 80's, yet they had reached 2 million by 2009 (Lewis et al. 2015); in other words, the number of Kipsigis speakers more than quadrupled over a period of only 30 years. However, as the Kenyan educational level is growing, fewer and fewer of these Kipsigis speakers are monolingual, with most speakers having at least a basic command of both English and Swahili.

Perhaps due to the neglect of Kipsigis (and Kalenjin more generally) in education and official situations, there is no comprehensive grammar available, with Tucker & Bryan (1964) and Toweett's (1975) descriptions of nominal morphology, Toweett's (1979) study of Kipsigis morphology more generally, and the data in Rottland's (1982) comparative study of Southern Nilotic languages being almost the only descriptive materials available on the language (excluding vocabulary lists). There are also a couple of brief papers on specific aspects of Kipsigis grammar (e.g., Creider 1980 on verbal morphology in the language), and limited data present in comparative work with other Kalenjin dialects (e.g., Creider's 1982 work on nominal tonology in Nandi includes a short comparative section). In the theoretical literature, Jake & Odden (1979), on (hyper)raising in the language, Bossi & Diercks (to appear) on verb-initiality, and Diercks & Rao

(to appear) on complementizer agreement in the language, are, to my knowledge, the only available published work specifically on Kipsigis, while data from Kipsigis also appear in Creider's (1989) theoretical study of syntax in Nilotic languages. Furthermore, the system of [ATR] vowel harmony of Kalenjin more generally (without indicating which dialect the data come from) has featured in analyses of [ATR] harmony in theoretical phonology (e.g., Halle & Vergnaud 1981; Baković 2000; Nevins 2010).

As for work on other Kalenjin dialects, Nandi is the best described dialect (Hollis 1909; Creider 1981; 1982; 1985; Creider & Creider 1989), while Pökoot is the only other dialect with a published grammar sketch (Crazzolaro 1978; Baroja et al. 1989). The rest of the dialects have not been studied in depth, but some data from original fieldwork appear in Rottland's (1982) seminal comparative work on Southern Nilotic languages. Descriptive work on specific domains of grammar includes Zwarts' (2004) comprehensive study of phonology in Endo-Marakwet and Jerono's (2011; 2013) studies of word order and case marking in Tugen. There is no theoretical work on any Kalenjin dialect other than Kipsigis and Nandi.

2. Genetic classification and areal contact

Kipsigis belongs to the Southern branch of the Nilotic sub-family of Nilo-Saharan – one of Greenberg's (1963) four major phyla of African languages, along with Afro-Asiatic, Niger-Congo, and Khoisan. It is the most controversial of Greenberg's (1963) proposed phyla, and, to this day, there is no consensus on exactly which languages belong to the family or on the internal composition of the phylum (see Güldemann 2018 for a comprehensive review of the existing literature). The following diagram shows the composition of Nilo-Saharan according to

Dimmendaal (2000; 2017), but it has to be noted that alternate internal classifications are suggested by Ehret (1983; 1989; 2001) and Bender (1981; 1989; 1996).⁴

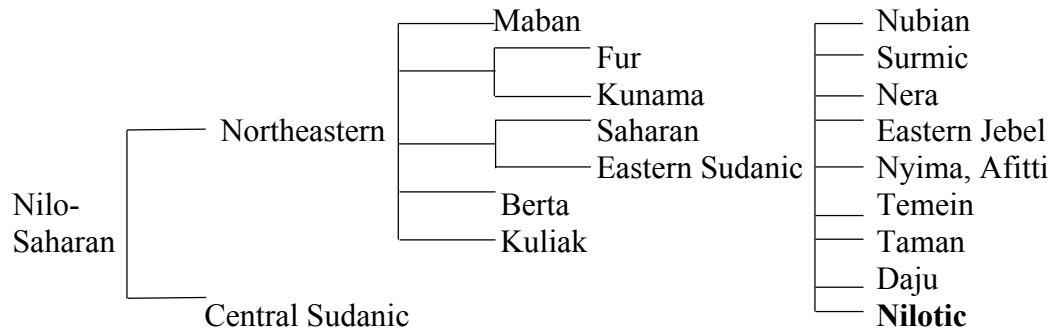


Figure 3 – Nilo-Saharan languages (adapted from Dimmendaal 2000; 2017)

An accurate comparative picture on Nilo-Saharan is difficult primarily because of the following two reasons: a) The languages that comprise it are extremely diverse in terms of typological features (e.g., the word orders SVO, VSO, SOV, and OVS are all attested in Nilo-Saharan), and Güldemann (2018) reports that there is no single grammatical feature that we can confidently associate with the whole family (the most likely candidate is the tripartite system of number marking that is the focus of Chapter 3 of this dissertation). b) Nilo-Saharan languages are among the least studied languages of Africa, with even basic vocabulary lists lacking for many of them, while only two Nilo-Saharan languages have official (regional) recognition in Africa (Kanuri in Nigeria and Zarma in Niger). Hammarström (2018), in his overview article on the distribution of African languages, states that the least surveyed regions – in terms of languages spoken – are South Sudan, Northern Nigeria, and Eastern Chad. The majority of languages spoken in these areas are Nilo-Saharan, highlighting the lack of data on languages of this family compared to the rest of Africa.

⁴ Bender, Dimmendaal, and Ehret represent an almost exhaustive list of scholars that work on the typology and diachrony of Nilo-Saharan as a whole.

Despite the lack of a consensus on the composition of Nilo-Saharan as a whole, most researchers agree on the integrity of the Eastern Sudanic branch, and especially Nilotic – its major sub-family – which has been established since Köhler (1955). The internal composition of Nilotic languages is given in Figure 4, along with names of the most prominent languages from each sub-group. Southern Nilotic is the branch with the fewest languages, with Datooga dialects being the only members in addition to Kalenjin. Ehret (1971) and Rottland (1982) are the only comparative/historical studies of Southern Nilotic specifically.

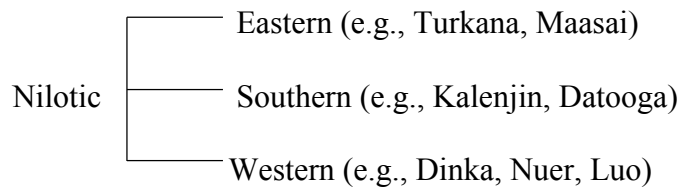


Figure 4 – Nilotic languages

All Nilotic languages are tonal, with vowel length and [ATR] being important features of the phonological system (though some Western Nilotic languages have developed different types of distinctions, e.g., see Remijsen & Manyang 2009 for a description of the Dinka vowel system). What is true throughout the family is that tonal, vowel length and [ATR] changes are used quite heavily in the morphology of the language. This is especially true in Western Nilotic languages, which use fewer affixes than Eastern and Southern Nilotic (see Trommer 2011 for a theoretical account of the complex morphophonological alternations in Western Nilotic). The latter two groups have a tendency towards agglutination (Dimmendaal to appear). In terms of word order and case, many Eastern and Southern Nilotic languages are verb-initial with a marked nominative case system: there is a nominative – accusative alignment, but the morphologically marked case form is the nominative (which is rare among nominative – accusative languages, where nominative tends to be the unmarked form). Nominative is marked tonally in these languages (König 2008).

There is greater variation within Western Nilotic, which includes the typologically rare OVS word order and ergative alignment, which is almost entirely absent in Africa (Northern Luo dialects; Andersen 1988; König 2008). Finally, Nilotic languages are head-marking languages, with rich morphology on the verb (in the clausal domain) and on the noun (in the DP). The verb, in particular, is very complex, with dedicated morphology for agreement, tense, aspect, mood, verbal number (or *pluractionality*; cf. Dimmendaal 2014), and a series of argument-structure related affixes (Dimmendaal to appear).

However, as Güldemann (2018) points out, most grammatical features common in Nilotic are, in fact, also common in non-Nilotic languages spoken in East Africa, especially Afro-Asiatic languages of Kenya, Ethiopia, and Somalia. Therefore, most of these features are probably areal, as opposed to genetic. One such feature is the marked nominative case system, which is common in a number of Afro-Asiatic languages spoken near Nilotic (cf. König 2006; 2008; Handschuh 2014).

As for Kipsigis in particular, it has been significantly influenced by English and Swahili (the two official languages of Kenya), with a great number of loanwords present in the language today. It is not uncommon for my consultants to use Swahili words even for functional items. For example, the Swahili connector *lakini* ‘but’ is preferred to the native Kipsigis word *kobaateen*, with most speakers rarely using the latter in conversation. In addition to these obvious influences, Kipsigis has also been in an extended period of contact with Gusii, a Bantu language (JE42) spoken by the Kisii, who are the Kalenjins’ neighbors, and who have been intermarrying with the Kalenjins for generations (Mwanzi 1977; Dimmendaal 1995). For example, Kuteva (2000) argues that the graded tense system of Kalenjin dialects (i.e., the distinction between various degrees of past) is an innovation due to contact with Gusii, which – like many Bantu languages – has an

intricate system of graded tense. This type of tense system is apparently absent in other Nilotic languages.⁵ Finally, various scholars (e.g., Ehret 1974; Heine, Rottland, & Vossen 1979) recognize a strong Eastern Cushitic influence on Southern Nilotic languages, and hypothesize that this is due to ancient (2000-1000 BC) contact between Eastern Cushites and Southern Nilotes. Anthropological evidence supports this claim since it is generally accepted that hallmark cultural traits of various Nilotic groups of Kenya (including their distinctive age-set system) were borrowed from the Cushites centuries ago (e.g., Ehret 1998).

3. Phonology and spelling

The goal of this section is to provide a sketch of the phonological system of Kipsigis, which includes a description of the consonant and vowel systems, tone, phonotactics, and prominent phonological processes. I also explain the spelling conventions adopted in this dissertation. This sketch is quite long, and can be safely skipped by readers who are not interested in the phonological properties of the language; a brief look at Tables 1, 3, and 4 will provide all the necessary information regarding spelling conventions.

I provide such a detailed phonological sketch for two reasons: a) the morphological make-up of many words (especially nouns, which are the focus of this dissertation) is not easily identified without taking into account a number of phonological processes, and b) with the exception of two brief descriptions that are embedded in general studies of Kipsigis morphology (Tucker & Bryan 1964; Towett 1979), there are no studies of Kipsigis phonology available, which is why I think a more detailed description is much needed. I hope that this section can serve as a basis for further

⁵ However, the Surmic language Didinga also has such a system (Lohitare et al. 2012), which means that it is not impossible for an earlier form of Eastern Sudanic to have had graded tense.

research on Kipsigis phonology, and that it is also useful for linguists working on the typological distribution of phonological phenomena.

As for past work on other Kalenjin dialects, Zwarts' (2004) description of the phonology of Endo-Marakwet is, to my knowledge, the only complete description of the phonological system of a Kalenjin dialect. There is also significant work on Nandi (e.g., Creider & Creider 1989), as well as studies of particular phenomena (e.g., Creider's 1982 study of nominal tonology in Nandi; Lodge's 1995 study of ATR harmony in Tugen). Local & Lodge (2004), which studies the phonetics of [ATR] in Tugen, is, to my knowledge, the only experimental study of phonetics in a Kalenjin dialect. Finally, there are a number of theoretical treatments of [ATR] harmony in Kalenjin (e.g., Halle & Vergnaud 1981; Lodge 1995; Baković 2000; Nevins 2010). However, all of these studies rely on data by Hall et al. (1974) and do not specify which dialect they refer to. This is important because there are significant phonological differences across Kalenjin dialects. Moreover, in my experience with Kipsigis, the language has undergone significant changes in the last 50 years, which probably makes Hall's et al. (1974) description outdated. For example, Toweett's (1979) description of Kipsigis morphology states that the medial and distal demonstrative suffixes/clitics are obligatorily in the [ATR] harmony domain of the noun, but for all ten speakers that I consulted about this particular question, the medial and distal demonstratives are only optionally in the noun's harmony domain, with a strong preference for them *not* to harmonize.⁶ Toweett was a native speaker of Kipsigis and this discrepancy between his description and my findings point towards a generational difference.

⁶ This is also the case in the Endo-Marakwet dialect according to Zwarts (2004).

3.1. The consonant system

Kipsigis has a simple consonant system. The following table illustrates the consonant phonemes in the language. Throughout this dissertation, spelling matches IPA notation for consonants, with some exceptions which are highlighted in the table, with the chosen notation given in parentheses. I later explain the spelling conventions.

	Bilabial	Alveolar	Palatal	Velar
Plosive	p	t	c (ky/ch)	k
Nasal	m	n	ɲ (ny)	ŋ (ng)
Trill		r ⁷		
Fricative		s		
Approximant			j	w (labio-velar)
Lateral approximant		l		

Table 1 – Kipsigis consonants

The palatal plosive is realized as a post-alveolar affricate [tʃ̠] in most cases. When it is realized as an affricate, *ch* is used, while *ky* is used when it is realized as a palatal plosive. Voicing is not phonemic in Kipsigis (or any other Kalenjin dialect), but all voiceless stops (including the affricate) have voiced allophones in certain environments, which are summarized in Table 2. I represent voicing (when it occurs) in spelling. An interesting property of the Kipsigis voicing alternations is the difference that we observe between [t] and [tʃ̠] on the one hand, and [p] and [k] on the other with respect to voicing intervocalically and after [r], which are highlighted in blue in the table.

⁷ The realization of the rhotic varies between a trill and a flap.

	V__V	[r]__	[l]__	[+nasal]__
[p]	voiced	voiced	voiced	voiced
[t]	voiceless	voiceless	voiced	voiced
[k]	voiced	voiced	voiced	voiced
[tʃ]	voiceless	voiceless	voiced	voiced

Table 2 – Voicing alternations in Kipsigis

The voiced allophone of [k] – [g] – sometimes undergoes spirantization intervocalically, being pronounced as [ɣ]. I do not represent spirantization in spelling, since it seems to vary a lot. Factors that determine whether spirantization will occur include speech rate and the [ATR] value of the surrounding vowels. In general, [ATR] has a significant effect on the phonetic realization of plosives in Kipsigis (as noted impressionistically by Toweett 1979), but further research is needed to determine the details of this effect. Local & Lodge (2004), in an acoustic study of the related dialect Tugen, found that consonants in that dialect have a longer duration and are more often lenited in words with [-ATR] vowels, while they are shorter and are followed by a burst release in words with [+ATR] vowels.

3.2. The vowel system

Vowel length and Advanced Tongue Root [ATR] are distinctive features in the Kipsigis vowel system, summarized in Table 3, which also indicates the spelling that I use.

+ATR		-ATR	
Short	Long	Short	Long
a	aa	<u>a</u>	<u>aa</u>
o	oo	<u>o</u>	<u>oo</u>
i	ii	<u>i</u>	<u>ii</u>
u	uu	<u>u</u>	<u>uu</u>
e	ee	<u>e</u>	<u>ee</u>

Table 3 – Kipsigis vowels

3.2.1. The [ATR] distinction

[ATR] has a high functional load in the language, with many [ATR] minimal pairs in the lexicon (1). It is also used to convey grammatical information; for example, many adjectives form their plural by shifting from [-ATR] vowels in the singular to [+ATR] vowels in the plural, as shown in (2).

(1) [ATR] minimal pairs (*kee-* is an infinitive marker)

[-ATR]		[+ATR]	
a. kèe-bét	‘to split’	kèe-bét	‘to get lost’
b. kèe-gúut	‘to blow’	kèe-gúut	‘to scrape’

(2) Singular: [-ATR]

Plural: [+ATR]

a. kárâarán	kárâarán	‘beautiful’
b. ányîny	ányîny	‘tasty’

convinced that they are identical. Previous descriptions (e.g., Toweett 1979) state that the [+ATR] *a* and the [-ATR] *ɑ* are pronounced in the same way. However, impressionistically, they sound slightly different, and Local & Lodge (2004) found that the two vowels overlap in F1 and F2 space in Tugen, but only partially. Furthermore, Zwarts (2004) notes that there is disagreement in the literature about the phonetic transcription of the low vowels in Kalenjin dialects. Impressionistically, I have noticed an effect of distance from the [+ATR] trigger on the quality of the vowel: the further away an [a] is from the [+ATR] trigger of harmony, the less close it is to *ɑ*, and the closer it is to *ɑ*. A future acoustic study can shed light on this issue.^{11, 12}

The domain of harmony coincides with the boundaries of the phonological word in Kipsigis. Hall et al. (1974), on which all theoretical accounts of vowel harmony in Kalenjin dialects are based, list a small number of morphemes that are exceptional in not participating in vowel harmony despite being part of the word. Possessive suffixes are among these morphemes; example (6) shows that the 1st person singular possessive suffix is [-ATR] even though it attaches to a [+ATR] stem.

(6) *chèptá-nyùun*
 girl-my
 ‘my girl/my daughter’

Having briefly investigated the syntactic properties of these ‘exceptional’ morphemes, I have concluded that they are clitics, as opposed to real affixes. Therefore, they are not really exceptional, but they simply belong to a different domain, bigger than the phonological word. I have not found any non-clitic morpheme that does not participate in harmony, making the phonological word an

¹¹ It is likely that there is an effect of distance from the harmony trigger on other vowels as well, and not just the low vowel.

¹² Vowel length might also play a role in the exact acoustic properties of the [ATR] distinction in Kipsigis vowels. Zwarts (2004) reports vowel quality distinctions depending on both [ATR] and length for the related dialect Endo-Marakwet.

exceptionless domain for [ATR] harmony in Kipsigis. To put it differently, [ATR] harmony can be safely used as a diagnostic for phonological wordhood in the language.

To conclude the discussion of [ATR] distinctions in Kipsigis, I make a short comment on the phonetic correlates of the feature, which is also relevant for my choice not to use IPA notation to transcribe the vowels. Unfortunately, there are few experimental investigations of the acoustic and/or articulatory properties of [+/- ATR] vowels in Nilotic languages. To my knowledge, Local & Lodge's (2004) study of Tugen is the only acoustic study of [ATR] in Southern Nilotic, while there is slightly more work on Eastern and Western Nilotic (Billington 2014 for Lopit; Guion, Post & Payne 2004 for Maa; Jacobson 1978; 1980; Swenson 2015 for Western Nilotic languages). The only acoustic property of the distinction that is common to all Nilotic languages is a lower F1 for [+ATR] vowels as opposed to [-ATR] ones. There is cross-linguistic variation with respect to the effect of F2 differences, with some languages using it as a cue for [ATR] distinctions. The articulatory property that languages with the distinction share is an expansion of the pharyngeal cavity in the production of [+ATR] vowels. However, the studies previously mentioned (especially Jacobson 1980) have found that the actual method of cavity expansion is not the same for all Nilotic languages. The expansion of the pharyngeal cavity results in a number of other phonetic correlates of the distinction in Nilotic, such as the effect on consonants briefly discussed in the previous section, and the effect on the phonation type of the vowel that is discussed in most studies on the [ATR] contrast. More specifically, [+ATR] vowels are often associated with breathy voice, as opposed to [-ATR vowels] that are associated with tense or creaky voice. Guion, Post & Payne (2004) confirm this observation for Maa, but Local & Lodge (2004) report that they found the opposite effect for Tugen (i.e., they found that it was [-ATR] vowels that were breathy). Though I have not been able to notice (impressionistically) any phonation differences between [+ATR]

and [-ATR] vowels in Kipsigis, a common spelling for the male name *Kiprono*, which contains [+ATR] vowels, is *Kipronoh*, and it is possible that this final *h* indicates breathiness. Final *h* is never used for names that contain [-ATR] vowels.

All previously mentioned studies on [ATR], as well as typological studies of the phenomenon (e.g., Casali 2003), conclude that there is significant cross-linguistic variation in the phonetic realization of the phonological feature [ATR].¹³ Moreover, a quick look at Local & Lodge's (2004: 9) Figure 1 and Guion, Post & Payne's (2004: 530) Figure 9 shows that there is significant overlap in F1/F2 space for [+ATR] and [-ATR] counterparts of the same vowel. These observations, in addition to my own perception of the [ATR] distinction in Kipsigis as different from the distinction between tense and lax vowels in the IPA vowel chart, led me to the decision not to use the IPA vowel symbols to indicate the contrast. This has the additional advantage of highlighting alternations between [-ATR] and [+ATR] vowels in a clearer way, especially in the case of the low vowel, where it is not clear what the appropriate symbol for the [+ATR] variant should be. The choice of underlining for [-ATR] as opposed to the specialized diacritics of the IPA - [ɛ̄] for [+ATR] and [ɛ̆] for [-ATR] – is due to the following reasons: a) these diacritics are not widely used and are often confusing, and (more importantly), b) previous descriptions of the language (e.g., Creider & Creider 1989 for Nandi and Toweett 1979 for Kipsigis) leave [+ATR] vowels unmarked, while they mark [-ATR] vowels by italicizing them. Since italics are often used for emphasis and other reasons, I chose to underline [-ATR] vowels instead (which I never use for emphasis in this dissertation). However, replacing italics with underlining is closer to previous

¹³ Guion, Post & Payne (2004) mention anecdotally that a professional linguist who is a native speaker of Akan (a Niger-Congo language with an [ATR] contrast in its vowel system) could not distinguish between [+ATR] and [-ATR] vowels in Maa.

descriptions and spelling conventions in Kalenjin dialects (e.g., Rottland 1983 and Dimmendaal 2012 use underlining for [–ATR] vowels).

3.2.2. Vowel length

Similar to [ATR], vowel length has a high functional load in Kipsigis, with many attested lexical minimal pairs (examples given in 7). It is also used to convey grammatical information. For example, causative verbs are formed by simultaneous lengthening of the vowel of the subject prefix and of the vowel of the verbal stem of the anticausative variant, as shown in (8).¹⁴

- | | | | | |
|-----|---------------------|----------------|------------------|-------------|
| (7) | Short | | Long | |
| | a. <u>kèe</u> -lál | ‘to get burnt’ | <u>kèe</u> -lál | ‘to cough’ |
| | b. <u>kèe</u> -ngét | ‘to get tired’ | <u>kèe</u> -ngét | ‘to get up’ |
-
- | | | | | |
|--------|--------------------------|--|-----------------------------|---------------------|
| (8) a. | Anticausative (base) | | b. | Causative (derived) |
| | Kii- <u>á</u> -bét. | | Kii- <u>âa</u> -béet | ngóoktá-nyùun. |
| | PAST3-1SG-get.lost | | PAST3-1SG-lose | dog-my |
| | ‘I got lost (long ago).’ | | ‘I lost my dog (long ago).’ | |

When two identical short vowels become part of the same syllable (e.g., when a V-initial suffix attaches to a V-final stem), the result is a long vowel, as in (9).

- | | | | | | |
|--------|--------------------------------|--------------|----|----------------------------|--------------|
| (9) a. | <u>kàr-ì-ít</u> → <u>kàrít</u> | (i + i → ii) | b. | <u>kà-ám</u> → <u>káam</u> | (a + a → aa) |
| | car-TH-SEC | | | PAST1-eat | |
| | ‘car’ | | | ‘I ate.’ | |

When two non-identical short vowels are adjacent, no change takes place, unless the combinations involved are the ones in (10), in which case there is obligatory vowel coalescence following the rules below. [ATR] values are not relevant for vowel coalescence, only vowel quality is. Examples are given in (11).

¹⁴ Most verb stems are monosyllabic; for disyllabic verbs, it is the vowel of the second syllable that is lengthened. If the vowel is already long in the anticausative, no vowel change occurs.

(10) Vowel coalescence rules

a. a + i → ee b. e + i → ee c. u + i → uu

- (11) a. làak-wà-ìt → làakwéet
child-TH-SEC
'child'
- b. chèerér-è-ìt → chèeréet
baby/monkey-TH-SEC
'baby/monkey'
- c. sùkàr-ù-ìk → sùgàúuk
sugar-TH-SEC
'sugar'

Transcribing vowel length in Kipsigis is sometimes difficult because the phonetic realization of length varies depending on the phonological context, with the details of the conditioning factors being unknown. For example, Toweett (1979) reports the existence of vowels that are 'half-long' phonetically (which seem to be allophones of long vowels), but he does not explain their distribution.

Furthermore, there is a rule of length dissimilation in Kipsigis where an underlyingly long vowel becomes short in certain environments. All my examples (and those in the previous literature) are from the nominal domain, so there is a possibility that some aspects of this phenomenon are tied to the category of nouns. More specifically, most nouns end in a syllable with a long vowel, which is the result of vowel coalescence between the vowel-final thematic or number suffix and the vowel-initial secondary suffix. This long vowel sometimes surfaces as short, but it is not clear why. We can distinguish between two types of shortening: shortening of the last vowel in disyllabic nouns, illustrated in (12), and shortening of the last vowel in polysyllabic nouns, illustrated in (13).

(12) Shortening: Disyllabic nouns

a. kîis-yá-ìt → kîisyét
bowl-TH-SEC
'bowl'

(cf. tîs-yá-ìt → tîsyêet)
monkey-TH-SEC
'monkey'

- b. môok-wá-ík → môokwék (cf. pàan-wá-ík → pàanwêek)
 throat-PL-SEC trip-PL-SEC
 ‘throats’ ‘trips’

(13) Shortening: Polysyllabic nouns

- a. tàrìit-ya-ít → tàrìityét
 bird-TH-SEC¹⁵
 ‘bird’
- b. tâapúrpùur-ya-ít → tâabúrbùuryét
 butterfly-TH-SEC
 ‘butterfly’
- c. kàa-pùus-a-ít → kàabùusét
 NOM.CLASS2-breathe-TH-SEC
 ‘breath’

The former is due to a tonal constraint against adjacent contour tones (note the falling tone on the first syllable of the examples in 12), and will be discussed in detail in the next section on the tonal system of the language. The latter cannot be due to the same tonal constraint, as the penultimate syllables in this case do not bear contour tones. The only generalization that we can make is that the final vowel is never shortened if the preceding vowel is short, as shown in (14). Therefore, a long vowel being preceded by another long vowel is important. However, as shown by (15), this is not the full story, since sequences of long vowels in polysyllabic nouns are generally allowed. It is likely that shortening in polysyllabic nouns is linked to tonal constraints as well,

¹⁵ Two notes are in order regarding the status of the morpheme *-ya*, which we see in multiple examples in (12) – (14), and which is glossed as a thematic suffix. First, there are two morphemes *-ya*: one with a L tone and one with a H tone, as seen in (14b) and (12a) respectively. Second, even though both these morphemes are clearly thematic suffixes in these two examples, the status of the morpheme in (13a) and (13b) is not as clear; it could be analyzed either as a thematic suffix or as a singulative suffix. If it is a singulative suffix, it is an irregular one, and I have chosen the gloss TH here. More details on thematic and singulative suffixes will be given in chapter 3. Furthermore, the surface form (with a short vowel) of the last syllable of the nouns in (13a) and (13b) does not allow us to deduce the underlying tone of the morpheme in these nouns, as the H tone on the short vowel is consistent with either a H or a L tone on *-ya*. This is also the case for the thematic vowel *-a* in (13c). More details on this are given in the next section, which focuses on tone in Kipsigis.

which is desirable if we want a unified account of shortening in disyllabic and polysyllabic nouns. For example, we notice that in all examples in (13), we observe the same L.H tonal pattern in the last two syllables. In the next section on tone, I discuss some ways in which tonal constraints might be relevant, in light of Dimmendaal's (2012) account of similar vowel length alternations in the related dialect Nandi.

(14) No shortening after short vowels

a. k̩p-rórók-á-ít → k̩prórógêet
 MASC-spider-TH-SEC
 'spider'

b. sig̩r-yà-ít → sig̩ryéet
 donkey-TH-SEC
 'donkey'

(15) Sequences of long vowels in polysyllabic nouns without shortening

a. tíngóong-à-ít → tíngóongéet
 crocodile-TH-SEC
 'crocodile'

b. mógóomb-à-ít → mógóombéet
 hoe-TH-SEC
 'hoe'

3.3. Tone

Kipsigis has three phonemic tones: High (H), Low (L), and a contour high-falling tone (HL). While H and L can appear on any syllable, the contour tone is only attested on long vowels and, somewhat more rarely, on syllables with a short vowel and a sonorant coda. This type of restriction in the distribution of contour tones is common cross-linguistically (cf. Zhang 2002). The fact that contour tones are restricted to bimoraic syllables, in addition to some tonal phenomena to be

discussed shortly, point towards the conclusion that the TBU in Kipsigis is the mora.¹⁶ Therefore, contour tones in Kipsigis can be represented as a sequence of a H and L tone associated to the two morae of a bimoraic syllable. As we will see later, a surface HL tone could also be underlyingly a sequence of two H tones associated to two morae belonging to the same syllable.

Kipsigis, like other Kalenjin dialects, exhibits a small number of tonal processes, which are all limited to interactions between adjacent tones or tones associated to adjacent morae or syllables. In other words, tone in Kipsigis is not very mobile and we never find long-distance tonal phenomena, or tones that appear far from their underlying position. Furthermore, the language has the typologically rare property of completely lacking downstep (Creider 1982). As for grammatical combinations of tones in Kipsigis, any sequence of tones across two syllables is allowed, with the exception of sequences of contour tones, which are ungrammatical, as summarized in Table 4.

H.L e.g., <i>ámùt</i> ‘yesterday’	L.L e.g., <i>làakwèet</i> ‘child.NOM’	HL.L e.g., <i>móoktà</i> ‘throat.NOM’
H.H e.g., <i>ngóoktá</i> ‘dog’	L.H e.g., <i>sìmdá</i> ‘dirt’	HL.H e.g., <i>sìiptá</i> ‘smell’
H.HL e.g., <i>kóokwêet</i> ‘village’	L.HL e.g., <i>tùlwêet</i> ‘mountain’	*HL.HL --

Table 4 – Grammatical tonal sequences in Kipsigis

Even though a sequence of two H tones across two syllables is allowed, there is a constraint against two H tones associated to the morae of the same syllable. The repair strategy is the lowering of the second H tone, which results in a surface HL contour tone. We see this phenomenon in (16),

¹⁶ Zwarts (2004) and Dimmendaal (2012) reach the same conclusion for the Kalenjin dialect Endo-Marakwet and for Eastern Nilotic languages respectively. Dimmendaal (2012) argues that, in general, long vowels in Eastern Nilotic should be represented as a sequence of two short vowels.

where the underlyingly H-toned thematic suffix of the noun coalesces with the underlyingly H-toned secondary suffix, resulting in a syllable with a HL tone.

(16) High tone Lowering: HH in same syllable → HL contour tone

kóok-wá-ít → kóokwêet	H.L.H.H → H.L.HL
village-TH-SEC	
‘village’	

Another common tonal process in Kipsigis is that of *Rising tone simplification*. When a L and H tone are associated with two morae of the same syllable, the L tone is deleted, presumably due to a general prohibition against rising tones in the language. In (17) we see that when a L-toned thematic suffix coalesces with the H-toned secondary suffix, the result is a syllable with a H tone.

(17) Rising tone simplification: LH contour tone → H tone

làak-wà-ít → làakwêet	L.L.H → L.H
child-TH-SEC	
‘child’	

Finally, there is a constraint against two adjacent contour tones, as was already discussed. In the nominal domain at least, the repair strategy for this constraint is the deletion of a TBU together with its tone.¹⁷ This process explains the vowel shortening rule in disyllabic nouns that was discussed in the previous section. In what follows, I give a brief description of the facts.

The nominal roots in (18a) and (18b) both have a long vowel, and take the same H-toned plural suffix – *wá*, followed by the H-toned secondary suffix – *ík*. In both cases, there are two H tones associated with the same syllable (the last syllable), which usually results in a surface HL tone, because of the rule of *High tone lowering* discussed in (16). This is what we see in (18b). In (18a),

¹⁷ Deleting a segment to resolve a tonal constraint is quite rare among tonal languages. It is also rare for a tone to be deleted together with its TBU (instead, it usually reassociates to another TBU). Hyman (2007) does report this, however, for Shilluk. Shilluk, like Kipsigis, is a Nilotic language. It is possible, therefore, that this interesting tonal behavior is a general property of Nilotic languages.

however, this would result in a sequence of two HL tones because the root has a lexical HL tone. To resolve this problem, the vowel of the second syllable is shortened; this is the deletion of a mora, and the H tone associated with this mora is deleted along with it. As a result, we have a surface sequence HL.H, which is allowed in the language.

(18) Vowel Shortening: HL. HH HL.H
 || | | → | | |
 VV.VV VV.V

a. **môok-wá-ík** → **môokwék**
 throat-PL-SEC
 ‘throats’

b. **pàan-wá-ík** → **pàanwêek**
 trip-PL-SEC
 ‘trips’

As for shortening with polysyllabic nouns (discussed in section 3.2.2.), Dimmendaal (2012) suggests that it occurs in the related Nandi dialect because of a constraint on a particular tonal melody. In Kipsigis, the tonal melodies that we find in polysyllabic nouns with short final vowels are different from the ones that Dimmendaal reports for Nandi; however, given the many similarities between the two dialects, as well as the data from disyllabic nouns – where shortening is clearly related to tonal constraints – a tonal constraint must be at the root of final-syllable shortening with polysyllabic nouns too. It is left as a topic for further research, but as Dimmendaal (2012) notes, it indicates that foot structure plays an important role in the phonology of tone languages.

The last tonal process that we find in Kipsigis is a sandhi phenomenon: a H tone at the end of a word becomes L if the tone of the first syllable of the following word is also H. The process is illustrated in (19): we see that the final tone of the verbal stem is H when followed by an object that starts with a L tone, but L when followed by an object that starts with a H tone.

(19) Sandhi High tone Lowering: H → L/ #H

- | | |
|----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| <p>a. Á-chám-è kímnyéet.
 1SG-like-IPFV ugali
 ‘I like ugali.’</p> | <p>b. Kímnyéet kò ányîny
 ugali TOP tasty
 ‘(The) ugali is tasty.’</p> |
| <p>c. Á-chám-é làakwàa-nì.
 1SG-like-IPFV child-PROX
 ‘I like this child.’</p> | <p>d. làakwàa-nì kò tórôor.
 child-PROX TOP tall
 ‘This child is tall.’</p> |

This is a dissimilation phenomenon, presumably due to a prohibition against adjacent H tones across word boundaries. Therefore, in Kipsigis, adjacent H tones are not allowed across word boundaries or when they are associated to the same syllable (cf. *High tone lowering* in 16), but they are allowed across syllables.

3.4. Phonotactics

Syllables in Kipsigis have the shape (C)V(V)(C), and any consonant can appear in onset or coda position; (20) includes examples of various possible syllable types.

- | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(20) a. V: á.mùt ‘yesterday’
 b. VV: ôo ‘big’
 c. CV: tà.là ‘gentle’
 d. CVC: kót ‘very’
 e. CVVC: káat ‘house’</p> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

There are no consonant clusters, and there are some restrictions in the sequences of consonants that are allowed word-medially (i.e., between the coda of a syllable and the onset of the following syllable). I do not provide here a complete list of the restrictions. There are also some phonological processes that occur at syllable boundaries. For example, [p] and [t] are deleted before homorganic nasals. Furthermore, the alveolar and palatal nasals (but not the bilabial and velar) assimilate for place to the following consonant.

Finally, there is a phonological alternation between *ch* and *k* (and its voiced counterpart) in some morphological contexts (21), but the conditioning factors are not well-understood. Creider

& Creider (1989) analyze a similar alternation in Nandi in terms of an underlying [k], which is fronted in word-final position. For example, they report that in that dialect, no verb ends in a [k]. It is not clear what the details of the phenomenon are in Kipsigis.

(21) ngwâch ‘short’ vs. ngwâg-èn ‘short (pl)’

4. Grammatical sketch

In this section, I briefly discuss some aspects of Kipsigis grammar, knowledge of which will be helpful in interpreting the examples given in the dissertation.

The language has a basic VSO word order, with only one pre-verbal position being (sometimes) available; this position is associated with topics.¹⁸ There is significant word order freedom in the elements following the verb, with the only strict restriction being the initial position of the verb in the sentence (or post-topic position, if a topic is present). The reader is referred to Bossi & Diercks (to appear) for a description of the post-verbal word order possibilities and an analysis of the facts.

- (22) a. Chám-è Kíbêet tèetá né òo. VSO order
 like-IPFV Kibeet.NOM cow REL big
 ‘Kibeet likes a/the big cow.’
- b. Chám-è tèetá né òo Kíbêet. VOS order
 like-IPFV cow REL big Kibeet.NOM
 ‘Kibeet likes a/the big cow.’
- c. Kíbêet kò chám-è tèetá né òo. Topic-initial order
 Kibeet TOP like-IPFV cow REL big
 Roughly: ‘It is Kibeet who likes a/the big cow.’
- d. Tèetá né òo kò chám-è Kíbêet. Topic-initial order
 cow REL big TOP like-IPFV Kibeet.NOM
 Roughly: ‘It is a/the big cow that Kibeet likes.’

¹⁸ The interpretation of elements in this position has not been investigated. Further research is needed to determine the exact nature of the position, which seems to be often associated with contrastive topics.

The language is generally head-initial, with prepositions, and complementizers that precede the embedded clause. The order in the DP is also strictly noun-initial, with all elements following the noun; the DP facts will be discussed in detail in Chapters 3-5, and I will not give more details here.

In example (22) above, one can notice that the first syllable of the proper name *Kibeet* has a high tone in (a), but a low tone in (c). This tonal distinction is related to case: nominative in the former, unmarked case in the latter. As was mentioned in section 2, Kipsigis, like most Southern and Eastern Nilotic languages, has a marked nominative case system: subjects are marked for nominative case, while DPs in any other position are unmarked. The absence of nominative case in (22c) also highlights another common feature of these languages: nominative case marking is lost in pre-verbal positions. As for the morphological expression of case, there are different rules for nouns, modifiers (e.g., adjectives), and numerals – the three categories that inflect for case. The tonal shape of nouns is lexically specified (and, hence, unpredictable) in the unmarked case; in the nominative, the lexical tones are removed, and a L(H*)L melody is superimposed on the nouns, as shown in (23).¹⁹

(23) L(H*)L replacive tone for nominative form of nouns

Unmarked		Nominative		
<u>l</u> àak <u>w</u> éet	L.H	<u>l</u> àak <u>w</u> èet	L.L	‘child’
sùgà <u>r</u> úuk	L.L.H	sùgà <u>r</u> ùuk	L.H.L	‘sugar’
màgàs <u>e</u> et	H.H.H	màgàs <u>e</u> et	L.H.L	‘skin’
mùgùulèldá	H.HL.L.H	mùgùulèldà	L.H.H.L	‘heart’

¹⁹ There are some exceptions: some nouns that have a HL contour tone on the first syllable in the unmarked case retain this tone in the nominative, while nouns that start with the prefixes *kip-/cheep-* follow different rules (the low tone of these prefixes in the unmarked case becomes high in the nominative, while no tonal change takes place for the remainder of the nominal stem).

Modifiers, on the other hand, exhibit tonal polarity: the nominative is formed by ‘switching’ the value of the tone of each syllable of the adjective in the unmarked case, illustrated in (24). More details on this process (and an analysis) are given in Kouneli & Nie (2018).

(24) Paradigmatic tonal polarity for nominative form of modifiers

Unmarked		Nominative		
tóròor	H.L	tòróor	L.H	‘red’
òo	L	óo	H	‘big’
náan	H	nàan	L	medial demonstrative

Finally, numerals are the only category that form the nominative by the addition of a segmental suffix, shown in (25). As can be seen in the example, the suffix *-u* is accompanied by a tonal change on the stem. It is, therefore, possible that the tonal expression of nominative case has its origins in segmental affixes that caused tonal changes to the stem; it is, in fact, hypothesized in Creider & Creider (1989) that thematic suffixes (which will be described in detail in the next chapter) on the noun in Kalenjin dialects have evolved from nominative case markers.

(25) Suffix *-u* and tonal change for nominative form of numerals

Unmarked		Nominative		
sómòk	H.L	sòmóg-ú	L.H.H	‘three’
múut	H	múut-ú	H.H	‘five’
ságáal	H.HL	sàgáal-ú	L.H.H	‘nine’

Moving on to the morphology of verbs in Kipsigis, the language is head-marking, with a series of affixes on the verb, related to TAM, agreement, and argument structure. As this is only relevant for making sense of the examples that involve verbs, I am not going to provide details. It suffices to point out the distinctions that are made, and their morphological expression (see Toweett 1979 for more details). First, the language makes a distinction between non-past and three degrees of past: current (the event took place earlier on the day of the utterance), recent (the event took place on one or few days before the day of the utterance), and distant (the event took place long ago).

Tense is expressed with prefixes on the verb. Second, the language makes a distinction between perfective and imperfective Aspect, which is marked by a suffix (which has many different allomorphs). Third, verb-subject agreement for phi features is obligatory (and the language is *pro* drop), and is expressed in a prefix, but also through a suffix (for 1st and 2nd person) at the end of the verbal stem; there is also a tonal distinction between 1st / 2nd person and 3rd person forms. Fourth, negation is a prefix on the verb. Fifth, all morphemes associated with argument structure (e.g., applicative, instrumental, antipassive) are suffixes on the verb, with the exception of the causative, which is expressed by a change in the morphological class of the verb (and seems to be prefixal in nature).²⁰ All these suffixes are in the [ATR] harmony domain of the verb, and many of them have distinct allomorphs for perfective and imperfective aspect. An example of a verb that involves a subset of these morphemes is given in (26).

- | | | |
|------|--------------------------------------------------------------------------------------------------------------------------|-------------------|
| (26) | Koo-ma-ki-am-iisye-chiin-i
PAST2-NEG-1PL-eat-APASS.IPFV-APPL.IPFV-1/2
'We were not eating for Kibeet (yesterday).' | Kibêet.
Kibeet |
|------|--------------------------------------------------------------------------------------------------------------------------|-------------------|

5. Conclusion

In this chapter, I have provided basic information on Kipsigis, including a somewhat detailed outline of its phonological system. I hope that the discussion in this chapter has made it obvious that Kipsigis, and Nilo-Saharan languages more generally, are severely underdocumented and understudied, especially in the theoretical literature. One of the goals of this dissertation is to fill this gap, by 'putting Nilo-Saharan on the map'; this is an attempt to include data from Nilo-Saharan in theoretical debates on the architecture of grammar, starting with the structure of noun phrases. We begin this investigation by exploring the intricate system of number marking in the next chapter.

²⁰ See (A) in section 4.2. of chapter 4, and especially footnote 76, for more information on the two conjugation classes.

Chapter 3: Number-based noun classification

1. Introduction

Kalenjin dialects have what has been called in the literature (Corbett 2000; Dimmendaal 2000) a ‘tripartite’ system of number marking: some nouns are interpreted as singular in their morphologically unmarked form and form their plural by the addition of a plural suffix (1), some nouns are interpreted as plural in their unmarked form and form their singular by the addition of a singulative suffix (2), while a third class of nouns never appear in their unmarked form: they have a singulative suffix in the singular, and a plural suffix in the plural (3). This system is different from that of most Indo-European languages, where nouns usually follow the pattern in (1), that is, they are unmarked in the singular and marked in the plural.

(1) Plural marking:	kipaw (SG)	kipaw- tiin (PL)	‘rhino’
(2) Singulative marking:	peel- yaan (SG)	peel (PL)	‘elephant’
(3) Singulative/Plural marking:	pata- yaan (SG)	pat- een (PL)	‘duck’

(Endo-Marakwet dialect; Zwarts 2001)

Even though these systems have gained some attention in the typological literature (Dimmendaal 2000; di Garbo 2014), there has been limited theoretical work (e.g., Grimm 2012; 2018) on their implications for the syntax of number cross-linguistically. Their characteristics raise questions that any theory should be able to answer, the most important of which is the lack of a one-to-one relationship between semantic and morphological markedness, irrespective of what number value we choose as the semantically unmarked one: a noun can be morphologically marked in either the singular or the plural, and the choice depends on the noun itself. Most ‘standard’ approaches to number, which place number features on the functional projection NumP, cannot account for this pattern without further modifications.

The goal of this chapter is to fill this gap, by providing an analysis of the nominal number system of Kipsigis. I show that nouns in the language are sorted into classes based on inherent number features, which I argue are present on the nominalizing head *n*. It is the interaction between the number features on *n* and those on Num that give rise to the intricate system shown in (1) - (3) above. In the generative literature so far, the Tanoan languages Kiowa and Jemez are the only languages that have been shown to have a number-based noun classification system (Harbour 2007; 2011; Watanabe 2015).²¹ The analysis of the Kipsigis number system, therefore, significantly adds to our understanding of number-based noun classification cross-linguistically. Finally, I show that singulative affixes in Nilo-Saharan are similar to singulatives in Welsh (Stolz 2001; Nurmio 2017), but have important differences from singulatives in Arabic (Ouwayda 2014 a.o.) and Ojibwe (Mathieu 2012), which means that a uniform analysis for all types of singulatives is unlikely.

The remainder of the chapter is structured as follows: in section 2, I describe the morphological expression of nominal number in Kipsigis; in section 3, I present my theoretical assumptions, I discuss why standard approaches to number cannot account for the Kipsigis number system, and I present the details of my analysis; in section 4, I compare the Kipsigis inherently plural class to collectives in languages with singulatives like Arabic and Welsh, and conclude that there are two types of singulatives cross-linguistically; in section 5, I briefly discuss the implications of my analysis for other languages with number-based classification; in section 6, I conclude.

²¹ Bantu languages are famous for having a gender system that reflects both noun class and number, but I focus here on languages where number/individuation is the sole property used for classification purposes.

2. The Kipsigis number system

2.1. Three number classes

We can think of the Kipsigis system of number marking in terms of three different classes of nouns: one class of nouns inflects for number according to the pattern in (1), a second one according to the pattern in (2), and a third one according to the pattern in (3). Once we think of the number system in these terms, we can define the three classes as follows:

(4) Kipsigis number classes:

- a. Inherently singular nouns: these are nouns that are singular in their unmarked form, and form their plural by the addition of a plural suffix. The majority of nouns in the language belong to this category. Example:

peet- <u>u</u> - <u>it</u> → pêtúút	peet- uus - <u>ya</u> - <u>ik</u> → pêtùusyék ²²
day-TH-SEC	day- PL -TH-SEC
‘day (SG)’	‘days (PL)’

- b. Inherently plural nouns: these are nouns that are plural in their unmarked form, and form their singular by the addition of a singulative suffix. Nouns in this category include most (but not all) mass nouns, most insects and small animals, medium-/large-size animals that usually appear in groups (e.g., elephants), some plants, names for groups of people or names of professions (e.g., ‘the Kipsigis’), agent nominalizations, as well as nouns describing entities that tend to appear in groups (e.g., the words for ‘teeth’, ‘fruit’, ‘clouds’, and ‘beads’). Example:

²² Most data in this chapter are presented in this format: the underlying form of the morphemes (before phonological processes take place) on the left of the arrow, and the surface form of the word on the right of the arrow. Tones are presented only in the surface form. The two relevant phonological processes are the following two rules, already mentioned in the previous chapter:

- (i) Vowel coalescence: a + i → ee, e + i → ee, o + i → ee, u + i → uu, i + i → ii
- (ii) Length dissimilation: word-final long vowels are shortened in certain environments (see sections 3.2.2. and 3.3. of the previous chapter for details)

ngeend-yaan-ta-it → ngéendyáat²³
bean-SG-TH-SEC
'bean (SG)'

ngeend-a-ik → ngéendéek
bean-TH-SEC
'beans (PL)'

- c. Numberless nouns: these are nouns that always appear with a number suffix (singulative in the singular and plural in the plural). Few nouns belong to this class, such as the words for 'fish', 'hen', 'socks', 'shoes', 'shoulders', and 'hunter'. Example:

sigis-yaan-ta-it → sigisyáat
sock-SG-TH-SEC
'sock (SG)'

sigis-iin-ik → sigisîinik
sock-PL-SEC
'socks (PL)'

The above brief description of the semantic categories comprising each class leads us to the rough generalization that the inherently plural and numberless classes include nouns denoting entities that appear in groups more often than they appear in units. This generalization seems to hold in all languages with a tripartite system of number marking, both within the Nilo-Saharan language family (Dimmendaal 2000), and outside of it (Grimm 2012; 2018). The converse, though, is not true: there are nouns denoting entities that usually appear in groups that do not belong to these classes, and belong to the inherently singular class instead (for example, both lions and elephants live in herds, but *ngétùndá* 'lion (SG)' is inherently singular, while *pèléléek* 'elephants (PL)' is inherently plural). In general, even though there is a semantic core to the classification in (4), there is still a lot of idiosyncrasy in the system. Moreover, there is variation across speakers, and across dialects with respect to class membership. For example, the word for 'shoe', *kwèyáat*,

²³ This extreme reduction cannot be easily explained by phonology only. We know that *-yaan*, followed by *-ta*, are the underlying morphemes, because they surface as such when the demonstrative suffix is attached to the stem instead of the secondary suffix, as in (iii):

(iii) ngeend-yaan-ta-ni → ngéendyáandáni
bean-SG-TH-PROX
'this bean (SG)'

Moreover, according to Creider & Creider (1989), the reduction to *-yáat* occurs in the unmarked case, but not in the nominative, in some dialects. In Kipsigis, however, the reduction always takes place, irrespective of the case of the noun.

belongs to the numberless class in Kipsigis, but to the inherently plural class in Endo-Marakwet (Zwarts 2001).

All these characteristics are typical properties of noun classification systems cross-linguistically. For example, in Greek, like in many other Indo-European languages, nouns are classified into masculine, feminine and neuter gender. There is a semantic core to the classification system, with animate nouns being assigned masculine or feminine gender according to their biological sex, but there are a lot of exceptions (e.g., *koritsi* ‘girl’ in Greek is neuter, and not feminine). Furthermore, similarly to the situation in Kipsigis, some words have a different gender in different dialects, and for different speakers (e.g., the word for ‘fireplace’, *dzaki*, is neuter in Standard Modern Greek, but is masculine for some speakers). We can conclude that the Kipsigis number classes are similar to gender in languages like Greek, in the sense that nouns are sorted into classes according to some inherent feature; I will show later that the inherent features at play are number features.

2.2. Morphological expression of number

Having outlined the basic characteristics of the three number classes in Kipsigis, we can now turn to the details of how singular and plural number are morphologically expressed for each class in (4). The discussion in this section is limited to the behavior of morphologically underived nouns, but derived nouns do not show significant differences from the description provided here; derived nouns are discussed in greater detail in section 3.2.

As can be seen in the examples in (5)–(6), in their unmarked form, nouns of both the inherently singular and inherently plural classes consist of the root, followed by a thematic suffix, followed by what has been called the ‘secondary’ suffix in previous descriptions of the language (Creider & Creider 1989; Toweett 1979).

(5) Inherently singular nouns – unmarked form (singular)

- | | | |
|----------------------------------------------------------------|------------------------------------------------------------------------------|--------------------------------------------------------------|
| a. ser- <u>u</u> - <u>it</u> → sèrúut
nose-TH-SEC
'nose' | b. <u>laak</u> - <u>wa</u> - <u>it</u> → làakwéet
child-TH-SEC
'child' | c. kar- <u>i</u> - <u>it</u> → kàríit
car-TH-SEC
'car' |
|----------------------------------------------------------------|------------------------------------------------------------------------------|--------------------------------------------------------------|

(6) Inherently plural nouns – unmarked form (plural)

- | | | |
|----------------------------------------------------------------------------|----------------------------------------------------------------------|------------------------------------------------------------------------------|
| a. <u>keel</u> - <u>a</u> - <u>ik</u> → kéeléek
tooth-TH-SEC
'teeth' | b. karat- <u>i</u> - <u>ik</u> → kàràtiik
blood-TH-SEC
'blood' | c. <u>sugar</u> - <u>u</u> - <u>ik</u> → sùgàrúuk
sugar-TH-SEC
'sugar' |
|----------------------------------------------------------------------------|----------------------------------------------------------------------|------------------------------------------------------------------------------|

As can be seen in the examples in (5) – (6), the secondary suffix has the form *-it* in the singular, and *-ik* in the plural. The meaning of the secondary suffix is complicated. Previous analyses of Kipsigis (Tucker & Bryan 1964; Toweett 1975; 1979), as well as analyses of the related dialects of Nandi (Hollis 1909; Creider & Creider 1989), and Endo-Marakwet (Zwarts 2001) report that every noun has a primary form (i.e., a form without the secondary suffix) and a secondary form (i.e., a form with the secondary suffix). Toweett (1975; 1979) and Creider & Creider (1989) point out that the difference in meaning between the two forms is subtle and suggest that the secondary form presupposes the existence of the noun in question, while the primary form does not. Hollis (1909) claims that the secondary suffix is a definite article in Nandi, while Zwarts (2001) argues that this suffix is a specificity marker in Endo-Marakwet. However, with the exception of the singular demonstratives that will be discussed later, my consultants never use a noun without its secondary suffix (irrespective of specificity or definiteness), and many times they even fail to recognize the ‘primary form’ of the noun as an existing word of the language.²⁴ I, therefore, hypothesize that the secondary suffix has historically evolved from a specificity marker (and

²⁴ The primary form of the noun is used for a couple of high frequency nouns, like the word for ‘child’, in the vocative.

possibly still survives as such in other dialects), but is now simply a nominal marker in Kipsigis (see Greenberg 1978 for possible evolution paths of such markers).²⁵

As for the thematic suffixes, they consist of a vowel, or glide + vowel combination, and they cannot be predicted by the phonological shape or semantic content of the nominal root that they attach to.²⁶ More importantly, they are not correlated with the number class of the noun: for example, the inherently singular noun in (5a), *sèrúut* ‘nose’, and the inherently plural noun in (6c), *sùgàrúuk* ‘sugar’, both have the thematic suffix *-u*, despite the fact that they belong to different number classes. The following two tables give a list of the thematic suffixes found with inherently singular and inherently plural nouns in my data, along with an example. The thematic suffixes are presented in order of frequency of occurrence.

<i>Thematic suffix</i>	<i>Example</i>
-a	óorêet (or-a-it) ‘road/clan’
-i	kàrít (kar + i +it) ‘car’
-wa	làakwéet (laak-wa-it) ‘child/girl’
-u	sèrúut (ser-u-it) ‘nose’
-e	chèeréréet (cheerer-e-it) ‘baby/monkey’
-ya	tàrìityét (tariit-ya-it) ‘bird’

Table 5 – Thematic suffixes, inherently singular nouns

²⁵ Further information on the secondary suffix is given in the description of the Kipsigis determiner system in chapter 5.

²⁶ The only loose semantic correlation that could be found was the frequent appearance of the thematic suffix *-wa* in plants’ names.

b. Inherently singular noun/plural marking:

oosn- <u>a</u> - <u>it</u> → òosnêet	oosn- <u>oos</u> - <u>ya</u> - <u>ik</u> → òosnòosyéék
forest-TH-SEC	forest-PL-TH-SEC
‘forest (SG)’	‘forests (PL)’

There are a great number of singulative and plural suffixes in the language, while some nouns form their plural by irregular phonological changes, or suppletion of the stem. In fact, Corbett (2000), in his typological survey of the morphological expression of number in the world’s languages, observes that Nilo-Saharan languages lie at the extreme edge of irregularity in number formation, and considers them a problem for language acquisition due to the apparent lack of any pattern in the formation of singular/plural. However, a careful examination of the number suffixes in Kipsigis reveals that: a) only a small number of inherently singular nouns have irregular plurals, while no inherently plural noun has an irregular singular, and b) the singulative or plural suffix of the noun can be partially predicted by the thematic suffix of the noun in its unmarked form. Moreover, when the number suffixes are followed by a thematic suffix, this suffix is predictable.

There are two singulative suffixes in the language, *-iin* and *-yaan*, both followed by the thematic suffix *-ta*. The suffix *-yaan* is by far the most productive suffix in the language, while *-iin* is only used with human nouns (but not all human nouns take this suffix). Examples:

(9) chuumb- <u>yaan</u> - <u>ta</u> - <u>it</u> → chûumb-yáat	chuumb- <u>i</u> - <u>ik</u> → chûumbíik
salt-SG-TH-SEC	salt-TH-SEC
‘one package of salt’	‘salt (PL)’
(10) sig- <u>iin</u> - <u>ta</u> - <u>it</u> → sigîndét	sig- <u>i</u> - <u>ik</u> → sigíik
parent-SG-TH-SEC	parent-TH-SEC
‘parent (SG)’	‘parents (PL)’

The following table shows the plural suffixes in the language (excluding irregular processes). They are given in the form that they have when merged with the secondary suffix *-ik*, because it is not clear whether the plural suffix is decomposable into a number suffix and a thematic suffix,

since nouns are never used without their secondary suffix in the plural. Previous descriptions of the language, though, which were composed when primary forms were still in use, state that, with the exception of the plural suffix *-V:s*, which is followed by the thematic suffix *-ya*, all other plural suffixes are followed by the thematic vowel *-i*.

<i>Plural suffix (in the form of ending)</i>	<i>Them. suffix in singular</i>	<i>Example</i>
-oosyek	-a	òosnêet-òsnòosyék 'forest'
-iisyek	-i	kàrìit-kàrìisyék 'car'
-uusyek	-u	pêetúut-pêetùusyék 'day'
-oonik	-wa	símàatwét-simàatòoník 'twin'
-oonok	-wa	àywéet-àònóok 'axe'
-uunek	-u	éúut-èùunék 'hand'
-ooy	-a	sâunéet-sâunóok 'type of tree'
-ay	-a	mógôombéet-mógôombáiiik 'hoe'
-wa	∅	ásîistá-ásîiswék 'sun'

Table 7 – Major plural suffixes (excluding irregular/rare processes)

The thematic suffix of the noun in its unmarked singular form is indicated in the table, and we see that each plural suffix can only appear with nouns that have a specific thematic suffix in the singular (the reverse is not true: nouns with an *-a* thematic suffix, for example, could take three different plural suffixes). Therefore, we see that thematic suffixes are associated with the declension class of the noun. They seem, then, to be very similar to thematic vowels linked to declension class in Indo-European languages. In Spanish, for example, there are three declension classes for nouns, each one of which is associated with a thematic vowel (which could be zero in the third class, in the same way that some Kipsigis nouns have a zero thematic suffix). These thematic vowels cannot be predicted by the gender, phonological shape, or semantic content of the nominal root (Roca 1989; Aronoff 1994 among others). These are exactly the characteristics of the Kipsigis thematic suffixes. I do not provide a detailed analysis of Kipsigis thematic suffixes in this

chapter, but I assume that they reflect declension class, which is generally agreed not to play an active role in syntactic derivation (Aronoff 1994; Oltra-Massuet 1999; Alexiadou 2004; Oltra-Massuet and Arregi 2005; Embick and Halle 2005; Alexiadou and Müller 2008).

In sum, this is the morphological make-up of underived nouns, depending on their number class:

(11)a. Inherently singular nouns

SG: root – thematic suffix – secondary suffix

PL: root – plural suffix – (thematic suffix) – secondary suffix

b. Inherently plural nouns

SG: root – singulative suffix – thematic suffix – secondary suffix

PL: root – thematic suffix – secondary suffix

c. Numberless nouns

SG: root – singulative suffix – thematic suffix – secondary suffix

PL: root – plural suffix – (thematic suffix) – secondary suffix

2.3. The semantics of number

Even though the pattern of number marking in the language looks exotic from an Indo-European perspective, the syntactic distribution and semantics of plural nouns in Kipsigis is very similar to that of plural nouns in English, independently of whether the noun is morphologically marked or not in the plural. First, numerals modify plural nouns, marked or unmarked, as shown in (12).

(12)a. Unmarked plural of inherently plural noun

peel- <u>a</u> -ik	somok → pèeléek sómòk
elephant-TH-SEC	three
‘three elephants’	

b. Marked plural of inherently singular noun

laak-oy-ik	somok → làagóok sómòk
child-PL-SEC	three
‘three children’	

Second, both marked and unmarked plural nouns can receive a kind interpretation, similar to English bare plurals.

(13)a. Unmarked plural of inherently plural noun

Pèeléék (peel-a-ik) kó tyángîik chè êechèen.
 elephant-TH-SEC TOP animals.PL REL.PL big.PL
 ‘Elephants are big animals.’

b. Marked plural of inherently singular noun

Púgùusyék (pug-uus-ya-ik) kó kárâarán éen ínyêe
 book-PL-TH-SEC TOP good.PL for you
 ‘Books are good for you.’

Third, both marked and unmarked plurals have an inclusive interpretation, just like English, as shown in (14) – (15).

(14) Unmarked plural of inherently plural noun

a. Í-géer-é sólòbêek (solop-a-ik)-í?
 2SG-see-IPFV cockroach-TH-SEC-Q
 ‘Do you see cockroaches?’

b. Êe, á-géer-é àgêengè.
 yes 1SG-see-IPFV one
 ‘Yes, I see one.’

(15) Marked plural of inherently singular noun

a. Tíny-è Kíbêet làagóok (laak-oy-ik)-í?
 have.3-IPFV Kibeet.NOM child-PL-SEC-Q
 ‘Does Kibeet have children?’

b. Êe, tíny-è Kíbêet làakwéet (laak-wa-it) àgêengè.
 yes have3-IPFV Kibeet.NOM child-TH-SEC one
 ‘Yes, Kibeet has one child.’

Furthermore, I show in section 4.1. that the mass/count distinction in the language is orthogonal to the classification of nouns into number classes. We can, therefore, conclude that the syntax and

semantics of number in Kipsigis is not fundamentally different from that of languages like English, and that the complicated system of number marking is a morphological phenomenon.

3. The analysis

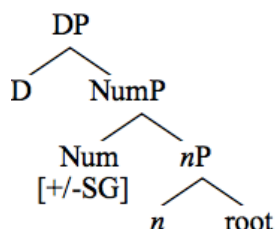
In this section, I first lay out my theoretical assumptions in 3.1, and I discuss why the standard theory of nominal number, with number features on NumP alone, cannot account for the pattern of number marking in Kipsigis. Then, I present my analysis in three steps: in 3.2, I argue in favor of number features on *n* in Kipsigis that divide nouns into three number classes; in 3.3, I show how the interaction of the number features on *n* with those on Num can account for the tripartite pattern of number marking; in 3.4, I briefly discuss how number agreement works in the language.

3.1. Theoretical assumptions

In my analysis of the Kipsigis number system, I will be adopting the assumptions of Distributed Morphology (DM) (Halle & Marantz 1993), which were discussed in the Introduction. A DM assumption of particular importance to the topic of this chapter is that lexical categories are composed of a categorizing head and a category-neutral root (Marantz 1997; 2001; Arad 2003; 2005; Embick and Noyer 2007; Harley 2014 among others). For example, nouns are built by merging a nominalizing head (little *n*) with a category-neutral root.

Following Ritter (1991), Carstens (1991), Bernstein (1993), among many others, I assume that number features are hosted in the functional projection NumP. These are the number features that are interpreted semantically at LF. I follow Harbour (2011) in assuming that number features are bivalent and have [+/-SG] values. The former characteristic is crucial for the analysis, but the latter is not; [+/-PL] features would make the same predictions, and the choice simply depends on which number value we want to treat as semantically marked. The structure of a simple DP in Kipsigis is then the following:

(16) DP structure



For the purposes of this dissertation, I assume that D is occupied by the secondary suffix in Kipsigis. This suffix has historically evolved from a specificity marker, and it is in complementary distribution with the demonstrative suffix in the singular. However, there is no strong evidence showing that this suffix is in D, and more research is needed to understand its behavior. The position of the secondary suffix and/or content of D in the language, though, is not crucial for the analysis to be presented in this chapter, which works as long as the secondary suffix is in a position higher than NumP (the position of the secondary suffix in D becomes important in Chapter 5).

The exact role and syntax of thematic suffixes is left as a topic for further research, but for the purposes of this chapter, I will treat them on a par with theme vowels in Romance languages (their similarities were briefly discussed in section 2.2). The DM consensus for theme vowels in Romance is that they are inserted post-syntactically as adjoined nodes to *nP* and/or NumP (see Kramer 2015: 235-243 for an overview of previous analyses and for a detailed analysis of Spanish theme vowels). Thematic suffixes in Kipsigis appear after the root (or after the nominalizing suffix in the case of nominalizations), similarly to theme vowels in Spanish. However, unlike Spanish where theme vowels appear before the plural suffix, thematic suffixes in Kipsigis are placed after the singulative or plural suffix if they are present.²⁸ In this case, the thematic suffix of the noun in

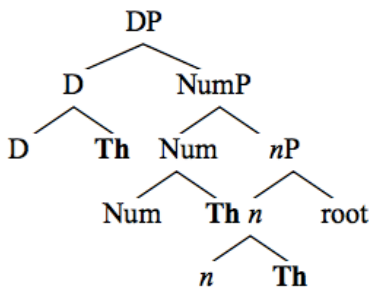
²⁸ As was discussed in section 2, it is not entirely clear whether a thematic suffix is present between the plural suffix and the secondary suffix due to their phonological coalescence (the presence of the thematic suffix after singulatives is straightforward). However, previous analyses of the language, when the morphophonology was more transparent, postulate the presence of a thematic suffix following all plural suffixes in the language.

its unmarked form is absent; only one thematic suffix per noun is overt at any time. Moreover, the thematic suffix of a noun in its unmarked form is dependent on the root (or nominalizing suffix in the case of nominalizations), but the form of the thematic suffix present after number suffixes is predictable by the number suffix, not the root. Therefore, in (17), the inherently plural noun *pèelék* ‘elephants’ has an *-a* thematic suffix in its unmarked plural form, which is absent in the marked singular form. In this case, the singulative suffix *-yaan* is followed by the thematic suffix *-ta*.

- (17) a. peel-a-ik → pèelék
 elephant-TH-SEC
 ‘elephants’
- b. peel-yaan-ta-ni → pèelyándáni
 elephant-SG-TH-DEM
 ‘this elephant’²⁹

A theory of theme vowels that can (with a small modification) account for the basic facts in Kipsigis is Oltra-Massuet (1999) and Oltra-Massuet & Arregi’s (2005) analysis of Catalan and Spanish theme vowels. According to this theory, a theme node is inserted post-syntactically adjacent to every functional node (including categorizing heads) because of a well-formedness condition on words. Extending this theory to Kipsigis, thematic nodes are inserted post-syntactically to the functional heads in (16) above, as shown in (18).

(18) Post-syntactic thematic node insertion



In Oltra-Massuet & Arregi’s (2005) theory of Spanish, thematic nodes are present for all functional heads, as shown in (18), and the exponence of each node is determined by the closest head (usually the head it adjoins to) due to locality conditions on contextual allomorphy. This can

²⁹ See (4b) and footnote 23 for some complications with this particular singulative-thematic suffix combination.

explain why in Kipsigis the thematic suffix is dependent on the root in the unmarked form of the noun, but on the particular number suffix in the marked form. Moreover, for Oltra-Massuet & Arregi (2005), only one node in (18) is pronounced. For Spanish, this node is the one below Num (this ensures that the highest little *n* thematic node is pronounced, but the Num thematic node is not). However, as was already discussed, in Kipsigis the situation is a bit different, with the thematic suffix appearing after the number suffix, and with the noun-specific thematic suffix being absent in this case. Therefore, in both languages only one of the nodes is pronounced.³⁰ However, the choice of the node to be pronounced is different in the two languages. This implies that the choice of which thematic node to pronounce is subject to parametric variation. In Kipsigis, the thematic node to be pronounced is the node adjacent to Num.³¹ In the absence of an overt number suffix though, we saw that the form of the thematic suffix is dependent on the root. We will see in the next section that given the analysis of number morphology outlined in this paper, there are two possible analyses for this observation.³²

Moving on to why the standard approach to number cannot account for the Kipsigis pattern, we return to the structure in (16). This structure is relatively uncontroversial, and number suffixes cross-linguistically are generally seen as the spell-out of number features on Num. For example, in English it is accepted by most that the plural suffix *-s* is the exponent of a [-SG] Num head,

³⁰ Both Spanish and Kipsigis also have athematic nouns, i.e., nouns without a thematic vowel. It is an open question whether this is a zero allomorph of the thematic suffix or whether there is something fundamentally different about the structure of these nouns.

³¹ It is, of course, possible that the number morpheme in Kipsigis is different from the number morpheme in Spanish (i.e., they spell out a different node in the syntax), which could potentially explain the different (surface) position of the thematic suffixes in the two languages. However, I treat the number morphemes as exponents of Num in both languages in this chapter.

³² Kramer (2015) shows that the post-syntactic insertion of theme nodes is not enough to account for the distribution of theme vowels in Spanish; declension class features/diacritics are also needed. It is almost certain that these features are also necessary for a complete analysis of Kipsigis thematic suffixes, since the presence of different plural suffixes, which are always correlated with the thematic vowel in the unmarked form of the noun, can be seen as a declension class system. However, the morphosyntax of thematic suffixes, as well as the details of the particular plural suffix to be chosen by a noun, are not the focus of this chapter.

while zero is the elsewhere case (spelling out a [+SG] Num head, or nouns not specified for number, such as mass nouns). If we do not make any modifications to the ‘standard’ approaches to the morphosyntax of number, we would have to postulate the following spell-out rules for number suffixes in Kipsigis:

(19) Spell-out rules for number morphology in Kipsigis (preliminary version)

- a. Num[-SG] → plural suffix / {inherently singular nouns, numberless nouns}
- b. Num[-SG] → ∅ / {inherently plural nouns}
- c. Num[+SG] → ∅ / {inherently singular nouns}
- d. Num[+SG] → singulative suffix/ {inherently plural nouns, numberless nouns}

However, this approach, which employs the standard DP structure in (16) and contextual allomorphy (in the form of the spell-out rules in 19), fails to capture a number of important characteristics of the Kipsigis number system. First, in the rules in (19), the number class of a noun is crucial to predicting the number allomorph that the noun will take, but nothing in the system accounts for why specific nouns belong to a specific number class. In other words, the system does not explain the semantic generalizations that characterize the number classes (i.e., nouns denoting entities that usually appear in groups tend to belong to the inherently plural class). A related problem is the fact that the zero exponence of Num[+SG] or Num[-SG] is accidental and arbitrary in (19), but ideally our theory should explain why nouns of each number class appear unmarked in a number value that is related to their semantics. Second, in Kipsigis, nouns of the numberless class have the same singulative suffix as the inherently plural nouns in the singular, and the same plural suffix as the inherently singular nouns in the plural. Similarly to the problem of zero exponence, the rules in (19) do not explain why this should be the case for numberless nouns – the identity of the singulative and plural suffixes with those of the inherently plural and inherently singular nouns respectively is simply an accident. Finally, the rules in (19), without further

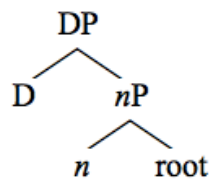
modifications, cannot account for the number morphology of mass nouns in the language: mass nouns in Kipsigis are either singular (20) or plural (21), depending on the number class they belong to. They never appear with a number suffix (singulative for the inherently plural ones and plural for the inherently singular ones) when they have their typical mass interpretation.

(20) roop-ta → ròoptá Inherently singular mass noun
rain-SEC
‘rain’

(21) karat-i-ik → kàràtíik Inherently plural mass noun
blood-TH-SEC
‘blood’

It is generally accepted that mass nouns are number-neutral, and in most languages they have unmarked number morphology (e.g., mass nouns in English appear in the singular, which is the morphologically unmarked form of the noun). In many syntactic approaches to the mass/count distinction, it is assumed that one correlate of the number neutrality of mass nouns, and their appearance in the unmarked number form, is the lack of a NumP projection in their extended projection (Borer 2005; Harbour 2007; Kučerová & Moro 2012 among others). If we assume that mass nouns have the structure in (22), there is no straightforward way to explain why some mass nouns have singular morphology, while others have plural morphology in Kipsigis.

(22) Structure of the DP – mass nouns



In brief, if we assume that number features are always placed on NumP as in (16), we have to assume the spell-out rules in (19), which fail to capture important generalizations of the Kipsigis number system. A better analysis should be able to formalize the semantic generalizations of each

number class, and derive the morphological exponence of number from those semantic generalizations. Such an analysis is outlined in the remainder of this section.

3.2. Noun classes defined by number features on *n*

As was discussed in section 2.1, the Kipsigis noun classification system has similarities to gender in other languages, and I will argue that an analysis of the number classes along the lines of previous analyses of gender can explain the tripartite system of number marking in the language. Gender usually plays an active role in syntactic derivation (e.g., it determines agreement), which is why most previous analyses of gender postulate the existence of gender features within the DP. Any analysis of gender, then, should elaborate on the nature of these features and on their exact position in the syntactic structure. Regarding the first question, there is disagreement in the literature on whether these features should be privative or bivalent, interpretable or uninterpretable, but it is generally accepted that the features responsible for gender in a given language reflect the semantic notion based on which classification takes place. For example, it is generally accepted that in a sex-based gender system of the Indo-European type, some sort of [FEM] or [MASC] features should be at play. As for the position of these gender features, there have been a number of different proposals. Among the proposals that see gender as a property of nouns, there are those that place gender features on the nominalizing head *n* (e.g., Ferrari 2005; Lowenstamm 2008; Acquaviva 2009; Kramer 2015), and those that see gender as an inherent property of the nominal root (e.g., Alexiadou 2004; Carstens 2010); the latter usually include a mechanism that translates this property of nouns into syntactic features that can participate in agreement. There are also proposals that place gender features on various projections within the DP: Ritter (1993) suggests that Num, in addition to number features, can also host gender features, Picallo (1991) proposes the existence of a functional projection GenP responsible for gender features, while Steriopolo &

Wiltschko (2010) suggest that gender features can be distributed on a variety of positions within the DP (the root, the nominalizing head, and D).

I suggest that, in the case of Kipsigis, the noun's inherent features are number features, which are hosted on the nominalizing head, little *n*. Number features on *n* have been suggested in a number of previous studies, but not in the form of features used robustly for noun classification (e.g., Alexiadou 2011 for Greek; Kramer 2009; 2016 for Amharic; Acquaviva 2008 for lexical plurals in various languages; Lecarme 2002 for Somali). There are three possible types of *n* in the language, which divide nouns into the three number classes:

(23) Kinds of *n* in Kipsigis

- a. *n*[+SG]: inherently singular nouns
- b. *n*[-SG]: inherently plural nouns
- c. plain *n* (no number features): numberless nouns

Each noun in Kipsigis belongs to one number class only, which means that a nominal root can appear in the context of only one of the nominalizing heads in (23). This means that there must be a mechanism in the grammar responsible for matching a root with the right nominalizing head. Within the DM literature, this mechanism usually has the form of various types of licensing conditions for roots. I do not think that the data presented in this paper support or contradict any particular theory of root licensing, and the reader is referred to Acquaviva (2009) and Kramer (2015) for different implementations of licensing conditions of roots under nominalizing heads with particular features.

The choice of [+/-SG] features as the inherent features at play is motivated by the semantics of the Kipsigis noun classes. As was discussed in section 2.1, the Kipsigis noun classes are semantically coherent: nouns in the inherently singular class are count nouns that usually appear in units, while nouns in the inherently plural class are mass nouns and nouns that usually appear

in groups. The latter class comprises nouns that have been associated with plural semantics in the literature. More specifically, the semantic resemblance between plural nouns and mass nouns is well-known (e.g., Link 1983), and influential semantic accounts of the mass/count noun distinction suggest that mass nouns are specified as being plural in the lexicon (e.g., Chierchia 1998). Furthermore, the other nouns that appear in the inherently plural class of Kipsigis correspond to the nouns that Grimm (2012) calls ‘aggregate nouns’: nouns denoting entities that usually come together in groups, such as insects and granular substances. In Grimm’s (2012) survey of languages with a tripartite system of number marking (Welsh, Maltese, Turkana, and Dagaare), he finds that aggregate nouns form a class in all those languages, and are incompatible with the plural morphology found on other count nouns. It, therefore, makes sense to associate the nouns found in the inherently plural class with plural number features, and those in the inherently singular class, with singular number features. The existence of the numberless class, in addition to these two, motivates the claim that number features are bivalent.

This number-related semantic coherence of the Kipsigis noun classes resembles the semantic coherence of the noun classes in the Tanoan languages Kiowa and Jemez, which are not related to Kipsigis. Harbour (2007; 2011) provides convincing evidence that the only way to capture the complicated number agreement pattern in these languages, as well as the semantic coherence of the noun classes, is to postulate bivalent number features used to sort nouns into classes. The existence of these systems supports the claim that number features can be an inherent property of nouns in some languages, and I will provide a brief description of the Kiowa noun classification system, and compare it to Kipsigis, in section 5.

Turning now to the choice of little *n* as the locus of inherent number features in Kipsigis, there are a number of arguments in favor of this position. First, even though most syntactic categories

in the language are inflected for number, only nouns show the tripartite system of number marking (in other words, only nouns are divided into number classes). For example, adjectives, which show a morphological distinction between singular and plural, are unmarked in the singular, and mark the plural with a plural suffix, as seen in (24). Crucially, there is no adjective that is unmarked in the plural, but marked in the singular, which is the case for a whole class of items in the nominal domain.

(24) a. làakwéet nè tóròor
 girl.SG REL.SG tall.SG
 ‘a tall girl’

 b. làagóok sómòk chè tórôor-èen
 girl.PL three REL.PL tall-PL
 ‘three tall girls’

Since these number classes are limited to the syntactic category of nouns, it is expected for class features to be associated with the categorizing head that turns roots into nouns, i.e., little *n*.

Second, as Kramer (2015) points out in her argument in favor of gender features (such as [+/- FEM] for sex-based gender systems) on *n*, the Kipsigis number class system is root-specific (i.e., the number class of a certain noun is idiosyncratic and depends on the root), and exhibits paradigmatic gaps in the allowable combinations of *n* and roots (i.e., not all roots are possible with all types of *n* and vice versa), which are often cited as characteristics of the relationship between the root and a categorizing head (Marantz 2001).³³

The third (and strongest) argument in favor of class features on *n* comes from the behavior of derived nominals with respect to number morphology. With the exception of a couple of

³³ The claim that the number class of a noun is idiosyncratic might seem to contradict my earlier claim that the Kipsigis number classes are semantically coherent. However, as was briefly discussed in section 2.1., despite the robust semantic core in the classification, there are still many exceptions; in other words, it is not possible to reliably predict the number class of a noun just by knowing its lexical semantics.

nominalizing prefixes, derived nominals in the language are formed by the addition of a nominalizing suffix to a verbal or adjectival stem. This nominalizing suffix is followed by one of the thematic suffixes also encountered with common nouns (the thematic suffix in this case is dependent on the nominalizing suffix), followed by a secondary suffix, as shown in (25).

- (25) cham-an-a-it → chámànéét (patient nominalization, verb *kèe-chám* ‘to love’)
 love-PAT-TH-SEC
 ‘loved one (SG)’

Crucially, derived nominals follow the tripartite system of number marking: some nominalizing suffixes turn verbs/adjectives into inherently singular nouns, while others turn them into inherently plural nouns. For example, patient nominalizations, like the one in (25) above, are derived by the addition of the suffix *-an* to a verbal stem. This suffix forms a singular noun, which forms its plural by the addition of the *-oosyek* plural suffix (also used with common nouns; cf. table 3), as seen in (26). It, therefore, has the same behavior as inherently singular nouns.

- (26) cham-an-oos-ya-ik → chámànòosyék
 love-PAT-PL-TH-SEC
 ‘loved ones (PL)’

Agent nominalizations, on the other hand, are derived by the addition of a null [+ATR] suffix to the verbal stem, which forms a plural noun, as seen in (27). This noun forms its singular by the addition of the singulative suffix *-iin* (followed by the thematic suffix *-ta*), which is the same singulative suffix used with human common nouns (cf. example 8a). We see, thus, that agent nominalizations have the same behavior as inherently plural nouns.

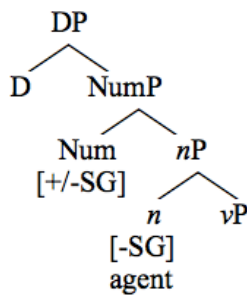
- (27) choor-∅_[+ATR]-iin-ta-it → chòòriíndét choor-∅_[+ATR]-i-ik → chòòríik
 steal-AG-SG-TH-SEC steal-AG-TH-SEC
 ‘thief (SG)’ ‘thieves (PL)’

Verbs and adjectives are not divided into number classes, and therefore, the inherent number value of derived nominals must come from the number value of the nominalizing suffix. The

following quote from Toweett (1975: 59) illustrates the fact that these suffixes are specified for number: ‘the functional and number suffixes coincide; to separate them is not realistic’ (where ‘functional’ refers to nominalizing suffixes).

Adopting the relatively uncontroversial assumption that nominalizing suffixes are the spell-out of a nominalizing head *n* that merges with an *xP* to form a noun (Arad 2003; 2005 among others), the inherent number value of suffixes implies that *n* carries number features in Kipsigis. For example, agent nominalizations in Kipsigis have the structure in (28), where a nominalizing suffix with agent semantics and a [-SG] feature merges with a *vP*.

(28) Agent nominalizations



We do not find any derived nominals in the numberless class, i.e., the class where nouns are marked in both the singular and the plural. Moreover, the numberless class is very small in Kipsigis: even though my data do not represent an exhaustive list of nouns in the language, only about ten nouns in my field notes belong to this class. These observations suggest that nominalizing heads without any number features (plain *n* in 23) are rare in Kipsigis. However, there is nothing in the theory that would explain why the numberless class should be less productive than the inherently singular and inherently plural classes. However, this is a welcome result, because in other Nilo-Saharan languages with the same three number classes discussed in Dimmendaal (2000), the numberless class seems to be more productive than in Kipsigis. For example, Dimmendaal (1983a), in his detailed study of Turkana (Eastern Nilotic; Kenya), shows

that the numberless class contains many nouns, and also gives various examples of derived nominals that belong to this class. Therefore, the small size of the numberless class in Kipsigis is probably an accident.

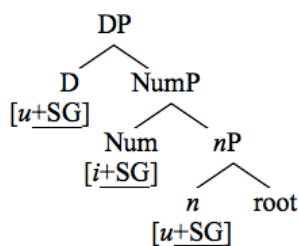
Before closing this section, a note has to be made on the interpretability status of the Kipsigis number features on *n*. I follow Harbour (2007) in assuming that these number features are uninterpretable, in the sense that they are not assigned a semantic interpretation at LF. In fact, if they were interpretable, there would be a semantic clash at LF with the interpretable number features on Num. Such a view forces me to adopt the assumption that uninterpretable features that are not ‘checked’ by an interpretable counterpart on another head do not lead the derivation to crash, as is assumed in ‘standard’ Minimalism (Chomsky 2001 among others); rather, it is unvalued features that lead the derivation to crash (Harbour 2007; Carstens 2010; Kramer 2015).

3.3. The tripartite system of number marking

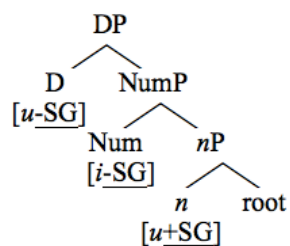
We have seen so far that the nominalizing head has uninterpretable number features ([+SG] for inherently singular nouns, [-SG] for inherently plural nouns, and none for numberless nouns), and that the functional projection NumP has interpretable number features [+/-SG], which determine whether a noun is to be interpreted as singular or plural at LF. Moreover, D is occupied by the secondary suffix, which agrees with Num in number (more details on this in the following section). This means that we have the following possible structures for the singular and plural of nouns from the three classes.

(29) Inherently singular nouns

a. Singular

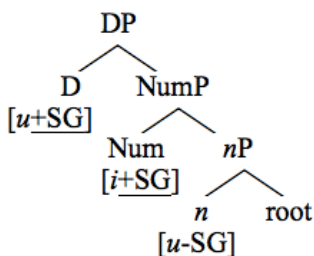


b. Plural

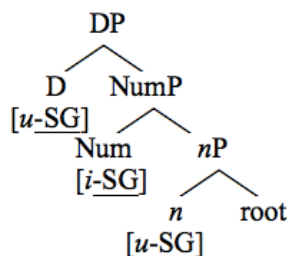


Inherently plural nouns

c. Singular

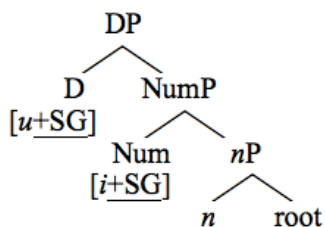


d. Plural

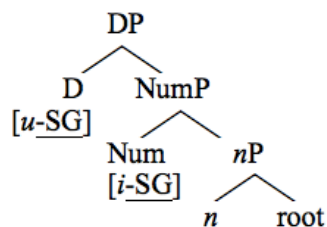


Numberless nouns

e. Singular



f. Plural



With the syntactic structures in place, we need to define the Vocabulary Insertion (VI) rules to account for the exponence of number morphology for each class of nouns. First, the nominalizing head has no overt exponent for underived nouns. Second, number suffixes in the language spell-out the Num head: a [+SG] head is spelled-out as a singulative suffix, and a [-SG] head as a plural suffix. Third, a [+SG] D head is spelled-out as the singular form of the secondary suffix, while a [-SG] D head is spelled-out as the plural form of the secondary suffix:

(30) VI rules for the Kipsigis DP:

- a. $n \leftrightarrow \emptyset$
- b. Num[+SG] \leftrightarrow singulative suffix
- c. Num[-SG] \leftrightarrow plural suffix³⁴
- d. D[+SG] \leftrightarrow *it*
- e. D[-SG] \leftrightarrow *ik*

The rules in (30) can easily account for all the cases where number is marked (structures b, c, e, and f in 29 above). In all these cases, there is a singulative or plural suffix present, which spells out the respective Num head. What about (29a) and (29d) though, i.e., the unmarked forms of inherently singular nouns and inherently plural nouns respectively? We observe that (29a) and (29d) are the only two structures where the number features on *n* are exactly the same as those on Num: there are two adjacent [+SG] features in the singular of inherently singular nouns, and two adjacent [-SG] features in the plural of inherently plural nouns. I suggest that for reasons of morphological dissimilation (which is common cross-linguistically; see Nevins 2012 for an overview of such morphological dissimilation phenomena), when two identical [α SG] are structurally adjacent, the highest terminal node hosting this feature is deleted via the post-syntactic operation of *obliteration*, which has been proposed independently to account for allomorphy in the *g-/z-* constraint in Basque (Arregi & Nevins 2007), and for contextual allomorphy in Romance clitics (Calabrese 2011; Pescarini 2010).

(31) Obliteration: Delete an [α SG] Num node when it dominates an [α SG] node.³⁵

³⁴ There are a variety of singulative and plural suffixes in the language. I assume that the choice of a particular suffix is dependent on the *nP*, with Num[+/-SG] having different allomorphs depending on the *nP* involved.

³⁵ It might seem counterintuitive that it is the node with interpretable number features that is deleted. However, it captures the intuition that a noun does not inflect for number in the number value that is already included in its lexical meaning.

As a result of (31), which applies post-syntactically, the Num node in (29a) and (29d) is deleted before VI, and no number suffix is inserted, hence the unmarked form of the noun.³⁶ A complete derivation for the singular and plural form of an inherently plural noun is shown in (32) – (33). In (32), the marked form of the noun, all terminal nodes in the structure are assigned phonological material at VI. In (33), on the other hand, the Num node has the same number features as *n* and is, thus, deleted post-syntactically via the operation of obliteration. As a result, no vocabulary item is inserted in this node.

As for the exponence of thematic suffixes, they are the spell-out of theme nodes inserted post-syntactically; the only node to be pronounced though is the one adjacent to Num (the details were discussed in 3.1.). In the unmarked form of the noun, the only overt thematic suffix is the one predicted by the root. Given the analysis outlined here, there are two possible explanations for this fact. The first possibility is that the insertion of theme nodes is ordered after the operation of obliteration. As a result of the deletion of the Num node, there is no theme node inserted in this position, and the node adjacent to little *n* is the one that is spelled out overtly instead. The second possibility is that the theme node is inserted adjacent to Num before obliteration takes place, and it is the node that is spelled out at VI. However, because the Num node is deleted before VI, the allomorph chosen at VI for the Num theme node is determined by the next closest element, which in this case is the *n* – root. More data are needed to determine which analysis is the right one, and

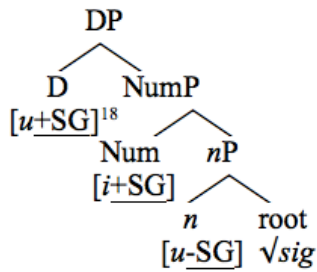
³⁶ Obliteration is different from *impoverishment*, which is the operation commonly used in DM for morphological dissimilation phenomena. Impoverishment deletes a feature from a terminal node, but a vocabulary item matching the resulting features has to be inserted in that terminal node at VI, while obliteration deletes the terminal node altogether and no vocabulary item is inserted. In this particular case, I prefer obliteration because there is no overt material on Num in the unmarked forms of inherently singular and inherently plural nouns. However, impoverishment could still be used: one could say that the [+SG] or [-SG] feature on Num is deleted, and the vocabulary item ‘inserted’ for a feature-less Number node is zero.

I will prefer the first one in this chapter. The ordering of operations and specific VI rules are illustrated in the derivations in (32) - (33).

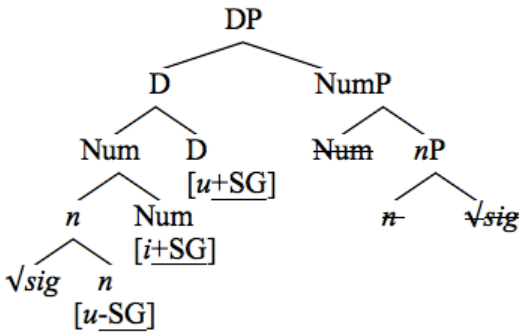
(32) Singular form of inherently plural noun *sig̃iik* ‘parents’

a. Surface form:
sig-iĩn-ta-it → *sig̃iindét*
 parent-SG-TH-SEC
 ‘parent’

b. Syntactic structure:³⁷

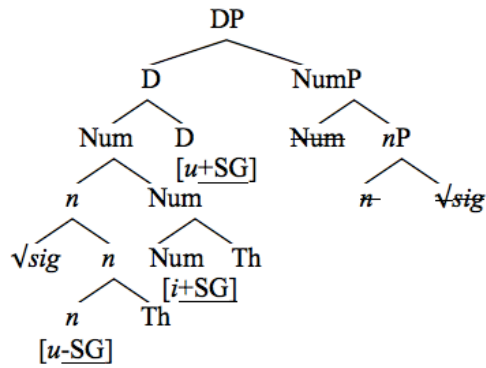


c. Word creation (=complex head) via Head Movement



³⁷ D enters the derivation with an unvalued [SG] feature, which is valued through Agree via a mechanism that is outlined in section 3.4. An observant reader might wonder why [+SG] on D is not deleted via obliteration because it has an identical number value as Num, which is adjacent. I assume that there is a fundamental difference between D’s number features and those on Num and *n*, which is due to the fact that the latter come out valued from the lexicon, while the former get their value via Agree.

d. Post-syntactic operations: Insertion of theme nodes ³⁸



e. Vocabulary Insertion:

$\sqrt{sig} \leftrightarrow sig$

$n[u-SG] \leftrightarrow \emptyset$

$Num[i+SG] \leftrightarrow iin$

$Th(Num) \leftrightarrow ta$

$D[u+SG] \leftrightarrow it$

(no other theme node in the structure is pronounced)

f. Phonological operations: sigîindét

(33) Plural form of inherently plural noun *sigîik* ‘parents’

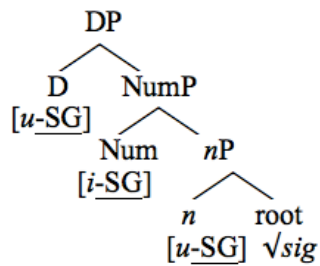
a. Surface form:

$sig-i-ik \rightarrow sigîik$

parent-TH-SEC

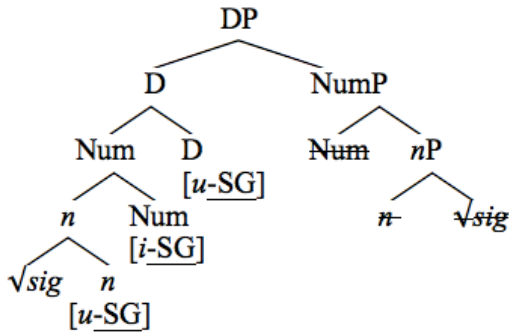
‘parents’

b. Syntactic structure:



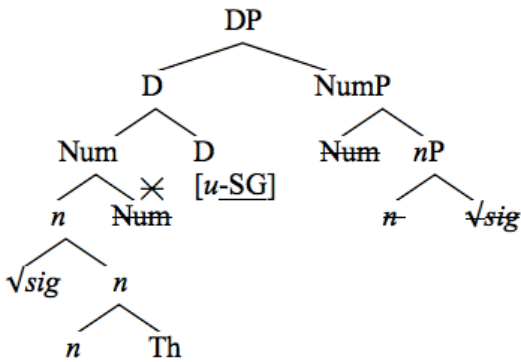
³⁸ I do not represent here the insertion of a theme node on D, but according to Oltra-Massuet’s theory (1999), there is a theme node inserted for each functional head.

c. Word creation (=complex head) via Head Movement



d. Post-syntactic operations:

- i) Obliteration of the Num node
- ii) Insertion of theme nodes



e. Vocabulary Insertion:

$\sqrt{sig} \leftrightarrow sig$

$n[u-SG] \leftrightarrow \emptyset$

$Th(n) \leftrightarrow i$

$D[u-SG] \leftrightarrow ik$

(no other theme node in the structure is pronounced)

f. Phonological operations: sigiik

Let's now turn to the number morphology of mass nouns. As was discussed in 3.1., it is generally accepted that mass nouns lack a NumP projection. Since number suffixes are always the spell-out of Num in Kipsigis, it is predicted that mass nouns will appear without a number suffix, that is, mass nouns in Kipsigis are predicted to be morphologically unmarked with respect to number. However, since *n* can host number features in the language, it is predicted that mass nouns

can be either plural or singular in their unmarked form, depending on whether the features on *n* are [-SG] or [+SG]. This prediction is borne out: mass nouns are unmarked when they have their typical mass interpretation (they could be marked only when their meaning is coerced into that of a portion/unit, in which case we can assume the presence of Num), and belong to either the inherently plural or the inherently singular class, as shown in (34) – (35).

(34) puy-wa-it → púywêet Inherently singular mass noun
 dust-TH-SEC
 ‘dust’

(35) karat-i-ik → kàràtíik Inherently plural mass noun
 blood-TH-SEC
 ‘blood’

One might wonder whether we find mass nouns that belong to the numberless class, which is a possibility given the analysis outlined here. However, our theory predicts that a numberless mass noun would be unmarked for number, which means it would look identical to inherently singular mass nouns on the surface. The only way to differentiate between a numberless mass noun and an inherently singular mass noun is through their morphological behavior when coerced into a portion reading: a numberless mass noun would have a singulative suffix in the singular portion interpretation, and a plural suffix in the plural portion interpretation, while an inherently singular mass noun would be unmarked in the former case, and would have a plural suffix in the latter. I have not found any examples of numberless mass nouns in my data. However, according to Dimmendaal (2000), some Nilo-Saharan languages (which have the same three number classes as Kipsigis) have a class of nouns that behave exactly like numberless mass nouns are expected to behave in my theory. As shown in the Shatt (Daju; Sudan) example below, the unmarked form of the noun for ‘teeth’ has a mass/collective interpretation (36a), the form with a singulative suffix has a singular count interpretation (36b), and the form with a plural suffix has a plural count

interpretation (36c). Therefore, the analysis presented in this chapter correctly predicts the existence of this class of nouns in languages with a Kipsigis-type number system.

- (36) a. nyix b. nyix-te c. nyix-ke *Shatt*
 ‘set of teeth’ ‘tooth(sg)’ ‘teeth(pl)’
 (Tucker & Bryan 1966: 235 via Dimmendaal 2000: 242)

To sum up, nouns in Kipsigis belong to different classes depending on the number features present on *n*, and appear unmarked when they merge with a Num head that has the same number features as *n* because in this case Num is deleted post-syntactically for economy reasons. The operation of obliteration formalizes the intuition that nouns in Kipsigis appear unmarked in the number value that is already included in the nominal meaning. Therefore, the analysis presented here not only captures the semantic generalizations characterizing the Kipsigis noun classes, but also links these semantic generalizations to the markedness pattern that we observe in number marking. Furthermore, this analysis can account for the number morphology of mass nouns and derived nominals in the language. In the following section, I briefly discuss how number agreement works in the language.

3.4. Number agreement

In the theory presented in this chapter, number features are present on both the nominalizing head *n* and the functional head Num, and these features can sometimes be in conflict with each other (in the plural of inherently singular nouns, and in the singular of inherently plural nouns). This raises the question of how the features in each position affect agreement (within and outside the DP), which is especially interesting given the increasing interest in mixed agreement patterns with hybrid nouns in various languages (Landau 2016; Despić 2017; Kučerová 2018 among many others). We will see, however, that the Kipsigis agreement system can be explained very easily by standard Minimalism assumptions about Agree. Agreement with mass nouns, though, shows that

both the features on little *n* and those on Num can take part in agreement in the language, which indicates that we can find different agreement patterns in other languages with number-based noun classification if there are differences in the structure of the DP of those languages and/or in the way Agree works cross-linguistically. I show in section 5 how Kiowa and Jemez are examples of languages with a number-based classification system, but an agreement pattern different from the one in Kipsigis.

In Kipsigis, a number of elements agree with the head noun in number. We have already seen, for example, that the secondary suffix has a singular and a plural form. Number agreement reflects the semantic number of a noun (whether a noun is semantically interpreted as singular or plural), and not its inherent number value. In other words, the number class that a noun belongs to and the morphological expression of number for that noun (singulative vs. plural marking) do not have any effect on agreement. For example, the inherently plural noun *pèelèek* ‘elephants’ and the inherently singular noun *làakwéet* ‘child/girl’ belong to different number classes, but take the same singular (proximal) demonstrative suffix *-ni* when interpreted as singular despite the fact singular is marked with a singulative in the former case (37a), but is unmarked in the latter (37b). Similarly, they both take the plural demonstrative suffix *-chu* when interpreted as plural, despite the different kind of plural marking (38).

(37) a. *peel-yaan-ta-ni* (ageenge) → *pèelyáandáni* (àgêengè)
 elephant-SG-TH-PROX one
 ‘this (one) elephant’

b. *laak-wa-ni* (ageenge) → *làakwàani* (àgêengè)
 child-TH-PROX one
 ‘this (one) child’

(38) a. *peel-a-ik-chu* (somok) → *pèeléechù* (sómòk)
 elephant-TH-SEC-PROX three
 ‘these (three) elephants’

- b. laak-oy-ik-chu (somok) → làagóochù (sómòk)
 child-PL-SEC-PROX three
 ‘these (three) children’

The secondary and demonstrative suffixes are not the only elements that agree with nouns in number in Kipsigis. Within the DP, relativizers (39), adjectives (40), and possessive suffixes (41) also agree with the head noun in number.

(39) Number agreement with relativizers

- a. làakwéet **nè** á-chám-é
 girl.SG REL.SG 1SG-like-IPFV
 ‘the girl that I like’
- b. làagóok ch̀è á-chám-é
 girl.PL REL.PL 1SG-like-IPFV
 ‘the girls that I like’

(40) Number agreement with adjectives³⁹

- a. làakwéet nè tóròor
 girl.SG REL.SG tall.SG
 ‘a tall girl’
- b. làagóok sómòk ch̀è tórôor-èen
 girl.PL three REL.PL tall-PL
 ‘three tall girls’

(41) Number agreement with possessive suffixes⁴⁰

- a. laak-wa-it-nyuun → làakwéenyùun
 girl-TH-SEC-POSS1SG.SG
 ‘my girl’
- b. laak-oy-ik-chuuk → làagóochùuk
 girl-PL-SEC-POSS1SG.PL
 ‘my girls’

³⁹ Adjectives in the language are always introduced by the same element that introduces relative clauses. However, adjectives are a distinct morphosyntactic category, which will be discussed in length in chapter 4.

⁴⁰ Possessive suffixes in Kipsigis agree in person and number with the possessor, and in number with the possessee (they are, hence, similar to possessives in Romance).

As for elements outside the DP, predicative adjectives and nominals agree in number with their DP subject (42-43). Verbs agree with their subject in person and number, but there is no morphological distinction for number in the 3rd person. However, there are three verbs that are suppletive in the singular and plural, such as the verb ‘to run’, shown in (44).⁴¹

(42) Number agreement with predicative adjectives

- a. Tórôor làakwèet.
tall.SG girl.SG.NOM
‘The girl is tall.’
- b. Tórôor-**èen** làagôok.
tall-PL girl.PL.NOM
‘The girls are tall.’

(43) Number agreement with predicative nominals

- a. Kâanéetfindét Kíbêet.
teacher.SG Kibeet.NOM
‘Kibeet is a teacher.’
- b. Kâanéetîik Kíbêet ák Chèebêet.
teacher.PL Kibeet.NOM and Cheebeet
‘Kibeet and Cheebeet are teachers.’

(44) Subject-Verb agreement

- a. Lábàt-í Kíbêet.
run.3SG-IPFV Kibeet.NOM
‘Kibeet is running.’
- b. Rúày Kíbêet ák Chèebêet.
run.3PL-IPFV Kibeet.NOM and Cheebeet
‘Kibeet and Cheebeet are running.’

In standard Minimalism (e.g., Chomsky 2000; 2001; 2004), Agree is a syntactic operation where a head with uninterpretable features (the probe) scans its c-commanding domain for a head with interpretable features (the goal); the goal then values the probe’s uninterpretable features. In

⁴¹ This is a simplification of the agreement facts in the verbal domain; further details are given in chapter 4.

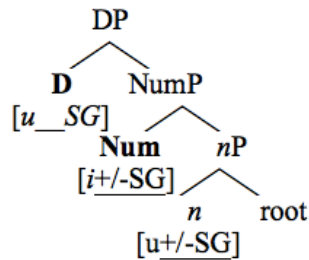
the analysis presented in this chapter, where the difference that matters is that between valued and unvalued features, we can define Agree as an operation where a probe is a head with unvalued features, which scans its c-commanding domain for a head (the goal) with a valued instance of these features (cf. Pesetsky & Torrego 2007). The goal must value the probe's features for the derivation not to crash, but once these features get a value, the search for a goal ends. This means that in case there are two heads in the probe's c-commanding domain that could act as a goal, it is only the closest head to the probe that will value the probe's features.

In the case of number agreement in Kipsigis, all agreeing elements are merged above NumP.⁴² For example, we have already seen that the secondary suffix is in D, as shown in (45). In any Kipsigis DP, Num and *n* enter the derivation with valued instances of [SG] (interpretable for Num, uninterpretable for *n*, but crucially both are valued). D, however, enters the derivation with an unvalued number feature, and, therefore, acts as a probe. It searches downwards for a goal, and the closest head in its c-commanding domain that has a valued instance of number features is Num. Num then values the number features of D via Agree. Since the features of D are now valued, the search for a goal is over, and it does not matter that *n* also has valued number features.⁴³

⁴² As will become clear in the remainder of this section, my theory predicts that anything merged below Num in Kipsigis should agree with the number features on *n* (i.e., with the morphological number class of the noun), and not with 'semantic' number on Num. Cross-linguistically, some adjectives are merged below Num. For some (e.g., Cinque 2005), all attributive adjectives whose source is not a reduced relative clause are merged below Num. However, there is independent evidence in Kipsigis that all adjectives in the language are reduced relative clauses that are merged above Num, which is the topic of chapters 4 and 5. As there are no modifiers merged below Num in Kipsigis, we cannot test the prediction that those modifiers would agree with the number features on little *n*. It would be interesting to test this prediction in languages with a Kipsigis-type system and low adjectives, but further research is needed to identify such languages.

⁴³ There are a variety of alternative analyses of nominal concord (see Norris 2017a, b for a comprehensive overview). However, all analyses use some sort of locality condition, which means that as long as all agreeing elements are merged above NumP, all theories will predict that they will agree with the features on Num, and not with those on *n*. As we will see in section 5, however, there are languages (Tanoan) in which D agrees with both the features on Num and those on *n*. Even though the exploration of this topic is beyond the scope of this dissertation, a successful theory of concord should be able to explain why the Kipsigis and Tanoan agreement patterns are both possible systems.

(45) Agreement with D



Therefore, the standard approach to Agree can easily account for the agreement patterns that we observe: we see that agreeing elements in Kipsigis always agree with ‘semantic’ number, i.e., the features on Num, which follows from the fact that Num is always higher than *n*, and, thus, closer to any potential probe. However, the analysis outlined here, with valued number features on both Num and *n*, and standard Agree, makes the prediction that the number features of *n* can value a probe’s unvalued features in the absence of Num. This prediction is borne out: mass nouns, which lack a NumP projection as has already been discussed, trigger singular or plural agreement on other elements in the DP and the clause, depending on which number class they belong to. For example, even though ‘rain’ and ‘blood’ have the same interpretation with respect to number in (46) (they are number-neutral and have a mass interpretation), the former triggers singular agreement on the relativizer and the adjective because it belongs to the inherently singular class of nouns, with a *n*[+SG], while the latter triggers plural agreement on the relativizer and the adjective because it belongs to the inherently plural class, with a *n*[-SG].

(46) Number agreement – mass nouns

- | | | | |
|----|-------------|--------|----------|
| a. | púywêet | nè | pírîr |
| | dust.SG | REL.SG | red.SG |
| | ‘red dust’ | | |
| b. | kàràtîik | chè | pírîr-èn |
| | blood.PL | REL.PL | red-PL |
| | ‘red blood’ | | |

The fact that the number features on little *n*, which are the features used for noun classification in the language, can participate in agreement under the right circumstances (i.e., the absence of Num, an intervening node with the same kind of features) make the Kipsigis system quite similar to gender systems, with a relatively uncontroversial definition of gender (from Kramer 2015: 70) given in (47). More specifically, number features in Kipsigis sort nouns into two or more classes (47i), and are sometimes reflected in agreement (47iii). Further resemblances to gender systems (such as the lexical idiosyncrasy of the system or the dialect/speaker variation) have been pointed out in previous sections. However, because agreement is not always visible (due to the interaction with interpretable number features on Num), and because it is not clear how to modify (47ii), I am using the more generic term ‘noun classification’ for the Kipsigis system.

(47) Gender is:

- (i) the sorting of nouns into two or more classes;
- (ii) assigned depending on biological sex, animacy, and/or humanness, for at least some animate nouns;
- (iii) reflected by agreement patterns on other elements (e.g., adjectives, determiners, verbs, auxiliaries)

In the next section, I show that the Kipsigis number system has differences from that of languages with a collective/singulative distinction (Grimm 2012; 2018), and that the proposal outlined in this chapter, with nouns being sorted into classes based on inherent number features, can account for the differences that Kipsigis has from those languages.

4. Singulatives outside of Nilo-Saharan

Singulative marking exists in a number of languages outside of the Nilo-Saharan family, with Welsh and Breton (Celtic), Arabic and Maltese (Semitic), and Ojibwe (Algonquian), being the most often discussed in the theoretical literature (Grimm 2012; 2018; Mathieu 2012; Ouwayda 2014 among others). All previous accounts of the singulative treat it as a sort of classifier, i.e., a

morpheme that turns mass or collective nouns into individuals.⁴⁴ For example, Mathieu (2012: 653) writes that ‘the singulative is a process by which a collective or a mass noun is turned into a unit’. As for the definition of collective nouns, this term has been used in the literature to refer to a variety of different entities, but in the context of singulatives, the term is mostly used for a noun that refers to entities that usually appear in spatiotemporally organized collections (e.g., ants, beans, etc.). In fact, Grimm (2012; 2018) uses data from languages with singulative marking and/or tripartite systems of the Kipsigis type to argue in favor of a non-binary view of the mass/count distinction.⁴⁵ He successfully argues that the mass/count distinction is best viewed as a scalar phenomenon, with languages dividing the scale of individuation in (48) in different ways. Some languages have, therefore, number categories in addition to the well-known count and mass categories.⁴⁶

(48) The Scale of Individuation (Grimm 2018: 547)

liquids/substances < granular aggregates < collective aggregates < individuals

The question that arises is, then, whether an analysis that treats inherently plural nouns in Kipsigis as a distinct number category and/or the singulative as a classifier is superior to the analysis outlined in this chapter, which treats the singulative simply as the spell-out of singular features on NumP.⁴⁷ In this section, I provide further evidence that the singulative in Kipsigis is

⁴⁴ According to Mathieu (2012), the idea that singulatives perform the same function as classifiers goes back to Greenberg (1972).

⁴⁵ See also Deal (2017) for arguments against a binary treatment of the mass/count distinction.

⁴⁶ Grimm (2012) provides a detailed semantic account of collective nouns, which combines mereology with topological relations.

⁴⁷ Richard Kayne (personal communication) points out that Kipsigis only has two singulative morphemes (-*yaan*, and -*iin*; the latter is restricted to human nouns), while there are a large number of plural suffixes in the language. He claims that this could indicate that the singulative in Kipsigis is indeed a classifier. However, even though it is true that there are only two singulative suffixes in Kipsigis, other Nilo-Saharan languages with almost identical number systems have a great number of singulatives. For example, Didinga (Surmic; South Sudan) has at least ten different singulative suffixes (Lohitare et al. 2012), and the choice of the right suffix seems to be based on entirely morphological criteria, unlike classifiers, whose selection is usually based on semantics.

indeed the spell-out of a singular Num node, and is not directly related to the mass/count distinction. I show in 4.1. that the Kipsigis number classes are orthogonal to the mass/count distinction in the language, and that the inherently plural nouns do not constitute a distinct number category in Grimm's system. I also show in 4.2. that the Kipsigis singulative has important differences from (at least) Semitic and Algonquian languages.⁴⁸ I, then, briefly discuss Welsh in 4.3, whose system seems to be closer to Kipsigis than Semitic and Algonquian. In 4.4. I summarize.

4.1. The mass/count distinction in Kipsigis

In view of Grimm's (2012) theory, it is possible that Kipsigis inherently plural nouns (which are the nouns that can combine with singulative suffixes) constitute a distinct number category in the language, in addition to the categories of mass and count nouns. The members of the Kipsigis inherently plural class coincide with the lower part of Grimm's (2012) scale of individuation in (48): liquids/substances, granular aggregates, and collective aggregates. We could say, then, that Kipsigis divides the scale at the 'collective aggregates' point, with nouns above this point being inherently singular, and with nouns below this point being inherently plural. Mass nouns in Grimm's system would be their own number category. However, I show in this section that the mass/count distinction in Kipsigis is orthogonal to the division of nouns into inherently singular and inherently plural classes: a number of tests that distinguish between count and mass nouns in the language reveal that both the inherently singular and the inherently plural class contain a mix of count and mass nouns.⁴⁹

⁴⁸ In this section, I will be using examples from Arabic and Ojibwe, but the comparison between these two languages and Kipsigis extends to other languages with singulatives discussed in Mathieu (2012). The only language discussed in Mathieu (2012) that has a possibly different system is Breton. I will exclude Breton from the discussion because it seems to me to have important differences from both Kipsigis/Welsh, and Semitic/Algonquian. Further research is needed to determine where exactly Breton fits in the typology of singulatives.

⁴⁹ I do not give examples from the numberless class. This class is very small in Kipsigis and only contains count nouns.

First, count nouns, but not mass nouns, freely combine with numerals. Crucially, the nouns in (49) and (51) belong to the inherently plural class, to the exclusion of (50), which belongs to the inherently singular class. However, the nouns in (49) and (50) are compatible with numerals, unlike the noun in (51). This shows that the mass/count distinction is independent of the morphological number class of the noun. We find a similar pattern with the numeral ‘one’, which is compatible with either marked or unmarked singular count nouns, but not with unmarked singular mass nouns.

(49) *Á-mách-è* *pèelék* (*peel-a-ik*) *sómòk.* Inherently plural – count
 1SG-want-IPFV elephant-TH-PL three
 ‘I want three elephants.’

(50) *Á-mách-é* *pùgùusyék* (*pug-uus-ya-ik*) *sómòk.* Inherently singular – count
 1SG-want-IPFV book-PL-TH-SEC three
 ‘I want three books.’

(51) **Á-mách-è* *peek* (*p-a-ik*) *sómòk.* Inherently plural - mass
 1SG-want-IPFV water-TH-SEC three
 ‘I want three waters.’⁵⁰

Second, the adjective *oo* (in its singular form) is interpreted as ‘big’ when it modifies a singular count noun, but as ‘a lot’ when it modifies a singular mass noun.⁵¹ Again, this is independent of the morphological class of the noun as shown by the pattern in (52) – (54).

(52) *méesêet* (*mees-a-it*) *né* *òo* Inherently singular – count
 table-TH-SEC REL.SG big.SG
 ‘a big table’

(53) *pèelyáat* (*peel-yaan-ta-it*) *né* *òo* Inherently plural – count
 elephant-SG-TH-SEC REL.SG big.SG
 ‘a big elephant’

⁵⁰ This is ungrammatical even when a coerced portion reading is intended. However, as we will see later, some mass nouns are compatible with numerals in their unmarked plural form with a portion/measure reading.

⁵¹ Remember that mass nouns in Kipsigis are either inherently singular or inherently plural, but always morphologically unmarked with respect to number.

(54) púywêet (puy-wa-it) né òo Inherently singular – mass
 dust-TH-SEC REL.SG big.SG
 ‘a lot of dust’

Third, the quantifiers *tyan/tyaana* ‘how much/how many’ are compatible with singular mass nouns, plural mass nouns, and plural count nouns, but the quantifier *átà* ‘how many’ is only compatible with plural count nouns. The independence of the mass/count distinction and the inherently singular/inherently plural distinction is nicely illustrated by the pair in (55) – (56): the nouns *chègá* ‘milk’ and *nègá* ‘goats’ are both inherently plural and have exactly the same morphological make-up. However, only the latter is compatible with the count quantifier *ata*.

(55) kòo-í-lú chègá (chee-ka) ché tyàn /*átà ámùt?
 PAST2-2SG-drink milk-SEC REL.PL how-many how-many yesterday
 ‘How much milk did you drink yesterday?’

(56) í-géer-é nègá (nee-ka) ché tyàn/ átà?
 2SG-see-IPFV goat-SEC REL.PL how-many how-many
 ‘How many goats do you see?’

Fourth, count nouns, but not mass nouns, can be the complement of the verb ‘to count’. Again, this is independent of the number class of the noun, as shown by the grammaticality of (57) which contains the unmarked form of an inherently plural noun.

(57) Á-mách-é àa-îit sólòbêek (solop-a-ik). Inherently plural - count
 1SG-want-IPFV 1SG-count cockroach-TH-SEC
 ‘I want to count (the) cockroaches.’⁵²

(58) *Á-mách-é àa-îit chègá (chee-ka). Inherently plural - mass
 1SG-want-IPFV 1SG-count milk-SEC
 ‘*I want to count milk.’

Fifth, mass nouns in Kipsigis are incompatible with shape adjectives (Quine 1960), unlike count nouns, irrespective of the noun’s number class:

⁵² The language has no articles, and bare nouns are ambiguous between a definite and an indefinite reading. This is further discussed in chapter 5.

- (59) *Múgûl* kíptúliit (kiptuul-i-it). Inherently singular - count
 round.SG ball-TH-SEC.NOM
 ‘The ball is round.’
- (60) **Múgûl* rôoptà (roop-ta). Inherently singular - mass
 round.SG rain-SEC.NOM
 ‘The rain is round.’
- (61) **Múgûl-èn* pèek (p-a-ik) Inherently plural – mass
 round-PL water-TH-SEC.NOM
 ‘The water is round.’

Finally, inherently singular mass nouns are incompatible with plural suffixes, and inherently plural mass nouns are incompatible with singulative suffixes, unless the noun is coerced into a portion reading. However, not all mass nouns are compatible with number morphology, and there is some speaker variation. For example, the singular mass noun *ròoptá* (*roop-ta*) ‘rain’ has no plural form for two speakers, but another three speakers are perfectly comfortable with the plural *rôobwék* (*roop-wa-ik*), which means for them ‘long rainy seasons’. The nouns *chègá* (*chee-ka*) ‘milk’, and *pèek* (*p-a-ik*) ‘water’ are examples of mass nouns without a singular form. Furthermore, the marked (singular or plural) form of mass nouns has a standard portion reading – not a flexible one. For example, in (62), the singular form of the inherently plural *sùgàríuk* ‘sugar’ can only mean ‘a pack of sugar’, and not ‘a grain of sugar’ or ‘a spoon of sugar’. The behavior of Kipsigis mass nouns with number morphology is, therefore, very similar to that of English mass nouns: some mass nouns tolerate coercion better than others, and the coerced meaning is usually that of a standard portion.

- (62) a. *sugar-u-ik* → *sùgàríuk* b. *sugar-yaan-ta-it* → *sùgàryáat*
 sugar-TH-SEC sugar-SG-TH-SEC
 ‘sugar’ ‘a pack of sugar/*a grain of sugar/*a spoon of sugar’

It is worth pointing out that in the case of inherently plural mass nouns, the unmarked form is ambiguous between a mass interpretation and a plural portion reading. For example, (62a) can also mean ‘packs of sugar’ as illustrated in (63), where it is compatible with the count adjective ‘round’. These data are very hard to capture in a theory that treats the singulative as a classifier in Kipsigis. If the singulative were a classifier, we would expect it to be present in (63) where the mass noun *sùgàrúuk* ‘sugar’ has count syntax. At the very least, we would expect to find a plural suffix. However, we do not find either, which is in fact predicted by the analysis argued for in this chapter. In our proposal, Num is syntactically present in the count interpretation of (63), but it is simply deleted post-syntactically via the operation of obliteration. Therefore, *sùgàrúuk* ‘sugar’ has a different syntactic structure when interpreted as mass and when interpreted as count, but due to obliteration, the morphological form is the same in both cases.

(63) Múgûl-èen *sùgàrúuk*.
 round-PL sugar.NOM
 ‘The packs of sugar are round (in shape).’

In brief, a series of robust diagnostics show that the mass/count distinction in Kipsigis is almost identical to the mass/count distinction in more familiar languages, like English, and is orthogonal to the classification of nouns into number classes in the language. There is no evidence that the language has a number category in addition to the mass and count categories. This supports the analysis proposed in this chapter, which treats the complicated number system of the language as a morphological phenomenon, without making modifications to the standard theory of the syntax and semantics of number.

4.2. Arabic and Ojibwe

In many Arabic dialects and in Ojibwe, gender switch to feminine and animate respectively, turns a mass or collective noun into a count noun, as shown in (64) and (65). Moreover, the count

noun that results from the addition of the singulative can be subsequently pluralized in both languages, yielding plural count interpretations, as shown in (64c) and (65c).

(64) Feminine singulative suffix *-ah* in Lebanese Arabic (adapted from Ouwayda 2014: 48, 52)

- | | | |
|-----------------------------------------------------|-------------------|-------------------------------|
| a. ζ aSar-t | teffeeH | Mass interpretation |
| squeezed-1SG | apple | |
| 'I squeezed one apple or more/less than an apple.' | | |
| b. ζ aSar-t | teffeeH-ah | Singular count interpretation |
| squeezed-1SG | apple-FEM | |
| 'I squeezed one apple or more/#less than an apple.' | | |
| c. stre-t | tlat | teffeeH-aat |
| bought-1SG | three | apple-FEM-PL |
| 'I bought three apples.' | | |

(65) Animate singulative suffix *-a* in Ojibwe (adapted from Mathieu 2012: 664)

- | | |
|--------------------|-------------------------------|
| a. zhooniyaah-i | Mass interpretation |
| silver-IN | |
| 'silver/money' | |
| b. zhooniyaah-a | Singular count interpretation |
| silver-AN | |
| 'a coin/a bill' | |
| c. zhooniyaah-a-ki | Plural count interpretation |
| silver-AN-PL | |
| 'coins/bills' | |

A thorough presentation of the Arabic and Ojibwe systems is beyond the scope of this dissertation (see Mathieu 2012 and Ouwayda 2014 for a detailed description), but two properties that both languages have in common are the following: the singulative suffix can only attach to a mass/collective base, which is morphologically singular, and triggers singular agreement. In Kipsigis, on the other hand, the singulative suffix can attach to either mass or count nouns (as shown in the previous section), and it can only attach to unmarked plural nouns. The singulative is ungrammatical with any sort of singular base, even if the noun is mass. For example, the

inherently singular mass noun *kímnyéet* ‘ugali (staple food in Kenya)’ is incompatible with singulative morphology; even when it has the coerced reading ‘one portion of ugali’, it appears unmarked in the singular.⁵³ Another important difference between Arabic/Ojibwe and Kipsigis is that the noun – singulative complex can be pluralized in the former (64c – 65c), but not in the latter. These differences clearly show that the function of the singulative in Arabic/Ojibwe is to turn a mass/collective noun into a count noun, while the singulative in Kipsigis is simply an allomorph of the singular: it is present in the singular form of count nouns, and in the singular form of coerced mass nouns of the inherently plural class, but it is absent otherwise. In terms of the syntax of the singulative in the three languages, I have already argued that the singulative in Kipsigis is the spell-out of a singular Num node (and has nothing to do with the mass/count distinction), but what about the singulative in Arabic/Ojibwe then? It is clear that the singulative is the spell-out of a dedicated individualizing head that selects for mass/collective nouns, but it is not clear what this head is.

Both Mathieu (2012) and Ouwayda (2014) follow Borer’s (2005) theory of DP structure, according to which the mass/count distinction is entirely syntactic. The functional projection Div (which roughly corresponds to Num in our analysis) is responsible for individuation. All nouns come out as mass from the lexicon, and they obtain count syntax only if the projection Div is present. In Borer’s (2005) system, Div hosts either plural morphology or classifiers. Mathieu (2012) and Ouwayda (2014) extend this system, by allowing for the singulative to occupy Div. They explain the co-occurrence of the singulative and plural morphology (as in 64c and 65c) in different ways, but both argue that the plural suffix in these cases does not occupy Div (unlike the ‘regular’ plural suffix associated with count nouns in those languages).

⁵³ The analysis of this pattern is analogous to the analysis of example (63) in the previous section.

However, Mathieu's (2012) and Ouwayda's (2014) analyses are both problematic in an important way. They operate in a theory where Div can freely combine with any nominal base: the whole point of Borer's (2005) system is that the mass/count distinction is not encoded in any root or NP, but is entirely dependent on the syntactic structure under which an NP is embedded. Therefore, if the singulative in Arabic and Ojibwe were a flavor of Div, we would expect it to be able to freely merge with any nominal root in the language. However, this is clearly not the case. For one thing, if the singulative could attach to any noun in the language, we would expect all nouns in Arabic and Ojibwe to only be feminine and animate respectively, unless they had a mass interpretation. Therefore, for Mathieu (2012) and Ouwayda's (2014) analyses to work, the singulative Div should be able to select for a certain type of mass and collective NP, and the regular plural morphology Div should select for count NPs. Their analyses are, therefore, not internally consistent.

An alternative analysis (which I do not develop fully here) is one in which the singulative in Arabic/Ojibwe is the spell-out of a nominalizing head whose meaning is that of an individualizer (see Kramer 2015: 202-204 for such an analysis for Ojibwe). If the noun is count, it means that Num must be present in the structure: a [+SG] Num node is silent (singular is the unmarked number in Arabic and Ojibwe), while a [-SG] Num node is spelled-out as a plural suffix, generating the forms in (64c) and (65c). There are (at least) two pieces of evidence that support this analysis.

First, collective nouns in (at least) Lebanese Arabic have in fact two different plurals: a broken plural and a sound plural (which is a plural suffix attached after the gender switch to feminine), as shown in (66). The broken plural denotes types or batches, while the sound plural denotes units, but never types (see Ouwayda 2014 for details).

(66) Singular collective	Broken plural	Singulative of collective	Plural of singulative
a. samak	b. asmeek	c. samk-eh	d. samk-eet
fish	fish-PL _{BR}	fish-FEM	fish-FEM-PL
‘fish’	‘types/heaps of fish’	‘a fish’	‘fishes/*types of fish’
(adapted from Ouwayda 2014: 55)			

Therefore, the noun in (66a) and the noun in (66c) have slightly different meanings: the former refers to types or batches (which could correspond to Grimm’s 2012 analysis of collectives), while the latter refers to individuals. It is then natural that the plural in (66b) is the plural of a batch or type, and the plural in (66d) is the plural of individuals. These data follow from a view that treats the singulative as a nominalizing head: depending on the type of little *n* that the root for ‘fish’ merges with, the result is a batch/type noun or a count noun. Their plural forms reflect their different meaning in the singular.

Second, in both Arabic and Ojibwe, the singulative has gender features. As was discussed in detail in section 3.2, a lot of recent influential accounts of gender (e.g., Kramer 2015) place gender features on little *n*, which means that the gender switch associated with the singulative in these languages is probably due to the presence of a nominalizing head with feminine and animate gender features.⁵⁴

To sum up, singulatives in Kipsigis are different from those in Arabic and Ojibwe, and cannot be analyzed in a uniform way. However, further research is needed to develop a full-fledged account of the Arabic and Ojibwe systems.

⁵⁴ In my analysis, the singulative in Kipsigis is always the spell-out of a Num head. If Kramer (2015), among others, is right in placing gender features on little *n*, and not on Num, this means that gender switch should not be possible with singulatives in Kipsigis. Kipsigis does not have gender, but the prediction is borne out for the related languages Turkana and Maa. They both have sex-based gender in addition to a tripartite system of number marking, which is almost identical to that of Kipsigis, and, to the best of my knowledge, singulative suffixes do not cause gender switch in these languages.

4.3. Welsh

The Welsh number system is often mentioned in the literature on singulatives (e.g., Grimm 2012). Like Kipsigis, there are three classes of nouns in Welsh, as shown in (67): nouns that are marked in the plural, nouns that are marked in the singular, and nouns that are marked in both. Unlike Arabic/Ojibwe, where the collective is a singular noun, the unmarked form of nouns that take singulative marking triggers plural agreement, just like in Kipsigis. Moreover, as Grimm (2012) argues, the nouns that appear unmarked in the plural are similar (semantically) to the nouns that belong to the inherently plural class in Nilo-Saharan.

(67) Plural marking:	tad (SG)	tad- au (PL)	‘father’
Singulative marking:	coed- en (SG)	coed (PL)	‘tree’
Singulative/Plural marking:	cwning- en (SG)	cwning- od (PL)	‘rabbit’

(adapted from Nurmio 2017: 71)

Mass nouns could trigger either singular or plural agreement in Welsh, depending on the noun. They are, therefore, similar to Kipsigis mass nouns, which can be inherently singular or inherently plural. Another similarity between Kipsigis and Welsh is that loanwords from other languages enter a number class that is consistent with their semantics. For example, in Kipsigis, the word for ‘flower’ is inherently plural (*mauwaat* in the singular, *mauweek* in the plural), and it is borrowed from the Swahili plural form *ma-ua* ‘flowers’, and not the singular *ua* ‘flower’. Similarly, ‘brick/bricks’ in Welsh is *briks* in the plural, and *briks-en* (with singulative marking) in the singular (Nurmio 2017: 73).

A difference between Kipsigis and Welsh is that nouns modified by numerals must be plural in the former, but singular in the latter (Nurmio 2017). However, in both languages, the type of number marking (plural vs. singulative) is not relevant: in Kipsigis nouns modified by numerals are either marked or unmarked plurals, and in Welsh they are either marked or unmarked singulars.

Finally, I have not found a good description of the mass/count distinction in the language, and there is disagreement in the literature about whether it is possible to pluralize a singulative-marked noun (similar to Arabic/Ojibwe in 64, 65); Grimm (2012) claims that there is a distinction between a bare plural and a pluralized form of the singulative, while Nurmio (2017) argues that the plural suffix cannot attach to a singulative-marked noun. Therefore, more data are needed to determine which analysis is best for the Welsh system. However, the similarities to Kipsigis, the semantic coherence of the number classes, and the behavior of loanwords point towards a number-based noun classification system, and a morphological account of the tripartite system of number marking in Welsh.

4.4. Summary

In this section, I have discussed the properties of languages that have featured in the theoretical literature on singulatives. This brief cross-linguistic comparison clearly shows that singulatives vary a great deal from language to language, and that a uniform analysis for all instances of singulative marking in the world's languages is not possible. It would, therefore, be wise to carefully examine the properties of a language's singulative(s) before deciding which analysis is best for that language. At least two possible types of singulatives have emerged from the discussion in this section: a) singulatives of the Arabic-type, whose function is to turn a mass or collective noun into a count noun, and b) singulatives of the Kipsigis-type, which are simply the spell-out of a singular Num head, and are not (directly) related to the mass/count distinction. The latter type of singulative reflects a number-based noun classification system, the typology of which we will turn to in the next section.

5. Towards a typology of number-based noun classification

Number-based noun classification is very common in Nilo-Saharan, but outside of this family, it has only been reported for the Tanoan languages Kiowa and Jemez (Harbour 2007; 2011).⁵⁵ As we saw in the previous section, it is possible that Welsh has such a system too, but further research is needed to confirm this hypothesis. It is difficult to carefully compare the Nilo-Saharan languages with a tripartite system of number marking, because this family is generally understudied, especially in the generative literature. However, Dimmendaal's (2000) detailed overview reveals that the various systems have a number of similarities to Kipsigis, and small differences have been brought up in various parts of the chapter (facts from Shatt, Turkana, Maa, and Didinga have been mentioned).⁵⁶ The purpose of this section is to briefly compare Kipsigis to Kiowa, which has a completely different system of number-based noun classification. This comparison illustrates different possibilities for the morphological exponence and agreement of number in languages with number-based noun classification. Further work is needed, though, to determine which theoretical analysis can best account for these differences.

Kiowa has a three-way number distinction: singular, dual, and plural. There is no number morphology on the noun (with the exception of the inverse marker, to be discussed shortly), and the number value of a noun can be deduced by the number agreement that it triggers on the verb. For example, the noun *x!óú* 'stone' in (68) is not marked for number, but it triggers singular

⁵⁵ A similar system of number marking is also found in some Afro-Asiatic languages spoken in the vicinity of Nilo-Saharan (Dimmendaal 2000), such as Sidaama (Kramer & Anbessa 2018), and it has also been reported for the language isolate Laal (Lionnet 2016; 2017), spoken in Chad (near Nilo-Saharan languages as well).

⁵⁶ Further differences include the existence of a general number form in some languages (e.g., Maban; Weiss 2009) and the use of the singulative for abundance readings in some contexts in the Eastern Nilotic language Lopit (Moodie 2016). Thanks to an anonymous reviewer of *Natural Language and Linguistic Theory* for bringing these facts to my attention.

agreement on the verb when in the singular, dual agreement when in the dual, and plural agreement when in the plural.

- (68) X!óú ø/ε/gya-dóó Harbour (2011: 563)
 stone 3SG/3D/3PL-be
 ‘It’s a stone/two stones/some stones.’

Nouns like the one in (68) are called *SDP* (Singular – Dual – Plural) in Harbour’s terminology, which means that they are nouns that trigger singular agreement in the singular, dual agreement in the dual, and plural agreement in the plural. However, few nouns in the language follow this agreement pattern. There are nine noun classes, each one of which triggers a different kind of agreement; *SDP* is one of these classes. For example, nouns in the *SSS* class, trigger singular agreement on the verb no matter what number they are in (singular, dual, or plural).

Furthermore, nouns of some number classes bear a suffix called the ‘inverse’ in one or more of the three number values, and trigger inverse number agreement on the verb when they have this suffix. For example, in (69), the noun *óópíí* ‘fish’, which belongs to the *SDI* class (where *I* stands for ‘inverse’), triggers the same kind of agreement seen in (68) above when in the singular and the dual, but when in the plural, it has the inverse suffix - *dó* and the verb has an *e-* agreement prefix, which is different from the -*gya* plural agreement prefix seen in (68).

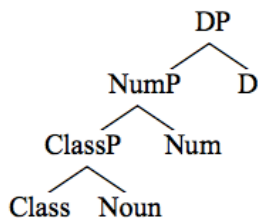
- (69) a. óópíí ø/ε-dóó Harbour (2011: 564)
 fish 3SG/3D-be
 ‘It’s a fish/two fish.’
 b. óópíí-dó e- dóó
 fish-I 3I-be
 ‘It’s some fish.’

Apart from this complicated system of number agreement, Harbour (2007; 2011) makes the observation that each one of the nine Kiowa classes includes nouns that share certain semantic characteristics related to number and individuation. For example, the *SSS* class contains non-

granular mass nouns. As a result, he argues that nouns in the language are divided into classes based on number features hosted on the projection Class (which corresponds to the nominalizing head in my analysis). Since Kiowa has a more complicated number system than Kipsigis (including the distinction for dual number), Harbour uses the features [+/-SG], [+/-augmented], and [+/-group] to define the different noun classes, as well as the number distinctions on Num. In this chapter, I put those features aside, and give examples that involve only [+/-SG], which are the number features available in Kipsigis, where we only see a singular vs. plural distinction and three number classes.

Harbour assumes the following structure for the DP (Kiowa is head-final, hence the right-headed structure):

(70) Kiowa DP



Assuming that both ClassP and Num have number features in this structure, the complicated pattern of number agreement in Kiowa can be accounted for. More specifically, D has unvalued number features, and because both ClassP and Num are equidistant from D, they both take part in agreement. Putting aside the technical details of Harbour’s (2007; 2011) agreement system for now, when the features on ClassP and Num are the opposite of each other, D has a conflicting number specification, which is spelled out as the inverse suffix, and triggers inverse agreement.

Let’s look at how the system works for the singular and plural of the noun *áá* ‘stick’, which is an *IDP* noun. The number specification for the *IDP* class is [-SG] on Class. In the singular, Num

will be specified as [+SG], as shown in (71a), while in the plural, Num will be [-SG], as shown in (71b).



Harbour (2007; 2011) assumes that no feature specification for a head with uninterpretable features that need to be checked means overspecification for both values of a feature, with the value that is not checked in the syntax being deleted at LF. Therefore, D is overspecified for both [+SG] and [-SG]. In (71a), D enters an agreement relation with both ClassP and NumP because they are equidistant. Then, D checks both [+SG] and [-SG]; this specification is spelled out as the inverse suffix, and triggers inverse agreement on the verb. In (71b), on the other hand, both ClassP and NumP have a [-SG] features. As a result, D only checks its [-SG] features, and [+SG] is deleted. The [-SG] specification on D triggers plural agreement on the verb.

Harbour's (2007; 2011) analysis of number in the Tanoan languages, in conjunction with the analysis of Kipsigis provided in this chapter, shows that there is a variety of possible systems of number agreement and morphological exponence for languages with number-based noun classification. More specifically, even though Kiowa and Kipsigis are similar in using number features to sort nouns into classes, they also have important differences. In Kiowa, agreeing elements agree with number features on two heads (both Class and Num), while in Kipsigis they can only agree with number features on one head (the closest one in the structure, which is usually Num). The possibility for conflicting number specifications of a head in Kiowa is confirmed by the existence of the inverse marker, which is absent in Kipsigis. Furthermore, Kiowa lacks number

morphology on the noun itself, while Kipsigis has rich number morphology on the noun. Therefore, noun classes in Kiowa are mainly reflected on agreement with other elements, while noun classes in Kipsigis are mainly reflected on number morphology. These two types of systems show that there is a range of possible systems of syntactic and morphological expression of number-based classification, and Kiowa and Kipsigis can serve as a basis for the analysis of other languages that seem to use number in the classification of their nouns.

Finally, it has to be noted that number features could be used along with other kinds of gender features in a language. For example, Turkana and Maa have a tripartite system of number marking, in addition to a sex-based gender system (Dimmendaal 2000). The possibility of using multiple types of features to sort nouns into classes can also possibly explain gender systems with multiple (more than three) noun classes, such as the complicated noun classification systems found in Bantu languages. In fact, it is not impossible that number features (along with animacy and/or humanness features) are involved in classifying nouns in Bantu: it is well-known that the agreement prefix of Bantu languages is syncretic for noun class and number (Carstens 1991) and some noun classes seem to be defined by semantic notions related to individuation (e.g., there is a class containing nouns denoting liquid substances; Maho 1999).⁵⁷ I leave the exploration of the consequences of allowing for number features to serve as noun classification features as a topic for further research.

6. Conclusion

In this chapter, I have provided an analysis of the morphological expression of nominal number in Kipsigis. I have argued that the the best way to account for the tripartite system of number marking in the language is by postulating number features on the nominalizing head *n* that sort

⁵⁷ In fact, there are recent analyses of the Bantu noun class system that challenge the view that noun class pairs are straightforwardly singular – plural pairs of the same class (e.g., Taraldsen, Medová, and Langa 2018).

nouns into three classes. The number features on *n* can capture the semantic coherence of the Kipsigis number classes, and can be used to derive the pattern of morphological marking of number. Furthermore, I have shown that the noun classes of Kipsigis have properties of noun classification systems cross-linguistically, which supports the idea that number features can be used in noun classification in some languages. Kiowa is one of the languages that has been claimed to use number features in noun classification, and I have provided a brief comparison of its system to Kipsigis, which can serve as a basis for the analysis of other languages with similar classification systems. Moreover, I have suggested that the use of number features on *n*, together with other gender features such as animacy or humanness features, might be able to account for gender systems with multiple noun classes, such as the ones found in Bantu. Finally, the proposal outlined in this chapter adds to a body of research that shows that number features can be present on different parts of the nominal extended projection (Lecarme 2002; Acquaviva 2008; Wiltschko 2008; Alexiadou 2011; Kramer 2016).

Chapter 4: Adjectives as a distinct morphosyntactic category

1. Introduction

The primary goal of this chapter is to demonstrate that Kipsigis has a morphosyntactic category ‘adjective’, which is distinct from nouns and verbs, despite the surface similarity of adjectives in the language to verbs. This is an empirical contribution to the debate of whether adjectives are a universal lexical category, and I argue that they are, while I briefly discuss what this means for our theoretical treatment of lexical categories. Furthermore, it is well-known that the evidence for establishing a lexical category is language-specific (Chung 2012 among others), and that the criteria used to distinguish between adjectives and other categories can be extremely subtle (Dixon 2004). This is, to my knowledge, the first in-depth study of the morphosyntactic properties of adjectives in any Nilo-Saharan language, and it, hence, adds to our toolbox of tests when trying to identify adjectives in an understudied language.

In section 2, I provide a very brief literature review of theories of lexical categories in the generative framework, which serves as necessary background to the question of what it means for a category to be universal and what the (non-)universality of a category might mean for syntactic theory more generally. This is the question I take up in more detail in 3, where I provide previous views on the universality of nouns and verbs, and I discuss in more detail why the universality of adjectives is more controversial. Section 4 contains the bulk of the novel data of this chapter, with a detailed description of the morphosyntactic properties of adjectives that distinguish them from verbs in Kipsigis. In section 5, I discuss the implications of the Kipsigis data for our theories of lexical categories; the main claims in this section are that adjectives are universal and that the ability to directly modify a noun is not the flagship property of the category. At the end of section 5, I wrap up the discussion by laying out the generalizations that our theory of adjectives should

be able to capture, and I provide suggestions for further research. In 6, I conclude the chapter and lay the groundwork for the relationship between adjectives and relative clauses (and determiners), which is the focus of the next chapter.

2. Background on lexical categories

Nouns, verbs, and adjectives are pre-theoretical notions used by all linguists. In fact, one of the earliest exercises in an Introduction to Linguistics course in the US is to learn how to identify the *lexical category* (sometimes called *part of speech*) of a word in English.⁵⁸ This is done by examining the morphosyntactic distribution of a given lexical item, with items of the same category sharing some morphosyntactic properties, which are in turn absent from other items that belong to a different category. Students are taught, for example, that words that can take the plural suffix *-s* in English are nouns, while words that can take the comparative suffix *-er* are adjectives. If the course were taught in France, a different set of diagnostics would be used to distinguish between nouns and adjectives in French, and yet another set of diagnostics would be used if the course were taught in Greece. Surface distributional differences of this sort are standardly used by linguists (irrespective of the framework they work in) and virtually everyone agrees that the evidence for distinguishing a given lexical category in a language is language-specific. The natural question that arises from such a state of affairs, then, is: if the evidence for lexical categories is language-particular, what do we really mean when we say ‘both English and French have adjectives’, or when we say that the notion of ‘needing to drink’ is expressed by an adjective in English (*I’m thirsty*), but by a verb in Greek (*dhipsao* ‘I’m thirsty’)? In other words, what does it

⁵⁸ The terms *lexical category* and *part of speech* are interchangeable for many linguists, though some draw a distinction (see Baker & Croft 2017 for discussion). Furthermore, in generative syntax, *category* can be used to refer to functional categories such as T(ense) or Voice. In the remainder of this chapter, I will use the term *lexical category* to refer to nouns, verbs, and adjectives (see Panagiotidis 2014: 3-4 for a more refined definition of lexical categories).

really mean to be a noun, verb, or adjective? Furthermore, which lexical categories – if any – are universal, and what do we really mean when we say that a category is universal?

Despite the obvious importance of these questions, we are far from having a clear answer to them. However, a view held by many linguists is that the distinction is grammatical and not semantic, i.e., it is not possible to predict the lexical category of a given item from its semantics. There may be tendencies (for example, concepts denoting actions are more likely to be grammaticalized as verbs), but the category of an item still has to be somehow encoded in the grammar. How it is encoded in the grammar hasn't been sufficiently investigated in the generative framework, with Baker (2003a) and Panagiotidis (2014) being the only complete theories of lexical categories since Chomsky's (1970), Jackendoff's (1977), and Stowell's (1981) early attempts of formalizing them.^{59,60} In this section, I briefly discuss approaches to the formalization of categories in generative syntax, which is necessary background for the discussion of universal categories and the (non-)universality of adjectives. It has to be noted that research into the nature of lexical categories has been more prominent among functionalist linguists. I do not discuss this literature here, but important results, which are relevant for formal linguists as well, have come out of this line of research. The reader is referred to Baker & Croft (2017) for a recent comprehensive review, and to Panagiotidis (2014), who, not only discusses the relevant literature, but also incorporates some of the findings into a generative theory of lexical categories.

⁵⁹ See also Panagiotidis (2011) and Acquaviva (2014), which are precursors to Panagiotidis' (2014) theory. See also Déchaine (1993) for a theory that includes functional categories in the discussion.

⁶⁰ As anyone who is familiar with the history of generative grammar has already noticed, Chomsky (1970) and Jackendoff (1977) are the studies that set the foundations of X-bar theory, while Stowell's (1981) dissertation was an attempt at deriving X-bar theory from more general principles. We can, thus, see that our pre-Baker (2003a) theories of lexical categories were intricately linked with the development of the X-bar model.

If lexical categories are grammatically encoded and are relevant for the syntax, the null hypothesis is that they are associated with particular features.⁶¹ As any other theory of features, a complete theory of lexical category features should minimally include the following: a) What are the features involved? What is their semantic interpretation?, b) Are the relevant features privative or binary? What are the possible combinations – if any - of these features?, c) When/where are the features first merged in the syntax?

Chomsky (1970), Jackendoff (1977), and Stowell (1981) use binary [+/-N] and [+/-V] features to define lexical categories, while Baker (2003a) and Panagiotidis (2014) use privative [N] and [V] features.⁶² Table 8 summarizes the view found in these theories.⁶³ An important difference between the two theories lies in the treatment of adjectives, which are defined as [+N, +V] in the former, but as the complete absence of [N] and [V] features in the latter, a point which I discuss in more detail later. Panagiotidis (2014) does not discuss adjectives or adpositions, but rather focuses on the interpretation of the features [N] and [V]. However, he argues against Baker's (2003a) treatment of adjectives as the unmarked category, and in later work with Mitrović (Mitrović & Panagiotidis 2018), he provides a modern instantiation of the original [+N, +V] characterization of adjectives.

⁶¹ Borer (2005) and Kayne (2008) are examples of theories of lexical categories that do not make use of features. Borer (2005) is briefly discussed later. For Kayne (2008) there is (only) one basic distinction between nouns and verbs, which follows from Antisymmetry. More specifically, verbs are heads that project, while nouns are heads that don't project.

⁶² Déchaine (1993) uses slightly different features but she opts for privative ones as well.

⁶³ Baker (2003a) does not use features for adpositions, which he claims are functional categories.

	Nouns	Verbs	Adjectives	Adpositions
Chomsky (1970) Jackendoff (1977)	[+N, -V]	[-N, +V]	[+N, +V]	[-N, -V]
Baker (2003a)	[N]	[V]	no features	NA
Panagiotidis (2014)	[N]	[V]	NA	NA

Table 8 – Featural make-up of lexical categories

As for the interpretation of [N] and [V], Baker (2003a) and Panagiotidis (2014) are the only studies that provide a theory for the semantics of these two features, with their views summarized in Table 9. Since the focus of this chapter is the (non-)universality of adjectives, I will not discuss the semantics of [N] and [V] further, but this is a crucial question if we want to have a complete theory of what it means to be a verb or a noun.

	[N]	[V]
Baker (2003a)	sortality (syntactic reflex: referential index)	predication (syntactic reflex: specifier)
Panagiotidis (2014)	sortal perspective on the categorizer's complement at LF ⁶⁴	extending-into-time perspective on the categorizer's complement at LF

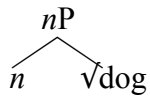
Table 9 – Interpretation [N] and [V]

The next question to be addressed in a theory of categories is the position of first-merge of the [N] and [V] features. The early studies of categories (Chomsky 1970; Jackendoff 1977; Stowell 1981), as well as Baker (2003a), take a lexicalist position: words come out of the lexicon as nouns, verbs, or adjectives. In other words, the features [N] and [V] are part of the lexical entry of individual lexical items. However, in recent years, more and more research adopts the view that categorization takes place in the syntax (Marantz 1997 among many others). More specifically,

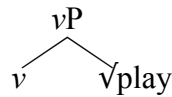
⁶⁴ Panagiotidis' (2014) sortality follows Prasada (2008) and Acquaviva's (2009) view of sortality, and diverges from the view of sortality in Baker (2003a).

lexical roots are acategorial and they become a noun, verb, or adjective when they merge with a dedicated categorizing head in the syntax, as illustrated in (1) for the noun *dog* and the verb *play* in English.⁶⁵

(1) a. noun



b. verb



This view of categorization has already been discussed in the Introduction and was a crucial component of the analysis of the number morphology in Kipsigis in Chapter 3. In the context of research that specifically addresses the question of what it means to be a noun or a verb, this view is adopted by Panagiotidis (2014), who argues that the features [N] and [V] are present on the nominalizing and verbalizing head respectively.⁶⁶ The theoretical implications of postulating acategorial roots and categorizing heads to account for categorization has been the topic of extensive research (e.g., Marantz 1997; Harley & Noyer 1998; Embick 2000; Arad 2003; 2005; Embick & Marantz 2008; Lowenstamm 2008; Acquaviva 2009), and, as has already been mentioned in previous chapters, I will be assuming this view of syntactic categorization throughout the dissertation.

Summarizing, a noun can be defined as the composition of an acategorial root with a dedicated head that hosts an interpretable [N] feature, while a verb would be the composition of an acategorial root with a dedicated head that hosts an interpretable [V] feature. The interpretation of

⁶⁵ Borer (2005) and de Belder (2011) are examples of a framework that shares with DM the view that roots are acategorial and that categorization takes place in the syntax, but reject the existence of dedicated lexical heads (nominalizers and verbalizers). In this framework, acategorial roots are interpreted as nouns or verbs as a result of the functional structure in which they are embedded. In such a theory, lexical category features such as [N] and [V] do not exist.

⁶⁶ Even though Baker (2003a) adopts a lexicalist view, his theory of categories can be recast as a theory of categorizing heads, which he himself discusses in his book.

these features is still debatable, but Baker (2003a) and Panagiotidis (2014) offer a tentative theory. If this view of categories is on the right track, we can answer the question of ‘what does it mean for a lexical category to be universal?’. The universality of a category in such a framework means that the features [N] and [V] (and the heads hosting them) are present in all languages, i.e., they are a fundamental component of UG. Borrowing an analogy from Embick (2012), saying that nouns and verbs are universal is similar to saying that all languages have consonants and vowels, irrespective of the variation that we find in the details of how consonant and vowels are organized in a given phonological system. Having outlined what it *means* for a lexical category to be universal, we are now ready to explore the question of which lexical categories – if any – are universal.

3. Universal lexical categories

3.1. Nouns and verbs

Despite the cross-linguistic variation that we find in the behavior of verbs and nouns, most linguists (generative or not) agree that verbs and nouns are universal lexical categories (Baker 2003a; Panagiotidis 2014; Chung 2012 among others). Furthermore, it is usually easy to find distributional criteria that distinguish between verbs and nouns in a given language (Dixon 2004 among others). There are, of course, exceptions: it has been claimed that some Austronesian languages have one monolithic category that cannot be easily associated with nouns or verbs (Kaufman 2009 among others), and Nootka is notorious for its apparent lack of verbs, which are similar to nouns (Baker 2003a). However, when these languages are investigated in depth, it turns out that they do distinguish between nouns and verbs after all (see Richards 2009; Chung 2012 for Austronesian; Baker 2003a; Panagiotidis 2014 for Nootka). I think we can safely assume that all languages have nouns and verbs; the prominence of these two lexical categories is also reflected

in the theories of lexical categories discussed in the previous section, which usually focus on the meaning and behavior of the features [N] and [V].

3.2. Adjectives

Whether adjectives are universal or not is still controversial, both in functionalist and formalist frameworks. A number of authors have argued that, unlike verbs and nouns, adjectives are *not* universal. This argument has been made either directly, on the basis of cross-linguistic facts and/or theoretical considerations of what it means to be an adjective (Dixon 1982; Schachter 1985; Panagiotidis 2014 among others), or indirectly through a large number of papers that claim that language *x* lacks adjectives (e.g., Kim 2002 for Korean; Amritavalli & Jayaseelan 2003 for Dravidian languages; Hale & Keyser 2002 for Navajo and Warlpiri). Other studies argue for the universality of adjectives (Baker 2003a; Dixon 2004; Chung 2012). Why is it so hard to agree on whether all languages have adjectives? ⁶⁷

The answer is that there is greater cross-linguistic variation in the behavior of adjectives, when compared to nouns and verbs, and the criteria to distinguish adjectives from other categories are often extremely subtle (see Beck 1999 and Dixon 2004 for an in-depth discussion of these characteristics of adjectives). To mention just a few of the unique properties of adjectives as opposed to nouns and verbs: a) adjectives form a closed class in many languages, unlike nouns

⁶⁷ Interestingly, ancient grammars did not recognize adjectives as a category. The following paragraph from Dixon (2004: 12) is illuminating:

Both the ancient grammar of Sanskrit by Panini and the early grammars of Greek and Latin—which began the western tradition—failed to make any distinction between noun and adjective. It was only at about 1300 CE, in the scholastic grammar of Thomas of Erfurt, that the criterion of gender was invoked—each noun has one inherent gender, whereas an adjective has no gender in itself but may show any of the genders, by agreement with the noun it relates to. On the basis of the European languages they knew, it became the accepted doctrine among linguists that adjectives are a class with similar morphology to nouns, differing from nouns in terms of gender possibilities. Indeed, it appears that Jespersen (1924:72) considered this to be the only criterion. Since Finnish has no genders, he inferred that in this language adjectives could not be distinguished from nouns.

and verbs, which tend to be open classes,⁶⁸ b) adjectives tend to be fewer than nouns and verbs in a language, c) there is a great number of derived adjectives, but few underived adjectives, even in those languages with an open adjectival class, d) there is great variation in the syntax of adjectives, which can be used either predicatively (as in 2) or attributively (as in 3) in a given language, but may have only one of these functions in another language.

(2) The girl is **tall**. Predicative use

(3) I saw the **tall** girl. Attributive use

The attributive use of adjectives, i.e., their use as nominal modifiers, is sometimes taken to be the prototypical use of adjectives, and hence their defining characteristic. For example, Hengeveld (1992: 58, emphasis in the original) defines adjectives as follows:

(4) An *adjectival* predicate is a predicate which, without further measures being taken, can be used as a modifier of a nominal head.⁶⁹

Baker (2003a), among others, argues that this is not the defining characteristic of adjectives, and a number of studies (e.g., Baker 2003b; Dixon 2004; Cinque 2010; Scontras & Nicolae 2014) show that there are languages with adjectives that cannot be used as nominal modifiers in their morphologically unmarked form and/or without the presence of more syntactic structure. However, most of the studies that deny the existence of adjectives in a given language (and, therefore, indirectly argue against the universality of the category) use some variation of the definition in (4). One of the primary goals of this chapter is to argue against this view of adjectives, thus reinforcing Baker's (2003a) position that the ability to directly modify a noun is not the flagship property of adjectives.

⁶⁸ In some theories, verbs are not an open class in the way that nouns are (see, for example, Hale & Keyser 2002).

⁶⁹ 'Without further measures being taken' is to be interpreted as without additional morphological or syntactic marking being necessary.

Once we remove the studies that use the (soon to-be-proved wrong) definition of adjectives in (4), the remaining studies are investigations of languages with ‘atypical’ category systems that fall into two types, as originally discussed in Hengeveld (1992), and further elaborated in Koontz-Garboden (2012) in relation to the universality question. These are languages with *flexible* category systems and languages with *rigid* category systems. The former are systems of the Austronesian type, in which there are no apparent distinctions between categories, with a given lexical item freely appearing in morphosyntactic contexts where we would expect verbs, nouns, or adjectives. Therefore, one could argue that such a language lacks proper adjectives because a word can be used as a noun, as a verb, or as an adjective, depending on the context, thus lacking a unique category label.⁷⁰ *Rigid* category systems, on the other hand, are systems where categories can be easily identified, but one of them is missing (e.g., a language where all verbal concepts are expressed by morphosyntactically identifiable nouns). Therefore, such a language would lack adjectives because the properties usually denoted by adjectives in other languages would be expressed by verbs or nouns (presumably, there would be robust morphosyntactic diagnostics showing that they are verbs or nouns). Korean is an example of this type of language: it has been argued that properties denoted by adjectives in languages like English are expressed by (stative) verbs in Korean (Kim 2002 among others).

As Koontz-Garboden (2012) successfully argues, for someone to make a claim that adjectives are universal, they would have to show that adjectives exist (i.e., are different from nouns and verbs) in both flexible and rigid category systems. Chung (2012), on the basis of a detailed investigation of the lexical category system of Chamorro (a flexible category system), convincingly shows that flexible category systems of the Austronesian type do indeed have nouns,

⁷⁰ Label is used here in a pre-theoretical sense.

verbs, and (importantly for our purposes) adjectives. She argues that the apparent multifunctionality of lexical items in Chamorro and languages with a similar system is due to an extensive use of conversion in these languages, i.e., the ability of most words to merge with a silent categorizing head that changes their category. Koontz-Garboden (2012), in his reply to Chung's paper, is convinced that her arguments show that flexible category systems indeed have categories, but notes that her analysis (using conversion) cannot extend to rigid category systems, simply because multifunctionality does not exist in these languages. Therefore, he claims that we need to investigate rigid category systems next in order to see if adjectives (or other categories) are universal. This task would, thus, consist of finding evidence for a distinction between adjectives and verbs in languages where adjectival concepts have been argued to be expressed by verbs (e.g., Korean) and evidence for a distinction between adjectives and nouns for those languages where adjectival concepts are expressed by nouns.

In the next section, I provide a detailed investigation of the morphosyntactic properties of adjectives in Kipsigis – a language that at first sight uses verbs to denote concepts usually denoted by adjectives in the world's languages. This investigation is a first step towards showing that adjectives exist even in languages with apparent rigid category systems and, in combination with Chung's (2012) treatment of flexible category systems, provides support for the view that adjectives are a universal category. At the end of the chapter, I discuss why it is so difficult to distinguish between adjectives and verbs/nouns in some languages, and I give some preliminary ideas on the implications of these facts for our theoretical treatment of adjectives.



4. Kipsigis has adjectives

4.1. Kipsigis ‘adjectives’ look like verbs

It is relatively easy to distinguish between nouns and verbs in Kipsigis, since their morphological and syntactic distribution are very different. However, adjectives are harder to identify: all typical property concepts that are denoted by adjectives in Indo-European (and other) languages are very similar to verbs in the language, and ‘adjectives’ can only modify nouns inside a relative clause. Furthermore, Toweett (1979) treats adjectives as a sub-class of verbs in his description of Kipsigis verbal morphology, and he states that adjectives in their citation form are ‘one-word sentences’ with the meaning of ‘he/she is X’. In the following paragraphs I give more details on why adjectives look like verbs in Kipsigis.

First, tense and agreement morphology can directly attach to adjectives, which can act as predicates without the presence of an overt copula. In (5)-(6), both verbs and adjectives take the same distant past prefix *kii-* and the same subject agreement prefix *a-*. If a subject is present, it follows the predicate in both cases (the dominant word order in the language is VSO) and bears nominative case.

(5) Kii-á-báybây	(<u>ánèè</u>).	Adjective
PAST3-1SG-happy	1SG.NOM	
‘I was happy.’		
(6) Kii-á-rú	(<u>ánèè</u>).	Verb
PAST3-1SG-sleep	1SG.NOM	
‘I slept.’		

Adjectives can also appear with argument structure-related morphology directly attached to the adjectival stem: in (7) we see the adjective from (5), *báybây* ‘happy’, with the applicative suffix *-chiin*, which introduces the applied argument *Kibêet*.

properties that distinguish between the two, starting with illustrating how even the similarities pointed out in the previous section disappear under closer scrutiny.

A) TAM Morphology

In the previous section, I showed that TAM morphology, argument structure-related suffixes, and the subject agreement prefix can all be found on either adjectives or verbs in Kipsigis. However, a closer look at the distribution of adjectives in predicative position shows that the form of the subject agreement prefix is the same between adjectives and verbs only if overt TAM or argument structure-related morphology are present, as shown in (5) and (6) above. In the non-past, where there is no overt TAM morphology, the vowel of the subject agreement prefix is long and bears a low tone with adjectives (ex. 12a), while it is short with a high tone for verbs of conjugation class 1 (ex. 12b), and it is long with a high falling tone for verbs of conjugation class 2 (ex. 12c).⁷⁶

- | | |
|---------------------------------------------------------------------------------|------------------------------|
| (12) a. Áa -báybáy.
1SG-happy
'I am happy.' | Adjective: long, L tone |
| b. Á -rú-é.
1SG-sleep-IPFV
'I sleep/I'm sleeping.' | Verb, Class 1: short, H tone |
| c. Áa -ngén Kibêet.
1SG-know Kibeet
'I know Kibeet.' ⁷⁷ | Verb, Class 2: long, HL tone |

⁷⁶ There are two morphological/conjugation classes for verbs across Kalenjin dialects (and Nilotic languages more generally), called class 1 and class 2 in most previous descriptions. A large number of verbs in Kalenjin regularly alternate between 1 and 2 with anticausatives in the former class and causatives in the latter. An equally large number of verbs, though, appear exclusively in one or the other class, with no apparent semantic generalization that can predict class membership. See Toweett (1979) and Creider & Creider (1989) for a discussion of the two morphological classes in Kalenjin, Rottland (1982) and Kiessling (1997) for Southern Nilotic more generally, and Dimmendaal (1983b) for all Nilotic.

⁷⁷ An observant reader will notice that in (a) and (c) there is no overt Aspect suffix, while there is one in (b). It is generally true that an imperfective suffix is present in the non-past form of verbs, while it is absent with predicative adjectives and nominals. One could use this as a diagnostic distinguishing between adjectives/nouns and verbs, but as (c) shows, there is a class of verbs (stative verbs) that do not take the suffix, which makes the diagnostic unreliable. Furthermore, it has to be noted that the absence of the suffix in (c) is due to the semantic class of the verb, and not to its morphological class, since the majority of Class 2 verbs do appear with the imperfective suffix in the non-past.

These differences in vowel length and tonal behavior of the subject prefix in the morphologically unmarked non-past are not due to phonological reasons. First, the subject agreement prefix is followed by a high-toned short vowel in all three examples in (12) (i.e., the phonological environment is very similar). Second, previous descriptions of Kalenjin dialects argue that the exact phonological shape of the subject agreement prefix is conditioned entirely by morphosyntax (more specifically, TAM and conjugation class) in all dialects (Creider & Creider 1989 among others). Table 10 summarizes the form of the subject agreement prefix in the (morphologically unmarked) non-past for verbs of each conjugation class, and for adjectives.⁷⁸

Person/Number of subject	Adjectives	Verbs: Class 1	Verbs: Class 2
1SG	àa-	á-	âa-
2SG	ìi-	í-	îi-
3	∅	∅	í-
1PL	kii-	kí-	kîi-
2PL	òo-	ó-	ôo-

Table 10 – Form of subject agreement prefix in non-past

The exact form of the subject prefixes varies with conjugation class, Tense (three degrees of past vs. non-past), Aspect (perfective/imperfective and perfect/non-perfect), and Mood (indicative, imperative, subjunctive), but the details are not important for our purposes. What is important is that adjectives have a different set of agreement prefixes from verbs in the morphologically

Finally, as the difference between (a) and (c) shows, the form of the subject prefix is independent of the presence or absence of an Aspect suffix.

⁷⁸ The subject agreement prefix is in the [ATR] harmony domain of the verbal/adjectival stem across the paradigm.

unmarked non-past form. They have verbal Class 1 agreement prefixes across the conjugation paradigm for other TAM combinations. They also have verbal Class 1 agreement prefixes when they appear with argument structure-related morphology, even in the non-past. Tellingly, this is also the behavior of nouns when they appear in predicative position. As (13) illustrates, in the unmarked non-past, the subject agreement prefix is the same one that we also find with adjectives, while in the past tense, the agreement prefix is the agreement prefix that we find with Class 1 verbs in the past (cf. example 6).

- | | |
|-----------------------------------------------------------------------------|--------------|
| (13) a. <u>Àa-làakwéet.</u>
1SG-child
'I am a child.' | Non-past |
| b. <u>Kii-á-làakwéet.</u>
PAST3-1SG-child
'I was a child (long ago).' | Distant past |

The difference between the unmarked non-past and the rest of the paradigm could indicate the presence of additional verbal structure when argument structure or TAM morphology are present on the noun or adjective. However, the difference that we observe between verbs and adjectives in the non-past clearly shows that adjectives are not the same as verbs in Kipsigis. What about the resemblance of adjectives to nouns with respect to subject agreement prefixes? As will become clear in the remainder of the chapter, adjectives do not pattern with nouns for any other diagnostic. Their similar behavior with respect to subject agreement prefixes when used predicatively is probably due to a similar syntactic structure for predication (e.g., PredP might be present in both cases).

Finally, there is another subtle difference between verbs and adjectives when used predicatively, this time with respect to word order. As pointed out before (and as illustrated by the examples so far), the predominant word order in Kipsigis is VSO, with adjectives (and nouns) also

appearing clause-initially when used predicatively. Furthermore, the subject (of either the verb or predicative adjective) bears nominative case. Kipsigis also allows for (only) one pre-verbal position, which is marked by the morpheme *ko*. Subjects can appear in this position, in which case they do not bear nominative.⁷⁹ These facts are illustrated in (14)-(15) below with intransitive verbs and adjectives.

(14)a. Rú-è Kíbêet. V-S; nominative subject
 sleep-IPFV Kibeet.NOM
 ‘Kibeet is sleeping.’

b. Kíbêet kò rú-è. S-V; unmarked subject
 Kibeet TOP sleep-IPFV
 ‘Kibeet is sleeping.’⁸⁰

(15)a. Tórôor Kíbêet. Adj-S; nominative subject
 tall Kibeet.NOM
 ‘Kibeet is tall.’

b. Kíbêet kò tórôor. S-Adj; unmarked subject
 Kibeet TOP tall
 ‘Kibeet is tall.’

The orders in (14a) and (15b) are the orders produced by speakers when asked to translate from English without any particular context. Moreover, speakers judge both orders in (15) as perfectly grammatical for adjectives, irrespective of the discourse context, but they judge the S-V order in (14b) as marginal unless given the appropriate discourse context. This indicates that either order is grammatical for adjectives in the pragmatically unmarked case, while only the verb-initial order is grammatical for verbs in the unmarked case.

⁷⁹ Loss of nominative marking pre-verbally is a common property of marked nominative languages in Africa (cf. König 2008), though there are exceptions (e.g., Tennes is a marked nominative language with nominative marking on the noun both pre-verbally and post-verbally; Randal 1998).

⁸⁰ The exact semantics of this position is not clear, but the position seems to have properties of topic positions in the left periphery.

Summing up, even though verbs and adjectives take (roughly) the same TAM morphology, we find a difference in the subject agreement prefix that they appear with in the absence of TAM morphology. Moreover, in the pragmatically unmarked case, the word order for sentences with adjectival predicates is Subject – Predicate or Predicate - Subject, but it can only be Predicate – Subject for sentences with verbal predicates.

B) Case

Even though both verbs and adjectives are introduced by the relativizer *ne* (plural *che*) in the context of nominal modification, adjectives, but not verbs, agree with the head noun in case. As shown in (16), adjectives have three different tonal shapes: one when they modify nouns in the unmarked case (a), one when they modify nouns in the nominative (b), and, yet a different one when they are in predicative position. This latter property also distinguishes them from nouns in the language, which do not have a special tonal shape when they appear in predicative position. Furthermore, the morphological rules of nominative case formation are different for nouns and adjectives, as briefly discussed in Chapter 2 (see also Kouneli & Nie 2018).

- (16) a. *kii-á-géer ngèchéréét nè píriir.* **Unmarked: HL**
 PAST3-1SG-see chair REL red
 ‘I saw a red chair.’
- b. *ki-i-bút ngèchéréét né píriir.* **Nominative: LH**
 PAST3-CLASS2-fall chair.NOM REL.NOM red.NOM
 ‘A/the red chair fell.’
- c. *Píriir ngèchéréét.* **Predicative: H.HL**
 red.PRED chair.NOM
 ‘The chair is red.’

However, adjectives no longer agree with the noun they modify in case when negation and/or tense morphology are present on the adjective. In this case, the adjective has the tonal shape that it has when in predicative position, as shown in (17).

(17)kii-á-géer	ngèchèreét	nè	kii-pírîr.	Predicative: H.HL
PAST3-1SG-see	chair	REL	PAST3-red	
‘I saw a/the chair that was red.’				(cf. examples 16a;c)

The loss of case agreement in sentences like (17) might be due to the presence of additional, verbal structure in those cases where TAM morphology is present, similar to the subject agreement prefix facts discussed in the previous subsection. The important observation for the purposes of distinguishing between verbs and adjectives is that, in the absence of morphology that is associated with verbal functional structure, adjectives and verbs behave differently with respect to case inflection.

C) Reduplication

As Dixon (2004) points out, it is cross-linguistically common for the (phonological/morphosyntactic/semantic) properties of reduplication to differ between verbs and adjectives. This turns out to be the case for Kipsigis as well.

Reduplication of the verbal stem is a productive process in the verbal domain, with the meaning of repeated action. The phonology of reduplicated forms of monosyllabic stems depends on the length of the vowel of the stem: a) if the stem has a short vowel, the whole stem is reduplicated and a linking vowel *aa* appears between the two copies (illustrated in 18), b) if the stem has a long vowel, there is some irregularity: for most verbs, the whole stem is reduplicated and the vowel of the leftmost copy is shortened (19a), but for some there is no vowel shortening (19b), with a couple of verbs in this latter category taking the linking vowel (19c). Reduplication is impossible (or marginal for some speakers) for disyllabic stems, but the vast majority of Kipsigis (underived) verbs are monosyllabic.

(18)a. kèe-tém	→	kèe-tèm-àa-tèm	Short V: Stem – linking vowel – stem
INF-dig		INF-dig-LK-dig	
‘to dig’		‘to dig repeatedly’	

b. <u>k</u> èe- <u>ch</u> ám	→	<u>k</u> èe- <u>ch</u> ám- <u>àa</u> - <u>ch</u> ám	
INF-love		INF-love-LK-love	
‘to love’		‘to love on and off’	
(19) a. <u>k</u> èe- <u>l</u> áal	→	<u>k</u> èe- <u>l</u> ál- <u>l</u> áal	Long V: Stem(shortV) - Stem(longV)
INF-cough		INF-cough-cough	
‘to cough’		‘to cough repeatedly’	
b. <u>k</u> èe- <u>k</u> éer	→	<u>k</u> èe- <u>k</u> èer- <u>k</u> éer	Long V: Stem(longV) – Stem(longV)
INF-see		INF-see-see	
‘to see/to look’		‘to look repeatedly/to watch over something’	
c. <u>k</u> ii- <u>p</u> wâat	→	<u>k</u> ii- <u>p</u> wâat- <u>àa</u> - <u>p</u> wâat ⁸¹	LongV: Stem(longV) – linking vowel - Stem(longV)
INF-think		INF-think-LK-think	
‘to think’		‘to be thinking on and off’	

Productive reduplication of this sort is not attested with adjectives, but the stem of a large number of disyllabic adjectives looks ‘doubled’, i.e. the first syllable is the same as the second, as illustrated in (20). However, the syllable that looks reduplicated is not an attested word in the language, and is not associated with a particular meaning (i.e., only the doubled form can be interpreted by speakers). It is possible that phonological reduplication of a root is an option for forming adjectives.^{82, 83} Also note that this reduplication is phonologically different from reduplication in the verbal domain, since the linking vowel *aa* between two short-vowelled syllables is not found with adjectives (cf. example 18 above).

(20) Underived disyllabic adjectives

a. <u>ny</u> úmnyûm	(*ny <u>um</u>)	‘easy’
b. <u>pér</u> pêr	(*p <u>er</u>)	‘stupid’
c. <u>tént</u> ên	(*t <u>en</u>)	‘slender’
d. <u>pús</u> pûs	(*p <u>us</u>)	‘soft’

⁸¹ Toweett (1979: 140) suggests that the insertion of the linking vowel for long-vowelled stems is phonologically conditioned, with the consonant sequence [t.p] being prohibited.

⁸² Zwarts (2004) also points out that phonological reduplication of this sort (i.e., reduplication that does not have an independent stem as its base) is a productive word formation process in the Endo-Marakwet dialect of Kalenjin.

⁸³ Interestingly, the Swahili noun *wasiwasi* ‘worry’ has been borrowed in Kipsigis as an adjective meaning ‘unreliable’, which provides indirect support for the claim that phonological reduplication is associated with adjectival formation in the language.

In brief, reduplication in the verbal domain is a productive process associated with pluractionality, while it is a (possibly idiosyncratic) word formation process in the adjectival domain; we do not find productive reduplication associated with plurality with adjectives. Furthermore, reduplication for the formation of adjectives has different phonological properties from verbal reduplication.⁸⁴

D) Number agreement and morphology

Another difference between verbs and adjectives concerns the presence or absence of plural morphology on predicates with plural subjects. Transitive verbs do not inflect for number in the 3rd person (21), while intransitive verbs (optionally) appear with the suffix *-toos* (with the allomorph *-ya* in the perfective) when the subject is plural (22); a couple of intransitive verbs have suppletive stems in the plural, shown in (23) for the verb ‘to run’.

(21)a. **Chám-è** làakwèet kímnyéet. Transitive verb: no PL inflection
 like-IPFV child.NOM ugali
 ‘The child likes ugali.’

 b. **Chám-è** làagôok kímnyéet.
 like-IPFV children.NOM ugali
 ‘The children like ugali.’

(22)a. **Làal-é** làakwèet. Intransitive verb: optional *-toos* suffix⁸⁵
 cough-IPFV child.NOM
 ‘The child is coughing.’

⁸⁴ There is one exception: the adjective *tér* ‘different’. This adjective can be productively reduplicated, with a reciprocal-like interpretation, illustrated in (ii). The phonological properties of this reduplication process, however, are different from those in the verbal domain (where short-vowelled stems always appear with a linking vowel between the two copies). The properties of the adjective ‘different’ are further discussed in section 3.2. of chapter 5.

(ii) **Tértér** pùgúusyèk ché bà Kibêet ák ché bà Chèebêet.
 different.RED books.NOM REL.PL POSS Kibeet and REP.PL POSS Cheebeet
 ‘Kibeet’s books and Cheebeet’s are different from each other.’

⁸⁵ The exact nature of this suffix is unclear: it does not appear with all intransitive verbs, and it is optional for all speakers even for those verbs with which it is compatible. In general, it does not have properties of agreement morphology in the language, and it is more similar to the morphemes related to argument structure. Further research is needed in order to understand the behavior of this particular morpheme.

b. **Làal-tóos** làagôok.
 cough-PL.IPFV children.NOM
 ‘The children are coughing.’

(23) a. **Lábàt-í** làakwèet. Suppletive verb
 run.SG-IPFV child.NOM
 ‘The child is running.’

b. **Rúày** làagôok.
 run.PL children.NOM
 ‘The children are running.’

Adjectives, on the other hand, obligatorily inflect for number, with all adjectives (without exceptions) having a distinct plural form if their subject is plural.⁸⁶ The most common pluralization strategy for adjectives is the addition of the dominant [+ATR] suffix – *een*, but for a large number of [-ATR] adjectives, plural is expressed by a switch to [+ATR], without the addition of segmental material. Most (but not all) of the latter category of adjectives have alternative plural forms with – *een* attached to the plural [+ATR] stem. Some adjectives have irregular plural forms. These pluralization strategies are unique to adjectives; we do not find them in the verbal domain (cf. examples 21-23 above) or in the nominal domain, where the system of plural formation is completely different, as discussed in detail in the previous chapter.

(24) a. **Pírîir** ngèchèrèet. Adjective: obligatory plural inflection
 red chair.NOM
 ‘The chair is red.’

b. **Pírîir-èen** ngèchèrôok.
 red-PL chairs.NOM
 ‘The chairs are red.’

In sum, while verbs rarely show plural morphology in the 3rd person, adjectives obligatorily bear plural marking when their subject is a plural DP; the form of plural marking for adjectives is distinct from the plural morphology that we find in the verbal and nominal domains.

⁸⁶ Adjectives also agree in number with the noun that they modify DP-internally.

E) Degree words and comparatives

Gradable predicates are often grammaticalized as adjectives cross-linguistically, and it is common for modifiers referring to degrees (e.g., *very* in English) to only be compatible with adjectives. Similarly, comparative morphology or other specialized comparative constructions are often diagnostics that distinguish between adjectives and other categories in a given language (e.g., one of the standard diagnostics for adjectivehood in English is the compatibility of adjectives, but not nouns or verbs, with the comparative suffix *-er*).

In Kipsigis, the word *kót* ‘very’ can modify adjectives, but not verbs (or nouns); the restriction is syntactic, and not semantic, since its synonym *m̀is̀ing* can modify either nouns or verbs, as shown by the examples below.

- (25) a. Chèeptá kò kárâarân kót/m̀is̀ing. Adjective
 girl TOP beautiful very/very
 ‘The girl is very beautiful.’
- b. Rú-è m̀is̀ing/*kót. Verb
 sleep-IPFV very/very
 ‘He/She sleeps a lot.’

Turning to comparatives, the primary strategy to express comparison in Kipsigis involves the verb *kèe-siir* ‘to pass/ to exceed’. In Stassen’s (1985) typology of comparatives, Kipsigis is an exceed-type language.⁸⁷ There are two variants of this construction in Kipsigis: in the first one (which is the most widely used), the gradable adjective is the main predicate of the matrix clause, while the verb ‘to exceed’ appears in the subjunctive (26a); in the second one (which is relatively

⁸⁷ All exceed-type languages in Stassen’s (1985) sample have SVO word order, but we have already seen that Kipsigis is a VSO language.

rare), the verb ‘to exceed’ is the main predicate in the matrix clause and the gradable property is expressed as an abstract noun, derived from the adjective (26b).⁸⁸

- (26) a. **Tórôor** Kíbêet **kò-siir** Kiplàngàt. Exceed-type A
 tall Kibeet.NOM 3SUBJ-exceed Kiplangat
 ‘Kibeet is taller than Kiplangat.’
- b. **Siir-é** Kíbêet Kiplàngàt éen **tórôor-in-tá**. Exceed-type B
 exceed-IPFV Kibeet.NOM Kiplangat P tall-N-SEC
 ‘Kibeet is taller than Kiplangat (*lit.* Kibeet exceeds Kiplangat in height).’

At first sight, neither of the exceed-type constructions distinguishes between adjectives and verbs. The exceed-type B construction does not (directly) involve a verb or an adjective, since the property to be compared is expressed as a noun. Therefore, the availability of this construction largely depends on whether there exists in the language a deverbal or deadjectival noun expressing the relevant property. As for the exceed-type A construction, it is readily found in verbal comparison, as shown in (27) (cf. example 26a above).

- (27) a. **Í-lúu** àsiistà **kò-siir** árâawéet.
 CLASS2-shine sun 3SUBJ-exceed moon
 ‘The sun shines more than the moon.’
- b. **Rú-è** Kíbêet **kò-siir** Chèebêet.
 sleep-IPFV Kibeet.NOM 3SUBJ-exceed Cheebeet
 ‘Kibeet sleeps more than Cheebeet.’

However, a subtle difference exists between verbs and adjectives in the exceed-type A construction: if the subject of the predicate of the main clause is first or second person, the verb *kèe-siir* ‘to exceed’ in the subjunctive optionally agrees with the matrix subject in the case of

⁸⁸ What I call exceed-type A and exceed-type B correspond to exceed-type 2 and exceed-type 3 respectively in Stassen’s (1985) typology. Stassen formulates a universal, according to which a language has exceed-type 2 or exceed-type 3 comparative constructions only if it has noun-like adjectives. Kipsigis adjectives are clearly verb-like, and the language, hence, does not fit in this generalization. Interestingly, exceed-type 2 and exceed-type 3 are the comparative constructions present in Swahili. It is, therefore, possible that the Kipsigis constructions are an innovation due to extensive contact of the language with Swahili.

adjectival comparison, but it never agrees – and shows default 3rd person agreement instead – in the case of verbal comparison, as illustrated in (28) – (29) below.

- | | | | | |
|------|-------------------------------|------------------------|-----------|-----------|
| (28) | Àa-tórôor | kò-/âa-siir | Chèebêet. | Adjective |
| | 1SG-tall | 3.SUBJ/1SG.SUBJ-exceed | Cheebeet | |
| | ‘I am taller than Cheebeet.’ | | | |
| | | | | |
| (29) | Á-rú-é | kò-/*âa-siir | Chèebêet. | Verb |
| | 1SG-sleep-IPFV | 3.SUBJ/1SG.SUBJ-exceed | Cheebeet | |
| | ‘I sleep more than Cheebeet.’ | | | |

Finally, Kipsigis has a secondary (less frequent) strategy for expressing comparison: in this construction, which I call the locative comparative construction, the generic locative preposition *éen* ‘at/to/from’ is used instead of the verb *kèe-siir* ‘to exceed’, as shown in (30). This construction is only available to adjectives, as shown by the ungrammaticality of (31), and is, therefore, another environment where we find a distinction between the behavior of adjectives and verbs.

- | | | | | | |
|------|--------------------------------------|---------------|------------|------------------|----------|
| (30) | Tórôor | Kíbêet | éen | Kiplàngât. | (cf. 26) |
| | tall | Kibeet.NOM | P | Kiplangat | |
| | ‘Kibeet is taller than Kiplangat.’ | | | | |
| | | | | | |
| (31) | *Í-lúu | àsístà | éen | árâawéet. | (cf. 27) |
| | CLASS2-shine | sun.IPFV | P | moon | |
| | ‘The sun shines more than the moon.’ | | | | |

F) Derivational morphology

It is common for derivational affixes to have selectional requirements; for example, *-ness* attaches to adjectives in English, while *un-* attaches to adjectives or verbs. Affixes have similar requirements in Kipsigis, and we find two suffixes that can only attach to adjectives. First, the suffix *-in* is used to form an abstract noun from an adjective, as shown in (32).⁸⁹ There are no nouns or verbs that take this suffix.

⁸⁹ The *-da* ending is the (phonetic realization of the) secondary suffix *-ta* discussed in the previous chapter. As discussed in that chapter, nominalizing suffixes in Kipsigis come with their own number features, and they also

- (32) a. *tórôor* ‘tall/high’ + in → *tórôorindá* ‘height’
 b. *pírîir* ‘red’ + in → *pírîirindá* ‘redness’
 c. *tébès* ‘wide’ + in → *tébèsindá* ‘width’

The second suffix that we find exclusively with adjectival stems is the suffix *-iit*, used to form deadjectival verbs with anticausative semantics. The causative variant of the verb does not have the suffix *-iit*, but it is rather formed by lengthening of the vowel of the last syllable of the adjective. The full paradigm is given in (33), with the adjectives *tébès* ‘wide’ and *kàitit* ‘cold’ as examples.

(33) Adjective	Class 1 (anticausative) verb	Class 2 (causative) verb
a. <i>tébès</i> ‘wide’	<i>kèe-tébès-iit</i> ‘to widen’	<i>kij-tébées</i> ‘to widen’
b. <i>kàitit</i> ‘cold’	<i>kèe-kàitit-iit</i> ‘to become cold’	<i>kij-kàititit</i> ‘to make something cold’

4.3. Interim summary

In this section, I have shown that a number of diagnostics distinguish between adjectives and verbs in Kipsigis, despite their surface similarity and despite the fact that adjectival modification is almost identical to modification by a full relative clause. Table 11 summarizes the differences between adjectives and verbs in the language.

determine the thematic suffix of the noun. The suffix *-in* has a zero thematic suffix, in which case the secondary suffix surfaces with the allomorph *-ta*.

	Adjectives	Verbs
Subject agreement prefix in unmarked non-past	long vowel, low tone	short vowel, high tone OR long vowel, falling tone
Case morphology	unmarked vs. predicative vs. nominative	no case marking
Reduplication: phonology	No linking vowel	Linking vowel aa for reduplicated short-vowelled stems
Reduplication: morphosyntax/semantics	Idiosyncratic word formation process/no plurality semantics	Productive process to express pluractionality
Number morphology	Obligatory with plural subjects; plural morphology unique to adjectives	No obligatory agreement with plural subjects; plural morphology unique to verbs
Degree word <i>kót</i> ‘very’	Compatible with adjectives	Ungrammatical with verbs
Comparatives: exceed-type	Optional agreement of the embedded verb <i>kèe-siir</i> ‘to exceed’ with the subject of the main clause	Obligatory <u>non</u> -agreeing form of the embedded verb <i>kèe-siir</i> ‘to exceed’
Comparatives: locative P type	Available	Unavailable
Nominalizing suffix <i>-in</i>	Compatible	Incompatible
Verbalizing suffix <i>-iit</i>	Compatible	Incompatible

Table 11 – Differences between verbs and adjectives in Kipsigis

5. Implications for the theory of adjectives

Having provided a description of the morphosyntactic properties that distinguish between adjectives and verbs in Kipsigis, I now move on to a discussion of the implications of a Kipsigis-type category system for our theories on adjectives.

5.1. Adjectives are universal

As discussed in section 3.2., in order to argue that adjectives are a universal lexical category, we need evidence for the existence of adjectives in both languages with a flexible category system and languages with a rigid category system in Hengeveld’s (1992) terminology. Chung (2012) provides such evidence for flexible category systems; the present investigation provides such

evidence for a rigid category system, which strengthens Chung's argument for the universality of categories.

Of course, showing that *one* rigid category system has adjectives does not necessarily mean that *all* rigid category systems will distinguish between adjectives and verbs (or adjectives and nouns). However, what the previous section has hopefully illustrated is that the diagnostics to distinguish between two categories can be subtle in a given language, and research on the (non-) existence of adjectives comes mostly from understudied, non-European languages. This is a point discussed extensively by both Chung (2012) and Dixon (2004); when a language exhibits morphosyntactic characteristics different from those of the more familiar European languages, it is easy to miss the differences between categories. For example, Dixon (2004) notes that one very obvious effect of what he calls Eurocentrism in the research on categories is the characterization of verb-y adjectives in a number of languages as a subclass of verbs. Dixon (2004) discusses how linguists are reluctant to call these words a separate adjectival category due to their extreme difference from the noun-y adjectives that we find in most European languages. In fact, all papers in the Dixon & Aikhenvald (2004) edited volume argue for the existence of adjectives in languages that had been previously claimed to lack them (e.g., Sohn 2004 argues that Korean has adjectives, contra Kim 2002).

Therefore, even though Kipsigis is just *one* apparent rigid category language, it is one more addition to the large number of (genetically and areally unrelated) languages whose lack of adjectives has been disproved under closer scrutiny. The fact that such a great number of studies reveal subtle differences between adjectives and verbs/nouns in so many languages points towards the conclusion that adjectives are universal, but that they simply vary more than nouns or verbs. This is exactly the position taken by Dixon (2004), who had himself argued against the universality

of adjectives in (1982), but writes that ‘a further quarter-century of research’ (Dixon 2004: 12) has convinced him that an adjective class exists in all languages, but that the criteria to distinguish it from nouns/verbs might be very subtle. The description of the relevant criteria for Kipsigis is, thus, significant in two ways: a) it adds to our toolbox of possible diagnostics to distinguish adjectives in an understudied language, and b) it is, to my knowledge, the first in-depth description of the adjectival class in any Nilo-Saharan language, and, therefore, expands the range of language families represented in theoretical discussions on lexical categories.

Accepting that adjectives are universal is important because it allows us to explore a set of deeper questions. If all languages have adjectives, why are adjectives an open or closed class depending on the language? Why do they look more like verbs in some languages but more like nouns in others? Why can they directly modify the noun in some languages, but not in others? Accepting the universality of adjectives and the view that categorization takes place in the syntax can lead to very interesting results. For example, the universality of adjectives might imply that a certain feature (or combination of features) are universal components of UG, but that different syntactic constraints on the combination of these features might account for the variation that we find with adjectives. This direction for further research will be discussed in more detail in section 5.3., after a short diversion to the relationship between adjectives and modification in the following section.

5.2. Adjectives and nominal modification

In section 3.2., I mentioned that for some linguists, a true adjective is a lexical item that can modify a noun without the mediation of extra morphological or syntactic material, and I hinted at the fact that this is not the correct view of adjectives. This view takes the attributive use of adjectives (as in 34a) as the prototypical characteristic of adjectives. Baker (2003a) gives a series

of convincing arguments against this view, but it is not uncommon to see confusion about this matter even in recent papers (e.g., Koontz-Garboden 2012 seems to adopt this definition of adjectives).

(34)a. I have a **red** dress. Attributive use

 b. My dress is **red**. Predicative use

Kipsigis is an obvious counterexample to the claim that nominal modification is the prototypical property of adjectives. However, there is some confusion in the literature about what is meant by terms like ‘direct modification’, ‘attributive’ and ‘predicative’, with different authors adopting the terms to refer to different things. In this section, I clarify what I will be adopting the terms for in the rest of the dissertation.

First, in its very simple form, ‘direct modification’ of a noun by an adjective could mean that an adjective serves as a nominal modifier without the mediation of overt material, as in (a) above for English. This view of ‘direct modification’ is the one widely adopted by those linguists who see adjectives as prototypical nominal modifiers (e.g., Hengeveld 1992). It is not very difficult to show that this view is wrong. There are phrases (even in English) that can modify the noun ‘directly’, as shown in (35) below, and that are clearly not adjectives.

(35)a. the book **on the table** PP modifier

 b. the **recently arrived** refugees Reduced relative clause modifier

In Kipsigis, on the other hand, I argued in section 4 that adjectives are a real category in the language, yet they are unable to modify the noun in the absence of the relativizer *ne* – also used for relative clauses (36). The relativizer (and an overt locative copula) is also obligatory for PP modifiers, as shown in (37), while reduced relatives like the one in (35b) for English do not exist in Kipsigis.

in (34) are adjectives, yet *red* can be paraphrased with a relative clause, while *former* cannot, as shown in (38).⁹⁰

(38)a. the **red** dress/the dress **that is red**

b. the **former** president/*the president **that is former**

(Very) roughly speaking, if an adjective can be paraphrased as a relative clause and if, in this case, it has exactly the same interpretation as when it modifies the noun directly, then the adjective is called an *indirect modification* adjective. If, on the other hand, the adjective cannot be paraphrased as a relative clause, or if it has a different interpretation when paraphrased, then the adjective is called a *direct modification* adjective. The distinction is more complicated than this, and it will be discussed in detail in the next chapter, but from now on, ‘attributive’ uses of adjectives for me will be uses of the adjective inside the DP, with some attributive adjectives being direct modification adjectives, and others being indirect modification adjectives. The term ‘predicative adjectives’ will be restricted to the uses of adjectives as predicates in a full clause.

Even though the details of implementation vary, most researchers analyze indirect modification adjectives as reduced relative clauses (Cinque 2010 among others), with direct modification adjectives being analyzed as specifiers of dedicated functional projections (Cinque 2010) or as AP adjuncts to an NP (Sproat & Shih 1988). The common analysis of a number of adjectives as predicates inside a relative clause further consolidates the argument against treating adjectives as prototypical nominal modifiers.

Summing up, when it comes to the relation of adjectives to the availability of (DP-internal) nominal modification there are two (quite possibly independent) parameters of cross-linguistic

⁹⁰ There is an old idea, though, according to which (38b) can be paraphrased with a relative clause like *the person who was formerly a president* (see Kayne 1994 among others).

variation to consider: a) does a language allow for the syntactic structures necessary for both direct and indirect modification adjectives?, and b) does a language allow for (at least part of) the structure of a relative clause to be covert? The latter parameter is also relevant for non-adjectival modifiers, such as PPs.

5.3. Towards a theory of adjectives

Having established the universality of adjectives, their only indirect relationship to nominal modification, and their markedness with respect to nouns and verbs, we are now in a position to reflect on what these conclusions implicate for the theoretical treatment of adjectives. I do not develop a theory of adjectives, which would provide enough material for multiple dissertations, but I simply discuss what the above conclusions mean in the theory of lexical categories adopted in this thesis, i.e., a theory in which categorization is syntactic and involves certain lexical heads, features, and roots. As a reminder, nouns are formed by the composition of a head n with a root, and verbs are formed by the composition of a head v with a root. These heads host [N] and [V] features respectively, with two possible interpretations suggested in Baker (2003a) and Panagiotidis (2014). The universality of nouns and verbs implies that these heads and the features they host are universal. How do we represent the universality of adjectives in such a theory?

In early approaches to categorization in DM (e.g., Marantz 1997), it was tentatively suggested that adjectives are formed by merging a root with the categorizing head a , which has the informal denotation of a ‘property’. If this is indeed the head responsible for creating adjectives, then the universality of adjectives means that this head is available to all languages. However, defining what features this head hosts, i.e., what features are responsible for turning a root into an adjective (and whether those features are universal), is not an easy task. There are two approaches to this question, which will be explored below.

First, there might be a feature [A] associated with a particular set of interpretations. In this case, the head *a* would host this feature; the feature [A] would be universal, just like [N] and [V]. The main problem with this view is that we would expect the behavior of [A] to be very similar to that of [N] or [V], but as was already discussed, this is not the case, since adjectives as a class behave very differently from nouns and verbs. For example, adjectives are a small class in many languages, unlike nouns and verbs, which tend to constitute large, open classes; adjectives look noun-y in many languages, but verb-y in others; they can modify the noun directly or not, etc. Associating adjectives with a feature [A] does not help us to understand where this variation comes from. Furthermore, it is very difficult to define the semantics for such a feature, as discussed in more detail in Mitrović & Panagiotidis (2018) and references therein.⁹¹

Second, the categorizing head *a* might host both [N] and [V] features, in the spirit of Chomsky's (1970) original characterization of adjectives as [+N, +V] categories. In such an approach, the only syntactic primitives are [N] and [V];⁹² since these features are universal, it follows that adjectives are universal too. However, making this combination of features readily available to all languages makes it difficult to explain where the cross-linguistic variation in adjectives comes from. If *a* is a run-of-the-mill categorizing head, which always hosts the same two features, we would expect more uniformity in the morphosyntax of adjectives. Moreover, in all previous semantic accounts of category features (i.e., Baker 2003a and Panagiotidis 2014), the interpretation assigned to [N] and [V] contradict each other, which makes their co-existence on the

⁹¹ It has to be noted, however, that Mitrović & Panagiotidis (2018) argue that it is impossible to define 'properties' (which they assume is the informal meaning of *a*) in a unitary way in terms of an interpretive perspective – the semantic approach to categories advocated in Panagiotidis (2014) (see also Acquaviva 2014). It is an open question, though, whether it would be possible to define such semantics in a different framework. It is even possible that 'properties' is not, in fact, the correct informal meaning of the feature [A]. In any case, even if the semantics were not a problem, the differences between nouns/verbs and adjectives, which will become even more pronounced as this section progresses, are enough to reject the treatment of the adjectival feature [A] on a par with [N] and [V].

⁹² That the only lexical category distinction is between nouns and verbs is also argued for by Kayne (2008).

same categorizing head impossible (in some theories- e.g., Kayne 2007 - two features on the same head is hypothesized to be impossible in UG more generally).

The latter problem, as well as the extreme cross-linguistic variation in the behavior of adjectives, are two of the (many) reasons why Baker (2003a) analyzed adjectives as the absence of any lexical category features. Adjectives are the unmarked lexical category: they are the lexical root without any [N] or [V] features. This analysis, however, is faced with a number of serious problems. For example, if adjectives are the unmarked category, it is difficult to explain why so many languages have such a small adjectival class. It is even more difficult to explain the existence of affixes (such as *-al* in English), which turn a word into an adjective. Panagiotidis (2014: 42-48) gives additional arguments against treating adjectives as the unmarked, ‘elsewhere case’ of lexical categories.⁹³

Summing up, it seems that it is not possible to define the content of *a* in a way that is useful for the meaning of adjectives or their cross-linguistic variation. I think we should, therefore, reject the existence of this head, and accept that whatever turns roots (or other words) into adjectives is not a categorizing head on a par with *n* and *v*. We have the following conundrum: adjectives are universal, yet they seem to be a complex category, with different properties from the basic lexical categories ‘noun’ and ‘verb’. A straightforward solution is to develop a theory in which adjectives are built by a combination in the syntax of the heads *n* and *v*.⁹⁴ In such a theory, the universality

⁹³ One of Panagiotidis’ arguments against Baker’s (2003a) view is that adjectives are not universal (he claims that if adjectives were indeed the unmarked lexical category, we would expect them to be universal). Even though I obviously disagree with this claim, the rest of his arguments against Baker (2003a) are very convincing.

⁹⁴ Amritavalli & Jayaseelan (2003) provide an interesting alternative implementation of the idea that adjectives are a complex category. In their analysis, adjectives are the result of the incorporation of an adposition into a noun. I think this approach has two main disadvantages. First, it is not clear whether adpositions are universal and/or a simple category. Thus, explaining that adjectives are universal by appealing to adpositions is a difficult task (indeed, Amritavalli & Jayaseelan do not accept the universal status of adjectives). Second, this approach can account for the properties of noun-like adjectives, but it does not seem to capture the properties of adjectives that look more like verbs.

of adjectives follows from the universality of its syntactic components. Furthermore, the existence of both *n* and *v* in the structure can account for the observation that adjectives often have both noun-like and verb-like properties in the world's languages. More importantly, combining [N] and [V] as syntactic heads in the syntax (as opposed to the featural make-up of a single head) allows us to begin investigating where the cross-linguistic variation in adjectival behavior comes from. More specifically, as anything that is built in the syntax, we expect variation in how these heads can be merged and further manipulated. Moreover, we expect this to be correlated to the general syntactic profile of a given language.⁹⁵ For example, with the exception of Celtic languages, all verb-initial languages (irrespective of language family) are classified as languages with verb-like adjectives in WALS. Intuitively, it seems like the [V] feature is more 'active' in these languages. A direction towards formalization could look like this: higher heads in the clausal domain have an uninterpretable, unvalued [V] (or V-related) feature, which is checked by head movement of the verb itself or by phrasal movement of the VP (most analyses of verb initiality assume V- or VP fronting). We might find something similar in the internal syntax of adjectives, which leads to movement of the *v* head (hosting the V feature) to the edge of the phrase, giving those adjectives their verbal properties when they interact with the rest of the clause.⁹⁶

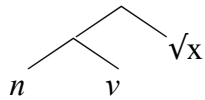
⁹⁵ A theory in which adjectives are complex categories built in the syntax by the combination of [N] and [V] on distinct category heads can also be developed in a framework that rejects the existence of the features [N] and [V], such as Borer (2005) and Kayne (2008). More specifically, in these frameworks (which differ greatly from each other), lexical features do not exist, but the distinction between nouns and verbs is a reflection of syntactic structure. For Borer (2005), acategorial roots are interpreted as nouns or verbs depending on the functional structure that surrounds them, while for Kayne (2008) the distinction between nouns and verbs follows from Antisymmetry: (roughly speaking) heads that project are verbs, while heads that do not project are nouns. The idea developed here that adjectives involve both *n* and *v*, can be recast as follows: for Borer (2005), adjectives can be roots embedded under both verbal and nominal structure, while for Kayne (2008), adjectives would involve a particular syntactic configuration of a head that projects and a head that does not project. I think this should not be difficult to implement in Kayne's model, but Borer's functional structures seem too rigid.

⁹⁶ This is just one generalization that could be accounted for by adopting an analysis of adjectives as involving both the *n* and *v* heads. It is beyond the scope of this chapter to discuss all the relevant generalizations but here are some rough ideas: presence vs. absence of concord morphology on adjectives, ability of adjectives to modify a noun in the absence of overt linking elements, ability of adjectives to appear in a direct modification syntax or not, type of

For the sake of completion, I outline the basics of the theory developed in Mitrović & Panagiotidis (2018), which is an example of the type of theory I have in mind. Their theory has some serious shortcomings in its current stage, but I think that a further refinement of this type of analysis will lead to interesting results about the nature of adjectives.

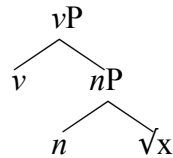
For Mitrović & Panagiotidis (2018), the derivation of adjectives starts with the merge of the *n* and *v* heads, which in turn merge with an acategorial root as shown in (39).

(39) Roots merge with a composite head



The label of the composite *n-v* head cannot be computed, and as a result, *v* is excorporated. The result is labellable (as *n*). Skipping some steps, the result of the necessary operations to resolve labeling problems is the structure in (40), which is taken to be the internal structure of adjectives.

(40)



This structure is supposed to capture a nominal core, but a verbal exterior for adjectives. The nominal core is reflected in phi features that adjectives inflect for (number, gender, etc.), while the verbal core is reflected by the adverb-looking adjectival modifiers (e.g., *very*); the authors also provide a tentative analysis of degree semantics as the result of the combination of nominal and verbal semantics.

Even though this analysis may be on the right track, it has many problems at its current stage. First, the nominal core and verbal exterior that it is supposed to capture really only corresponds to

comparative strategy chosen by the language, etc. In the next chapter, I briefly discuss how such a theory might explain why some languages have direct modification adjectives, while others do not.

the behavior of adjectives in European languages. More generally, even though they discuss typology (they make a three-way distinction: languages with verb-like adjectives, languages with noun-like adjectives, languages where adjectives have both nominal and verbal properties) and hypothesize the structure in (40) can account for this typology, it is unlikely that the typology can be accounted for by such a uniform structure as the one in (40). As mentioned before, this variation should be accounted for by a different syntactic internal structure for adjectives, which follows general syntactic constraints in the language. Furthermore, the structure in (40) looks identical to the structure of denominal verbs in DM, and it is not clear to me how the difference between adjectives and denominal verbs is to be captured in this model. Finally, the authors want to derive degree semantics for adjectives from the structure in (40), but even though degree semantics is closely associated with adjectives, I doubt it is their defining property. For example, there are languages that have been hypothesized to completely lack degrees (e.g., Washo; Bochnak 2013), while Clem (to appear) argues that Tsefwap, a Grassfields Bantu language, has gradable verbs, but lacks gradable adjectives. Therefore, I do not think that deriving degree semantics should be the main objective of research on the syntactic structure of adjectives.

6. Conclusion

In this chapter, I showed that adjectives constitute a morphosyntactic category distinct from nouns and verbs in Kipsigis, despite their surface similarities to the latter. However, they can only modify the noun in a relative clause structure. On the basis of the properties of adjectives in Kipsigis, I argued that adjectives are a universal lexical category, albeit more complex compared to nouns and verbs. I tentatively suggested that they might be analyzed in terms of the combination of nominal and verbal heads in the syntax. A theory of the cross-linguistic variation that we find

in adjectival behavior, and especially the observation that adjectives can resemble nouns, verbs, or both, depending on the language, is left as a topic for further research.

In the next chapter, I provide further arguments that adjectives in Kipsigis can only modify nouns in a relative clause structure, and discuss the implications of this property for the syntax of adjectives cross-linguistically. Furthermore, I analyze the pattern of determiner spreading in the language, which I argue is intricately linked to the relative clause nature of nominal modifiers in the language.

Chapter 5: Determiner Spreading in Kipsigis

1. Introduction

Determiner Spreading (DS) is the occurrence of multiple determiners in a semantically monodefinitive DP in the context of (usually adjectival) modification, illustrated in (1) with data from Greek and Hebrew. The terms definiteness agreement, definiteness concord, and polydefiniteness have also been used in the literature to refer to variants of this phenomenon.

(1) a. **to** forema **to** kokkino **to** makri *Greek*
the dress the red the long
'the long red dress'

b. **ha**-mexonit **ha**-xadaSa *Hebrew* (Sichel 2002: 302)
the-car the-new
'the new car'

DS is attested in a number of unrelated languages, and it has attracted a lot of attention in the syntactic literature because it is a clear example of mismatch between form and meaning: the determiner is interpreted once in the structure, yet multiple copies are present. A great variety of analyses have been proposed for each language with DS, and Alexiadou (2014) concludes that the cross-linguistic differences cannot be accommodated by a single analysis for all cases of DS. For example, she argues that the best analysis for Greek DS is one in which multiple determiners are the spellout of multiple Ds heading a reduced relative clause. Multiple determiners in Hebrew, on the other hand, are the spellout of agreement in definiteness features between the determiner, the noun and the adjective.

In this chapter, I provide a description and analysis of DS in Kipsigis, which is rare in exhibiting spreading with demonstratives, as illustrated in (2).

(2) làag-óo-**chù** sómòk **chù** kárâarán
girl-PL-PROX three PROX beautiful
'these three beautiful girls'

I analyze multiple determiners in Kipsigis as D heads introducing relative clauses in the syntax, and I argue that all adjectives in Kipsigis are reduced relative clauses; the latter point was already alluded to in the previous chapter, but more arguments are given in favor of this claim here. I also argue that the Kipsigis DS facts support a separationist view of adjectival syntax, according to which there are two types of adjectives: direct modification adjectives (which are ‘true’ adjuncts), and indirect modification adjectives, which are reduced relative clauses (Cinque 2010 among many others), with Kipsigis being a language that lacks the former type. Finally, I discuss the implications of my analysis for the typology of DS, and I conclude that there is a link between multiple determiners and relative clauses in all languages that have DS.

The remainder of the chapter is structured as follows: in section 2, I give a detailed description of the determiner system of Kipsigis, and of determiner spreading in the context of modification; in section 3, I present my analysis, which builds on Kayne’s (1994) analysis of relative clauses and Alexiadou & Wilder’s (1998) analysis of DS in Greek; in section 4, I discuss the implications of my analysis for the direct vs. indirect modification distinction in adjectival syntax; in section 5, I present a brief typology of previously described cases of DS, and show how the Kipsigis data support a view in which relative clauses and DS are connected cross-linguistically; in section 6, I discuss why Kipsigis displays spreading of demonstratives; in section 7, I conclude.

2. The data

In this section, I give necessary background information on the determiner system of Kipsigis in 2.1, before describing the properties of DS in the language in 2.2.

2.1. The determiner system

As was discussed in Chapter 3, nouns in Kipsigis consist of at least three morphemes: the root, followed by a thematic suffix (which could be zero) or a plural/singulative suffix (which may be

has a secondary suffix – could either refer to a specific cow (e.g., Kibeet wants to buy his neighbor’s cow), or it could have a non-specific interpretation, according to which Kibeet wants to buy any cow. Therefore, the noun has the same ambiguity as the English indefinite noun ‘a cow’ in the translation. Moreover, the noun *tèetá* ‘cow’ in (5) could also have a definite interpretation, depending on the context. From now on, I will be referring to nouns with a secondary suffix as bare nouns, since the secondary suffix does not seem to have properties of articles, despite the fact that it might still be associated with a D head. Summarizing, a bare noun in Kipsigis could be interpreted as a non-specific indefinite, a specific indefinite, or a definite noun.¹⁰⁰

(5) Mách-è Kíbêet kò-ál tèe-tá.
 want-IPFV Kibeet.NOM 3SUBJ.buy cow-SEC
 ‘Kibeet wants to buy a cow/the cow.’

The proximal demonstrative *-ni* (*-chu* in the plural) is often used as a definite article. The demonstrative in (6) can be used either as a marker of definiteness or as a demonstrative while pointing at a child nearby.

(6) *lâak-wâa-nì*
 child-TH-PROX
 ‘the/this child’

Turning now to the paradigm of demonstratives in Kipsigis, we observe that the language has a very rich inventory of morphemes related to deixis and anaphora. The details of the semantic and pragmatic conditions on the distribution of these morphemes are not well-understood, but I outline here their morphosyntactic properties, along with their most common (informal) meaning. This is necessary background information for the description and analysis of the DS facts that are the focus of this chapter.

¹⁰⁰ This does not mean that all interpretations are available in all syntactic contexts. There are restrictions to the interpretation of bare nouns with respect to definiteness, which are reminiscent of the restrictions discussed in Dayal (2004) for Russian and Hindi, and Deal & Nee (2017) for Teotitlán del Valle Zapotec.

The language has three basic demonstrative morphemes, which agree with the head noun in number and case, as shown in (7).

- (7) a. Kii-á-géer làak-wàa-nì/-náan/-nìin. **SG, unmarked case: L, H, H**
 PAST3-1SG-see girl-TH-PROX/-MED/-DIST
 ‘I saw this/that girl.’
- b. Rú-è làak-wáa-ní/-nàan/-nìin. **SG, nominative: H, L, L**
 sleep.3-IPFV girl-TH-PROX/-MED/-DIST.NOM
 ‘This/that girl is sleeping.’
- c. Kii-á-géer làag-óo-**ch**ù/-**cháan**/-**chúun** **PL, unmarked case: L, H, H**
 PAST3-1SG-see girl-PL-PROX/-MED/-DIST
 ‘I saw these/those girls.’
- d. Rui-toos làag-ôo-**ch**ú/-**chàan**/-**chùun** **PL, nominative: H, L, L**
 sleep-PL girl-PL-PROX/-MED/-DIST.NOM
 ‘These/those girls are sleeping.’

These three morphemes reflect a three-way distance distinction, defined by approximate distance from the speaker. They can be used deictically, and in this case they can be accompanied by a pointing gesture. In addition to the common use of the proximal demonstrative as a definite article (cf. example 6), all three demonstratives can have anaphoric uses in certain contexts, but their anaphoric uses are not well-understood. Table 12 summarizes the paradigm (in the unmarked case); the locative adverbs are given as well, in order to illustrate the morphological similarity between deictic adverbs and demonstratives. The initial [n] of the singular demonstratives is absent in athematic nouns (i.e., nouns without a thematic suffix, which usually end in a consonant), possibly for phonological reasons, as shown in (8).¹⁰¹ The optional final vowel [a] in medial and

¹⁰¹ With the irregular athematic nouns *chii-tá* ‘person’ and *tèe-tá* ‘cow’, there is stem allomorphy, in addition to the n-less allomorphs:

- (iii) chiih-i/-áan/-ìin
 person-PROX/MED/DIST
 ‘this/that person’
- (iv) tány-i/-áan/-ìin
 cow- PROX/MED/DIST
 ‘this/that cow’

distal demonstratives is always available when the morphemes are used deictically, but there are restrictions to its availability in anaphoric uses, which remain, however, unclear.¹⁰²

	Proximal		Medial		Distal	
	SG	PL	SG	PL	SG	PL
<i>Demonstrative</i>	nì	chù	náan(a)	cháan(a)	níin(a)	chúun(a)
<i>Adverb</i>	yù		yáan(a)		yúun(a)	

Table 12 – Deictic elements in Kipsigis

(8) Singular demonstrative suffixes with athematic nouns

ngôog-ì/-**áan**/**-íin**
 dog-PROX/MED/DIST
 ‘this/that dog’

Focusing on the behavior of the demonstratives when they modify a noun, we observe that the proximal demonstrative is in the [ATR] harmony domain of the noun and has a L tone in the unmarked case, while the medial and distal demonstratives do not take part in harmony and bear a H tone in the unmarked case. The difference between the demonstratives with respect to [ATR] harmony is illustrated in (9). The proximal demonstrative *-nì* surfaces as [+ATR] when it attaches to a [+ATR] stem, but as [-ATR] when it attaches to a [-ATR] stem, while the medial demonstrative *-náan* and the distal demonstrative *-níin* surface as [+ATR] and [-ATR] respectively irrespective of the [ATR] value of the nominal stem.¹⁰³

(9) a. [+ATR] stem: [+ATR] proximal dem., [+ATR] medial dem., [-ATR] distal dem.

mògôomb-àa-**nì**/**-náan**/**-níin**
 hoe-TH-PROX/MED/DIST
 ‘this/that hoe’

¹⁰² The presence of the vowel is also ungrammatical when the demonstratives are used to introduce adjectives/relative clauses, which will be discussed in the next section.

¹⁰³ As a reminder, the language has a dominant [ATR] harmony system, with [+ATR] morphemes causing the whole word to be [+ATR], irrespective of the (linear) position of the morphemes in the word. See section 3.2.1. of Chapter 2 for details.

b. [-ATR] stem: [-ATR] proximal dem., [+ATR] medial dem., [-ATR] distal dem.
 làak-wàa-nì/-náan/-níin
 child-TH-PROX/MED/DIST
 ‘this/that child’

For all three demonstratives, speakers have an intuition that they form a phonological unit with the noun; for example, they do not use a dash between the noun and the demonstrative when they write the language informally. Moreover, all three demonstrative morphemes attach to a form of the noun which (at least in the singular) is not a stand-alone word, i.e., the form of the noun without the secondary suffix, illustrated in (10). They also cause lengthening of the thematic vowel of the noun, which is not due to regular phonological processes in the language, also shown in (10).

(10) mògôomb-àa-nì/-náan/-níin *mògôombà(a)
 hoe-TH-PROX/MED/DIST
 ‘this/that hoe’

All these phonological facts point towards the conclusion that demonstratives in Kipsigis are at least clitics – and possibly suffixes – which is very rare cross-linguistically (cf. Diessel 1999).

All three demonstratives (as well as deictic adverbs) can be followed by the morphemes *-tan* or *-teet*, which act as reinforcers. These morphemes never participate in [ATR] harmony, but they seem to cliticize on the noun-demonstrative complex. Previous descriptions state that they are used for emphatic purposes, which is consistent with native speakers’ intuitions and the translations given in (11). However, their exact semantic contribution is currently not understood. For example, *-tan* can never be used with a noun that is a new referent in the discourse (in other words, the entity denoted by the noun has to be familiar to the discourse participants), while both *-tan* and *-teet* have specialized semantics when they attach to temporal nouns, with an example given in (12).

(11) a. yù-tán/-téet
 here-REINF/REINF
 ‘right here’

b. ngôog-í-tàn/-téet
 dog-PROX-REINF/REINF
 ‘this dog (emphatic)’

c. ngôog-ín-(i)tàn/-(i)téet¹⁰⁴
 dog-DIST-REINF/REINF
 ‘that dog over there (emphatic)’

(12) káaròon-(n)í-tàn
 tomorrow-PROX-REINF
 ‘the day after (used in future tense clauses embedded under a past matrix verb)’

In addition to the three basic demonstrative suffixes, Kipsigis has a third suffix, *-náatàn*, which is used exclusively in anaphoric contexts, as shown in (13), which is the beginning of a story. This suffix (which is outside of the [ATR] harmony domain of the noun) looks morphologically complex, with the possible sub-parts *-náan* (medial demonstrative) and *-tan* (reinforcer), which have already been discussed. However, *-náan(i)tàn* is also available in the language and is not interchangeable with the anaphoric *-náatàn*.

(13)a. kiigai - kooigeete ko kii-mîi làakwèet né kii-mény-é Boomeet.
 once upon a time TOP PAST3-COP child.NOM REL PAST3-live-IPFV Bomet
 ‘Once upon a time, a child lived in Bomet.’

b. Làak-wàa-náatàn(*-náan-tàn) kò kî-káâarân.
 child-TH-ANAPH(-MED-REINF) TOP PAST3-beautiful
 ‘That child was beautiful.’

Finally, the language has three temporal demonstratives, which can only attach to the noun if the proximal demonstrative is already present. In this case, the proximal demonstrative does not have deixis semantics, but it is used as a definiteness marker. The three temporal demonstratives, illustrated in (15) – (17), are the nominal counterparts of graded tense morphemes in the verbal

¹⁰⁴ The presence of the vowel [i] (which is the most common epenthetic vowel in Kipsigis) is optional (though strongly preferred). Its presence is probably due to morphophonological constraints, since it is common for an epenthetic vowel to be present between certain morpheme boundaries in the language. Toweett (1979: 348, fn. 46) writes: ‘the anaptyctic /-i/ after /n/ is inserted for euphony or to facilitate pronunciation’. He also notes that the vowel is optional for *-nîin*, but obligatory for *-náan*, but my informants do not share this view.

domain (14), and locate an individual in time in the discourse. The relevance of these demonstratives to the syntax of modification is discussed in section 4.

- (14) a. *(**kàa**)-l^áal l^áakw^èet.
 PAST1-cough girl.NOM
 ‘The girl coughed (earlier today).’ [ka-: current past]
- b. *(**kòò**)-l^áal l^áakw^èet.
 PAST2-cough girl.NOM
 ‘The girl coughed (yesterday/a few days ago).’ [ko-: recent past]
- c. *(**kii**)-l^áal l^áakw^èet.
 PAST3-cough girl.NOM
 ‘The girl coughed (long ago).’ [ki-: distant past]

(15) Current past *-kaan* (verbal prefix *kaa-*):

- a. l^áakw^àa-nì-**k^áan** b. l^áagóo-chù-**k^áan**
 girl-PROX-PAST1 girls-PROX-PAST1
 ‘this girl from earlier today’ ‘these girls from earlier today’

(16) Recent past *-koonye* (verbal prefix *koo-*):

- a. l^áakw^àa-nì-**k^óonyè** b. l^áagóo(k)-chù-**k^óochè**
 girl-PROX-PAST2.SG girls-PROX-PAST2.PL
 ‘this girl from yesterday’ ‘these girls from yesterday’

(17) Remote past *-kiinye* (verbal prefix *kii-*):

- a. l^áakw^àa-nì-**kⁱinyè** b. l^áagóo(k)-chù-**kⁱichè**
 girl-PROX-PAST3.SG girls-PROX-PAST3.PL
 ‘this girl from long ago’ ‘these girls from long ago’

Table 13 summarizes all possible demonstrative combinations for a noun in the singular, with *l^áakw^èet* ‘child/girl’ as an example.

	Basic form	Emphatic <i>-tan</i>	Emphatic <i>-teet</i>
Proximal	l ^á akw ^à a-nì	l ^á akw ^à a-nì-tàn	l ^á akw ^à a-nì-téet
Medial	l ^á akw ^à a-náan	l ^á akw ^à a-náan-(i)tàn	l ^á akw ^à a-náan-(i)téet
Distal	l ^á akw ^à a-níin	l ^á akw ^à a-níin-(i)tàn	l ^á akw ^à a-níin-(i)téet
Anaphoric	l ^á aw ^à a-náatàn		
Current past (complex)	l ^á akw ^à a-nì-k ^á an		

Recent past (complex)	<u>l</u> àakwàa-nì-kóonyè		
Distant past (complex)	<u>l</u> àakwàa-nì-kíinyè		

Table 13 – Noun – demonstrative combinations

In the following section, I discuss the behavior of bare nouns, as well as nouns with demonstrative morphemes as in the table above, when they are modified by adjectives and relative clauses.

2.2. Determiner Spreading

In the previous chapter, I showed that both adjectives and full relative clauses in Kipsigis are introduced by the relativizer *ne*. The data are repeated below.

- (18) a. Kii-á-géer làakwéet *(nè) kii-kwáany. Subject relative
 PAST3-1SG-see girl REL PAST3-cook.3
 ‘I saw a/the girl who cooked.’
- b. Kii-á-géer làakwéet *(nè) á-chám-é. Object relative
 PAST3-1SG-see girl REL 1SG-like-IPFV
 ‘I saw a/the girl that I like’
- (19) ngóoktá *(nè) kárâarân Adjective
 dog REL beautiful
 ‘a/the beautiful dog.’

The relativizer cliticizes on the following adjective/verb and it optionally harmonizes, especially in fast speech. Furthermore, the relativizer agrees with the head noun in number and case. In (20), we see the plural form of the noun phrase in (19) in the unmarked case in (a) and in the nominative in (b): the relativizer has the plural form *che*, and it has a L tone in the unmarked

case and a H tone in the nominative.¹⁰⁵ These facts provide (indirect) support for the claim that I am going to make at the end of the section that the relativizer is, in fact, a determiner.

- (20) a. Kii-á-géer ngóogìik **chè** kàráaràn Plural, unmarked case
 PAST3-1SG-see dogs REL.PL beautiful.PL
 ‘I saw (the) beautiful dogs.’
- b. Rúáy ngòogìik **ché** kàráaràn. Plural, nominative
 run.3PL dogs.NOM REL.PL.NOM beautiful
 ‘The beautiful dogs are running.’

The only elements that can modify the noun in the absence of the relativizer are numerals and the quantifiers *age* (*alak* in the plural) ‘some/(an)other’, *tugul* ‘all’, and the complex quantifier *age tugul* ‘every’. Examples are given below.

- (21) pèelèek (*chè) sòmòk
 elephants REL.PL three
 ‘(the) three elephants’
- (22) pèelèek (*chè) tùgùl
 elephants REL.PL all
 ‘all the elephants’

When a noun is modified by both a numeral and an adjective, the order is Noun – Numeral– (Relativizer-) Adjective, as shown in (23). The order Noun – (Relativizer-) Adjective – Numeral in (24) is marginal for some speakers.

- (23) pèelèek sòmòk chè êechèen
 elephants three REL.PL big.PL
 ‘(the) three big elephants’
- (24)? pèelèek chè êechèen sòmòk
 elephants REL.PL big.PL three
 ‘(the) three big elephants’

¹⁰⁵ This difference between a L and a H tone is obscured by phonological processes in some cases. More specifically, in the unmarked case, the relativizer bears a L tone when it precedes a word that starts with a H tone, but it bears a H tone when it precedes a word that starts with a L tone. In the nominative, on the other hand, the relativizer always bears a H tone, irrespective of the tone of the following word.

When a noun is modified by multiple adjectives or relative clauses, each modifier has to be introduced by the relativizer, resulting in multiple copies of *ne* in the DP, as shown in (25) for adjectives, in (26) for relative clauses, and in (27) for a combination thereof. The presence of the relativizer is obligatory.

(25) págéet *(**né**) lèel *(**né**) òo *(**nè**) kárâarán
 cat REL white REL big REL beautiful
 ‘a/the white big cat’

(26) págéet *(**nè**) mîi káat *(**nè**) rú-è
 cat REL COP house REL sleep-IPFV
 ‘a/the cat that is in the house that is sleeping’

(27) págéet *(**né**) lèel *(**nè**) rú-è
 cat REL white REL sleep-IPFV
 ‘a/the white cat that is sleeping’

The situation is more complicated when both a demonstrative and an adjective modify the head noun. In this case, we observe a pattern of demonstrative spreading, with a demonstrative present on both the noun and the adjective; the pre-adjectival demonstrative plays the role of the relativizer, and it is in complementary distribution with it. The behavior of demonstrative morphemes is complex, and I present the exact facts one at a time.

First, we consider the case in which one of the three basic demonstratives (proximal *-ni*, medial *-náan*, and distal *-níin*) attaches to the noun and one adjectival modifier is present, without any overt material intervening between the demonstrative and the adjective. In this case, both the relativizer and a copy of the demonstrative are ungrammatical in the pre-adjectival position, as shown in (28).

(28) a. págàa-nì/-náan/-níin
 cat-PROX/MED/DIST
 ‘this/that cat’

b. págàa-ní (*ní/*né) lèel¹⁰⁶
 cat-PROX PROX/REL white
 ‘this white cat’

c. págàa-náan (*náan/*né) lèel
 cat-MED MED/REL white
 ‘that white cat’

However, it is possible for the pre-adjectival demonstrative to introduce the adjective, if the noun appears in its bare form (i.e., the form with the secondary suffix), as shown in (29); speakers report that (29) is semantically equivalent to (28c) above. The example in (30) is ungrammatical, which shows that the demonstrative can either be an affix/clitic on the noun (in which case, the secondary suffix on the noun is absent) as in (28c), or it can be a clitic on the adjective (in which case, the secondary suffix on the noun is obligatory) as in (29), but the combination of the bare form of the noun with a free-standing demonstrative morpheme is ungrammatical as in (30).

(29) págéet **náan** (*né) lèel
 cat MED REL white
 ‘that white cat’

(30) *págéet **náan**
 cat MED
 ‘that cat’

Examples (29) – (30) involve the medial demonstrative, but the same facts hold for the proximal and distal demonstratives as well. For ease of presentation, I will be using only one type of demonstrative in the examples that follow, but it should be noted that, unless otherwise indicated, all spreading facts to be discussed below apply equally to the proximal, medial, and distal demonstratives. Moreover, I will be using examples with adjectives, but the same facts hold for relative clauses, with absolutely no difference between the two with respect to the distribution

¹⁰⁶ An observant reader will notice that the tone for the proximal demonstrative *-ni* is L in (31a), but H in (31b). The tone of the proximal demonstrative is always L when no adjectival modifier follows the noun, but it is L or H when an adjective follows, according to the rules discussed in the previous footnote.

of demonstratives and relativizers. For example, we see the pattern in (28) – (29) with a relative clause in (31).

- (31) a. págàa-nì (*nì/*nè) rú-è.
 cat-PROX PROX/REL sleep-IPFV
 ‘this cat that is sleeping’
- b. págéet nì (*nè) rú-è
 cat PROX REL sleep-IPFV
 ‘this cat that is sleeping’

Moving on to the situation in which there is overt material intervening between the demonstrative and the adjectival modifier, we observe that there is both a demonstrative suffix on the noun and a demonstrative preceding the adjective, as shown in (32). Elements that can intervene between the noun-demonstrative complex and the adjective are: the reinforcers *-tan* and *-teet* and the temporal demonstratives discussed in the previous section, the possessive suffixes, numerals and quantifiers (which always modify the noun in the absence of a relativizer, as mentioned earlier in this section). The pre-adjectival occurrence of the demonstrative has to have the same deixis semantics as the demonstrative on the noun, as shown by the ungrammaticality of (33), where the demonstrative on the noun is proximal, but the pre-adjectival copy is medial.

- (32) a. págàa-nì-nyùn *(nì) tùuy b. págàa-nì ágêengè *(nì) tùuy
 cat-PROX-my PROX black cat-PROX one PROX black
 ‘this black cat of mine’ ‘this one black cat’
- c. págàa-nì-téet *(nì) tùuy
 cat-PROX-REINF PROX black
 ‘this black cat (emphatic)’
- (33) *págàa-nì-téet náan tùuy
 cat-PROX-REINF MED black
 ‘this/that black cat (emphatic)’

The set of interpretations in (32) can also be obtained if only the second demonstrative is present, as shown in (34), which is reminiscent of the examples where the demonstrative is

cliticized on the adjective, and the noun appears in its form with the secondary suffix (cf. examples 29 and 31).

- (34) a. **págéet** àgêengè ***(níin)** tùuy
 cat one DIST black
 ‘that black cat over there’
- b. **págáa-níin** àgêengè ***(níin)** tùuy
 cat-DIST one DIST black
 ‘that black cat over there’

In the presence of a demonstrative on the noun and multiple adjectival modifiers, the (linearly) first adjective follows the pattern in (28) - (33) above, and any subsequent adjective must be preceded by a demonstrative that matches the demonstrative morpheme on the noun. Examples (35) and (36) show how the multiple occurrences of the demonstrative must have the same distance semantics, while (37) is an example of two adjectives and a numeral. In (35) – (36) the noun-demonstrative complex and the adjective are adjacent, hence we have a total of two demonstratives in the DP, while in (37) the numeral intervenes, and we have a total of three demonstratives in the DP.

- (35) a. **págáa-ní** tùuy ***(ní)** òo b. **págáa-níin** tùuy ***(níin)** òo
 cat-PROX black PROX big cat-DIST black DIST big
 ‘this big black cat’ ‘that big black cat’
- (36) a. ***págáa-ní** tùuy **náan/níin** òo b. ***págáa-náan** tùuy **ní/níin** òo
 cat-PROX black MED/DIST big cat-MED black PROX/DIST big
 ‘this big black cat’ ‘that big black cat’
- (37) **làagóo-chù** sómòk ***(chù)** kárâarán ***(chù)** tórôor-èen
 girls-PROX three PROX beautiful.PL PROX tall-PL
 ‘these three beautiful tall girls’

An interesting pattern arises with the anaphoric demonstrative *-náatàn*. In its presence, adjectives modifying the noun must be preceded by a demonstrative, but this demonstrative can be either the proximal *-ni* or the medial *-naan*, as shown in (38).

(38) págàa-náatàn ní/náan lèel
 cat-ANAPH PROX/MED white
 ‘that (anaphoric) white cat’

With the exception of (38), all instances of the demonstratives inside the DP have to match, as illustrated by the examples so far. Even though this is true, there is some tolerance (which varies by speaker) for the substitution of a pre-adjectival demonstrative with the relativizer, as long as the noun-demonstrative complex and the adjective are not adjacent. The pattern is illustrated in (39). It has to be noted, however, that the preferred utterance is the one with a demonstrative, and not the relativizer. These facts, along with the behavior of the anaphoric demonstrative in (38), will be relevant for the development of the analysis, in section 3.

(39) a. págàa-ní (*né) lèel
 cat-PROX REL white
 ‘this white cat’

b. págàa-ní àgêengè ní/(?né) lèel
 cat-PROX one PROX/REL white
 ‘this one white cat’

Before summarizing these complicated facts, we have to examine the nature of the relativizer *ne*. I argue that it is a determiner, which is present when a phrase modifies a (definite or indefinite) bare noun.¹⁰⁷ There are many arguments in favor of this claim. First, in all the examples above, it is in complementary distribution with the demonstrative: when adjectives are preceded by a demonstrative, the presence of the relativizer is ungrammatical. Assuming the relatively uncontroversial claim that demonstratives are associated with determiners (or, at least, have a determiner part, cf. Leu 2015), this distribution suggests that the relativizer performs a similar function in the syntax. Second, the relativizer is not only in complementary distribution with the

¹⁰⁷ A determiner that is only present when the noun is modified is also attested in Slovenian (Marušič and Žaucer 2010; Leu 2015).

demonstratives, but it is also similar to them morphologically. Table 14 shows that the relativizer shares an [n] in the singular and a [ch] in the plural not only with the demonstratives, but also with the pronouns – another (relatively uncontroversial) D element.

	Proximal	Medial	Distal	1P pronoun	Relativizer
SG	nì	náan	njín	ánêe	nè
PL	chù	cháan	chúun	áchêek	chè

Table 14 – Morphological similarity between relativizer and demonstratives

Third, we find definiteness contrasts associated with a contrast between the proximal demonstrative (sometimes used as a definite article) and the relativizer. In (40), where the proper name *Boomet* (which is a town in Kenya) is modified, the contrast between *ni* and *ne* corresponds to a contrast between a definite and an indefinite interpretation.

- (40) Boomet **nì** kì-âa-ngén kó Boomet **nè** ma-ko-mii.
 Bomet **PROX** PAST3-1SG-know TOP Bomet **REL** NEG-3-COP.LOC
 ‘The Bomet that I knew is a Bomet that no longer exists.’

A related fact is the observation that noun phrases that include the relativizer are always interpreted as specific indefinites or as definites, with the non-specific interpretation being impossible. This is illustrated nicely with the noun *kiit* ‘thing’: when the noun is not modified, the non-specific interpretation corresponding to ‘anything’ is available in (41), but it is impossible in (42) where the adjective is modified by an adjective introduced by the relativizer.

- (41) M(a)-âa-ngén kiiit.
 NEG-1SG-know thing
 ‘I don’t know the thing.’ OR ‘I don’t know a specific thing.’ OR ‘I don’t know anything.’
- (42) M(a)-âa-ngén kiiit nè kárâarân.
 NEG-1SG-know thing REL good
 ‘I don’t know the good thing.’ OR ‘I don’t know a specific good thing.’
 # ‘I don’t know anything good.’

Finally, the relativizer is never used as a complementizer outside of the nominal domain. For example, the complementizer used to introduce verbal complements is one based on the verb ‘to say’, as shown in (43).¹⁰⁸

- (43) *âa-ngén* [*a-le* *kò-ròobán* *ámùt*].
 1SG-know 1SG-COMP PAST2-rain yesterday
 ‘I know that it rained yesterday.’

We can, therefore, conclude that the relativizer is a determiner, which seems to carry specificity semantics, as shown by the facts in (44) – (45). This conclusion is reinforced by Toweett’s (1979) description of the distribution of possessive morphemes in the language. More specifically, Toweett (who was a native speaker) and the speakers that he consulted used the secondary suffix productively as a specificity marker. According to Toweett, the possessive morphemes can attach directly to a noun with a secondary suffix, but cannot modify the form of the noun without the secondary suffix, unless the relativizer *ne* is present, as shown in the paradigm in (44).

- (44) a. *làakwée(t)-nyùn* noun – secondary suffix – possessive
 child-SEC-my
- b. **làakwà(a)-nyùn* *noun - possessive
 child-my
- c. *làakwà* *(*né*) *nyùn* noun – relativizer – possessive
 child REL my
 ‘my child’
 (adapted from Toweett 1979: 309-310)

¹⁰⁸ An observant reader will notice that the complementizer agrees in person and number with the matrix subject. This kind of upward-oriented agreement for complementizers is rare (see Diercks & Rao to appear for an overview of the Kipsigis pattern). In general, the Kipsigis complementizer has some verbal properties (see Koopman 1984 and Koopman & Sportiche 1989 for an analysis of such properties in other languages with say-based complementizers).

My informants do not use the secondary suffix productively, and, therefore do not have the full set of judgments in (44), with (44a) being the only available form for them. However, these diachronic facts are consistent with the view that *ne* is a determiner associated with specificity.¹⁰⁹

To sum up, DPs that involve adjectives or relative clauses are always interpreted as specific in Kipsigis. Both adjectives and relative clauses in the language must be preceded by a determiner: the relativizer when the interpretation of the DP as a whole is that of an (in)definite, and a demonstrative when the interpretation of the DP as a whole is that corresponding to a deictic/anaphoric interpretation of a particular demonstrative. In the latter case, we find the possible combinations in (45), depending on the particular items present in the DP (brackets indicate prosodic unit). The orders in (c) and (d) correspond to the situation where an element intervenes between the noun/demonstrative and the adjective. If more adjectives are present, each adjective will be preceded by a demonstrative. For some speakers, this can be substituted with the relativizer in orders like (c), but it is generally less preferred. Furthermore, the orders in (b) and (d) are somewhat degraded compared to (a) and (c).

(45) Proximal/Medial/Distal interpretation

- a. [Noun stem – **Dem**] Adj/RC
- b. [Noun stem – secondary suffix] [**Dem**– Adj/RC]
- c. [Noun stem – **Dem**] Reinforcer/Numeral/Possessive/Quantifier [**Dem** – Adj/RC]
- d. [Noun stem – secondary suffix] Reinforcer/Numeral/Possessive/Quant. [**Dem** – Adj/RC]

The order in (46) summarizes the state of affairs with the exclusively anaphoric element – *náatàn*. In this case, the pre-adjectival demonstratives are obligatory even when no overt element intervenes between –*náatàn* and the modifier.

(46) [Noun stem – **náatàn**] (Numeral/Possessive/Quantifier) [**ni/náan** Adj/RC]

¹⁰⁹ It is suggested by Hiraiwa (2003) that a determiner with specificity semantics plays the role of the relativizer in Buli (Gur; Ghana) as well.

Finally, in research on DS, it is common to investigate any possible interpretive effects associated with the presence of multiple determiners (the relativizer and demonstratives, in the case of Kipsigis). In this respect, Kipsigis is similar to Semitic languages with DS (at least Hebrew, Arabic, and Amharic) in not displaying any particular semantic effects in its DS. This is not surprising given the fact that in these languages the presence of multiple determiners is obligatory in the presence of nominal modifiers.¹¹⁰ This is one characteristic that sets Kipsigis and Semitic apart from languages like Greek, where DPs with multiple determiners have a slightly different interpretation than DPs with one determiner (see Alexiadou 2014 for an overview of these semantic differences). In the next section, I provide an analysis that can generate the patterns summarized in (45) and (46).

3. The analysis

3.1. Deriving the distribution of determiners with adjectives

The main components of the analysis are the following:

- Adjectives are reduced relative clauses, with their only difference from full relative clauses being the absence of the T and C layers.
- DPs with relative clauses are analyzed as a D head with a clausal complement, with the head noun being base generated inside the relative clause and being raised (Kayne 1994; Bianchi 1999; 2001; de Vries 2002 among others).
- The relativizer and pre-adjectival instances of the demonstratives are D heads, external to the relative clause.

¹¹⁰ Not all instances of the determiner are obligatory in Amharic, but there are no reported semantic effects (cf. Kramer 2010).

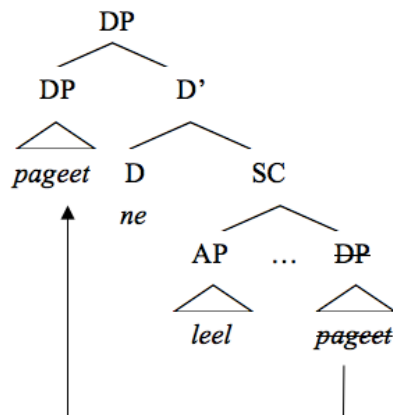
- D has an EPP feature in Kipsigis; a DP containing the head noun moves to SpecDP.

Let's now see how the above claims can account for DS in Kipsigis. We start with the simple case, where a bare noun is modified by a single adjective, introduced by the relativizer *ne*, as in (47).

(47) *págéet* *né* *lèel*
 cat REL white
 'a/the white cat'

The derivation of such a phrase proceeds as in (48). The relativizer *ne* is a determiner that takes a small clause as a complement.¹¹¹ The head noun *págéet* 'cat' is the DP subject of the adjective *lèel* 'white'. D has an EPP feature, which is satisfied by movement of the DP inside the small clause to SpecDP.

(48) Derivation



The derivation is the same for full relative clauses, but instead of D taking a small clause as a complement, it takes a CP as a complement. The DP containing the head noun of the relative clause originates inside the CP, and moves to SpecCP before moving to SpecDP to satisfy the EPP feature

¹¹¹ The label 'small clause' is not very important here, and I do not make any claims about a particular theory of small clauses. What I want to capture is that the complement of D in this case is a constituent which involves the predication relation between the adjective and the noun, without the T and C layers present in full clauses. It could be a PredP, or even an AP (with the subject DP in SpecAP) in those theories that reject the existence of PredP (e.g., Matushansky 2019).

of the external determiner. The absence of a T (and C) layer in the case of adjectives is motivated by the Case agreement facts in (49), which were discussed in Chapter 4. More specifically, an adjective agrees with the head noun in Case when it appears bare, but it has the tonal shape that it has in predicative position when tense morphology is present. If we make the (relatively uncontroversial) assumption that tense morphology is associated with T, these facts indicate that the presence of T blocks Case agreement. As a result, T cannot be there when the adjective does agree with the head noun in Case, as in (49a).¹¹²

(49) a. Rú-è làakwèet né **kàráaràn.** **Nom: L.H.L**
 sleep-IPFV child.NOM REL.NOM beautiful.NOM
 ‘The beautiful child is sleeping’

b. Rú-è làakwèet né **kìi-kàráaràn.** **Pred: H.HL.H**
 sleep-IPFV child.NOM REL.NOM PAST3-beautiful.PRED
 ‘The child that was beautiful is sleeping.’

Further support for the claim that adjectives do not have the exact internal structure of full relative clauses comes from the fact that coordination of an adjective and a relative clause is marginal, unless tense morphology is present on the adjective, as shown in (50). These facts are consistent with the Case agreement facts, and show that bare adjectives in the language are not TPs/CPs.

(50) a. ngóoktá né [tùuy ago kàráaràn] ✓ Adjective – Adjective
 dog REL black and beautiful
 ‘a/the beautiful and black dog’

b. ??ngóoktá né [tùuy ago á-chám-é] *Adjective – RC
 dog REL black and 1SG-like-IPFV
 ‘a/the dog that is black and that I like’

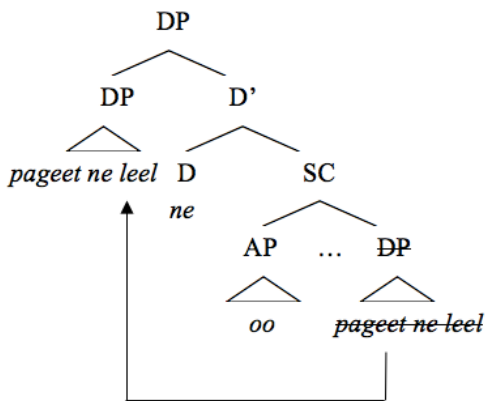
¹¹² The Case agreement facts could potentially be explained even if the T layer is present in bare adjectives. More specifically, it is possible that a phonologically null head behaves differently from an overt head, and a distinction between silent and overt heads is important in some theories (e.g., Embick 2010).

c. ngóoktá né [kii-tûuy ago (kii)-á-chám-é] ✓Tensed adjective – RC
 dog REL PAST3-black and PAST3-1SG-like-IPFV
 ‘a/the dog that was black and that I like(d)’

When multiple adjectives are present, recursion is involved with the derivation in (52) for the phrase in (51); the internal structure of the moved constituent is the one in (48) above.

(51) *págéet* né *lèel* né *òo*
 cat REL white REL big
 ‘a/the big white cat’

(52) Derivation



When a (proximal/medial/distal) demonstrative modifies the noun, it is the demonstrative that occupies the D head that is otherwise occupied by *ne* in relative clauses. Why is this the case? First, we know that the relativizer and the demonstrative morphemes are in complementary distribution; hence, the null hypothesis is that they occupy the same position. Second, the external determiner is the one taking scope over the rest of the elements in the DP: a DP with a deictic/anaphoric interpretation is headed by the determiner that contributes this interpretation.¹¹³

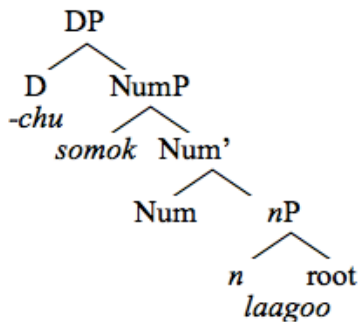
Before giving the full derivation for DPs with multiple demonstratives, we need to say a few words about the structure of the DP in the absence of adjectives and relative clauses, and the

¹¹³ The fact that demonstratives are heads in Kipsigis leads to the conclusion that there is cross-linguistic variation as to the position of demonstratives in the structure. More specifically, demonstratives are often taken to be phrasal and to occupy a specifier position, such as SpecDP (e.g., Alexiadou, Haegeman, & Stavrou 2007). This conclusion will be briefly discussed in section 6.

position that the demonstrative and numerals (which directly modify the noun) occupy in this case. Demonstratives are argued to always be D heads in Kipsigis; therefore, all instances of demonstratives, whether post-nominal or pre-adjectival, are the spell-out of a D head. I will assume that numerals are in the specifier position of NumP. We therefore have the following underlying structure for a DP with a demonstrative and a numeral:

- (53) Noun – Demonstrative – Numeral
 làagóo-chù sómòk
 girls-PROX three
 ‘these three girls’

- (54) DP with demonstrative and numeral¹¹⁴

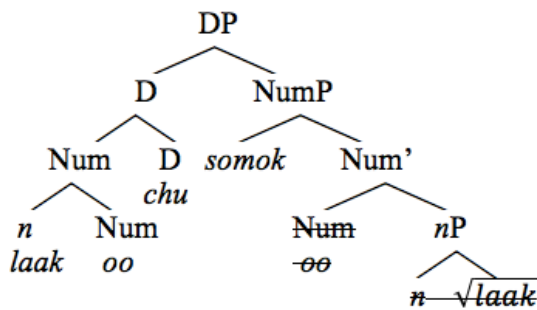


D has an EPP feature, which drives movement of the noun to SpecDP. There are various ways to implement this idea, while providing a unified explanation for the cases where a relative clause is present; it does not matter for our purposes which analytic option we choose. One simple alternative is that the NP (*nP* in 54) moves to SpecDP. Another alternative is to say that the EPP on the D head can be satisfied by either head movement or by phrasal movement to its specifier, along the lines proposed in Alexiadou and Anagnostopoulou (1998). Therefore, in a structure like (54), we would find N-to-D movement, while in a structure like (52) where head movement cannot

¹¹⁴ In this tree, I omit the details of number marking (the plural suffix would presumably be on Num, and not part of the *nP*).

take place due to locality reasons (cf. Matushansky’s 2006 Transparency Condition: a head ceases to be accessible once another head starts to project), the DP in the relative clause would move to SpecDP. I opt for this implementation, because it allows for a parallelism with the clausal domain of the language, where the strict verb-initiality has been analyzed in terms of head movement by Bossi & Diercks (to appear).^{115, 116} Thus, in (54) above, the noun moves to D (through Num), resulting in (55), which illustrates the complex head. However, nothing in my analysis of DS hinges on this analytic decision – what is crucial is that numerals are adjuncts below the D level, demonstratives are D heads, and the noun somehow moves to the front of the DP.

(55) Derivation of N – Dem. –Num. order



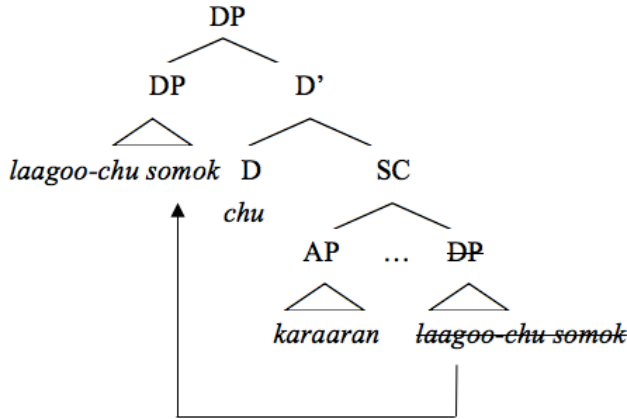
Coming back to DS, a DP with multiple copies of the demonstrative, such as the one in (56), is derived as in (57). The demonstrative that immediately precedes the adjective is the head of the DP and takes a small clause as its complement. The whole DP in brackets, with the internal structure in (55) above, is the subject of the adjective and moves to SpecDP to satisfy the EPP feature on D.

¹¹⁵ In Kouneli (to appear), I use Matushansky’s (2006) implementation of head movement to account for the parallelism.

¹¹⁶ A possible reason for choosing N-to-D movement is the strict noun-initiality of the DP. More specifically, noun-initiality is a feature that most Nilotic languages share, while there is some variation in the order of the post-nominal modifiers. Carstens (2017), on the basis of data from the Bantu language Shona, argues that in Cinque’s (2005) analysis (which employs exclusively phrasal movement), it is an accident that all derivations will yield a noun-initial DP in these languages. She argues that this problem goes away if we allow for N-to-D movement in some strictly noun-initial languages.

(56) [làak-óo-chù sómòk] chù kárâarán
 girl-PL-PROX three PROX beautiful
 ‘these three beautiful girls’

(57) Derivation



When multiple adjectives (and, hence, multiple demonstratives) are present, as in (58), I assume a recursive structure, similar to the structure for multiple relativizers in (52).

(58) làak-óo-chù sómòk *(chù) kárâarán *(chù) tórôor-èen
 girl-PL-PROX three PROX beautiful PROX tall-PL
 ‘these three beautiful tall girls’

As for why the external demonstrative has to match the internal demonstrative, I suggest that only DPs with the same demonstrative as the one on the external D can move to SpecDP; otherwise the derivation crashes at LF due to incompatible semantics inside the DP. In other words, the matching that we observe is probably not due to a syntactic agreement mechanism. This explanation along semantic lines (as opposed to agreement in terms of features), can explain certain allowed combinations, which would otherwise be mysterious. First, remember that it is usually grammatical to substitute the pre-adjectival demonstrative with the relativizer, as in (59).

(59) làak-óo-**chù** sómòk *(**chè**) kárâarán
 girl-PL-PROX three REL beautiful
 ‘these three beautiful girls’

For (59) to be derived, the DP [làakóochù sómòk], which is headed by the demonstrative –*chu*, moves to the specifier of the D head *chè* (the relativizer).¹¹⁷ Even though the two Ds are different, their semantics are not incompatible: the only semantic import of the relativizer is specificity, and any demonstrative will necessarily be specific. Therefore, the derivation does not crash at LF. This type of derivation also accounts for phrases like (60), which were discussed in the previous section. In this case, a bare noun phrase (that is, a specific DP headed by the secondary suffix) moves to the specifier of a D head with a demonstrative; there are no conflicting semantics, and the derivation is grammatical.

(60) *págéet ní/náan/níjn* *lèel*
 cat PROX/MED/DIST *white*
 ‘this/that white cat’

Finally, the lack of strict syntactic agreement can explain why either the proximal or the medial demonstrative are compatible with the anaphoric demonstrative –*náatàn*, as in (38), repeated as (61) below. The proximal demonstrative can have a definite interpretation, and the medial demonstrative can have an anaphoric interpretation in Kipsigis; hence they are both compatible with the anaphoric –*náatàn* on the noun.

(61) *págàa-náatàn ní/náan* *lèel*
 cat-ANAPH PROX/MED *white*
 ‘that (anaphoric) white cat’

Such a rationale makes the prediction that the only derivations that crash are the ones with conflicting semantics in the external determiner head and the determiner head of the moved DP, i.e., the cases in which we find different types of demonstratives (e.g., medial vs. distal). These

¹¹⁷ This is, however, problematic for my previous claim that the deictic semantics of the DP originate in the external D head, since in this example, the deictic semantics should come from the demonstrative in the DP which moves to SpecDP. I come back to the semantic issues at the end of the section.

combinations are indeed all ungrammatical, as was discussed in the previous section (cf. example 36).

The analysis so far can account for all possible combinations of determiners and adjectives/relative clauses in Kipsigis, except for the orders in which the noun-demonstrative complex is adjacent to the modifier, as in (64) below.

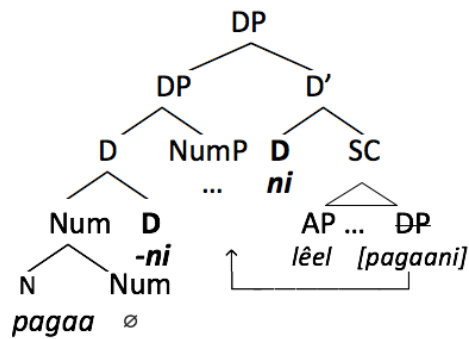
(62) <u>pàgàa-nì</u>	(*nì/*né)	lèel
cat-PROX	PROX/REL	white
'this white cat'		

It is desirable that the derivation of such examples is the same as that for all other examples discussed so far, since the interpretation of these phrases is not different from those where multiple determiners are present. I, therefore, argue that two determiners are syntactically present in examples like (62), but one of them is deleted due to what has been called *syntactic OCP* or *haplology*. Syntactic OCP – which bans adjacent identical elements – has been shown to be a real phenomenon, and to be sensitive to spellout domain (or phasehood) and linear adjacency (Ackema & Neeleman 2003; Hiraiwa 2010; Neeleman & van de Koot 2006 among others). We can define the operation in (63), which is sensitive to the specificity feature, since not only an identical demonstrative, but also the relativizer is banned in examples like (62).

(63) *Determiner deletion*: if two [+specific] determiners are linearly adjacent, delete the linearly second determiner.

In (64), which shows the derivation of example (62), we see that the two demonstrative Ds are adjacent, and therefore the second one is deleted post-syntactically.

(64) Derivation



The main piece of evidence for choosing a dissimilation analysis is the fact that two copies of the demonstrative are obligatory when an item (which is a direct modifier, i.e., does not have a relative clause structure) intervenes between the noun-demonstrative complex and the modifier. The example in (65) is the version of (62) above with a numeral. A quick look at the derivation in (64) above shows that in the presence of a numeral in SpecNumP of the DP in SpecDP, the two D heads would no longer be linearly adjacent, thus bleeding the operation of determiner deletion.

(65) *pàgàa-nì* *àgêengè* *(*nì*) *lèel*
 cat-PROX one PROX white
 ‘this white cat’

One could argue that in examples like (65), the second determiner is obligatory because the intervening element itself (the numeral, in this case) is a relative clause; as a result, we have two relative clauses in (65), with the first *-ni* associated with the numeral and the second *-ni* associated with the adjective. In such an analysis, there is no need for dissimilation. However, there are reasons to reject such an analysis. First, most of the intervening elements (namely, numerals, quantifiers, and demonstrative reinforcers) are ungrammatical in the presence of the relativizer (shown in 66 for the first two), which means that an analysis that treats them as relative clauses is unlikely.¹¹⁸

¹¹⁸ Possessives are more complicated because they can appear with a relativizer in some cases, as shown in (v).

(66) a. *págéet nè àgêengè
 cat REL one
 ‘(the) one cat’

b. *págéet ne age-túgùl
 cat REL every
 ‘every cat’

The second reason to reject such an analysis has to do with morphology. Notice that for the demonstrative *-ni* to be the external determiner in examples like (64), the constituent moving to SpecDP should have the spellout *págáa*. However, *págáa* in Kipsigis is a subconstituent, with nouns always appearing with either a secondary suffix or a demonstrative (see discussion in section 2.1. of this chapter, as well as the morphological analysis of the Kipsigis noun in chapter 3). In the analysis adopted here, where the secondary suffix and the demonstratives occupy a D head, this means *págáa* would correspond to an *nP* (or possibly NumP). However, there are reasons to believe that the moved constituent is a DP (which will be further discussed in section 3.4), and not an *nP*.

Finally, it has to be noted that dissimilation processes targeting determiners, some of which involve complete deletion, have been proposed for a number of unrelated languages (e.g., Kramer 2010; 2014 for Amharic determiners, Nevins 2012 for Romanian and Italian, and Clem & Dawson 2018 for Tiwa and Amahuaca). Even in English, there are examples where we have reasons to think an additional determiner might be present syntactically, yet only one is present on the surface.

(v) a. págéet-nyùun
 cat-my
 b. págéet né nyùun
 cat REL my
 ‘my cat’

For example, when proper names in English act as the head noun in a relative clause, a definite article is obligatory as in (67b), despite the absence of the article in most other uses of the noun.

- (67) a. (*The) Paris is beautiful.
 b. *(The) Paris that I remember is beautiful.

However, some proper nouns in English appear with the definite article in their name (e.g., *the Bronx*, *the Hague*). When these nouns are the head of a relative clause, we do not see two articles, but only one, as shown in (68).

- (68) a. *(The) Bronx is a neighborhood in New York.
 b. (*The) *(the) Bronx that I remember is a lively neighborhood.

Similarly, in Greek, some titles of novels or movies have an obligatory article in their name (e.g., *(i) *Athlii* ‘Les Misérables’), while others do not (e.g., *(i) *Anna Karenina*). All proper nouns in Greek must appear with a definite article when in argument position, as shown in (69); this also applies to titles of novels that do not have an article in their name, illustrated in (70a) for *Anna Karenina*. However, titles of novels or movies that already include an article in their name do not appear with two articles, as shown in (70b).¹¹⁹

- (69) *(I) Maria ine Ellinidha.
 THE.FEM.SG Maria is Greek.FEM.SG
 ‘Maria is Greek.’
- (70) a. *(I) Anna Karenina ine mithistorima tu Tolstoi.
 THE.FEM.SG Anna Karenina is novel THE.MASC.GEN Tolstoy
 ‘Anna Karenina is a novel by Tolstoy.’
- b. (*I) *(i) Athlii ine mithistorima tu Hugo.
 THE.MASC.PL miserable is novel THE.MASC.GEN Hugo
 ‘Les Misérables is a novel by Hugo.’

¹¹⁹ Thanks to Richard Kayne for pointing out the possible connection of dissimilation in Kipsigis to the English and Greek facts.

While the above facts might be due to factors other than dissimilation of two identical determiners, they do, nevertheless, show that identical adjacent determiners are generally avoided in a variety of different languages. Therefore, the operation of determiner deletion stems from what seems to be a natural grammatical constraint.

In the sections that follow, I give additional arguments that support the fundamental claims made in this section, namely the analysis of adjectives as relative clauses, the analysis of the relativizer as an external determiner, and the movement of a DP to SpecDP. However, there is one theoretical assumption that I do not present arguments for: the adoption of a raising analysis for relative clauses. In the following paragraphs, I briefly discuss this decision.

The structure of relative clauses has been the subject of extensive research, and I cannot do justice here to the vast literature on the subject (see de Vries 2002, among others, for a comprehensive review of the relevant literature). There are two broad types of analyses in the literature: those that argue in favor of the base generation of the head noun inside the relative clause, which later raises (raising analysis), and those that argue in favor of the base generation of the head noun outside of the relative clause, which is associated with the relative clause-internal gap through a matching mechanism (matching analysis). Vergnaud (1974), Kayne (1994), de Vries (2002), Bianchi (1999; 2000), Henderson (2007), Donati and Cecchetto (2011), and Sportiche (2017) are examples of different implementations of the raising analysis, while Lees (1960; 1961), Chomsky (1965), Munn (1994), Sauerland (1998; 2003), and Salzmann (2006) are examples of matching analyses. There is also a growing body of literature, according to which both raising and matching derivations are necessary (Sauerland 2000; Bhatt 2002; Deal 2016 among others).

Most arguments in favor of the raising or matching analysis of relative clauses come from reconstruction, scope of quantifiers, and relativization of idioms. Unfortunately, I have not yet

encountered idioms appropriate for the necessary tests in relative clauses, and there is no work on the pronominal system of Kipsigis (which involves at least three different types of pronouns) or any other Southern Nilotic language, let alone binding and reconstruction phenomena. As a result, we currently lack the necessary tools to provide a complete analysis of the intricacies of Kipsigis relative clauses, and this is an obvious area where further research is necessary. However, I choose a raising analysis for two reasons.

First, most recent proponents of matching recognize that raising derivations should also be available (e.g., Deal 2016), which means that we have no a priori reason to believe that raising is not available in Kipsigis.¹²⁰ Bhatt (2002) argues that the interpretation of certain adjectives in English in the context of multiple relative clauses provides evidence for a raising analysis. More specifically, in a sentence like (71), there are two possible interpretations: a) the book I liked is the first book that Chomsky wrote, or, b) the book I liked is a book written by Chomsky, which is the first book that John mentioned. Bhatt (2002) argues that this ambiguity provides support for a trace position in both relative clauses, which is easily captured in a raising analysis.

(71) I liked the first book that John said that Chomsky wrote.

The Kipsigis translation of (71) in (72) presents the same ambiguity as the English sentence, indicating that a raising account is at least possible in the language.

(72) *Kii-á-chám* *kìtábúut* *né* *tàay* [*ne* *kii-mwá* *John*][*ko-le*
 PAST3-1SG-like book REL first REL PAST3-say John 3-COMP
 kii-siir-e Chomsky].
 PAST3-write-IPFV Chomsky
 ‘I liked the first book that John said that Chomsky wrote.’

¹²⁰ Salzmann (2006) is an example of a theory in which matching is the only possible analysis for relative clauses. Arguing against this account is beyond the scope of this dissertation.

Second, a raising analysis of relative clauses allows for an account of the extremely complicated DS data, and such an analysis of relative clauses has, in fact, featured in approaches to DS in other languages (e.g., Alexiadou & Wilder 1998 for DS in Greek). I have argued that the relativizer and demonstratives are determiners external to the relative clause. It is not clear where the additional determiners would come from in a matching analysis, while in a raising analysis we have the option of raising a DP that already includes the extra determiner (further support for this potentially controversial claim will be given in 3.4.).

3.2. Adjectives are (reduced) relative clauses

My analysis of DS in Kipsigis crucially depends on the claim that all adjectives are reduced relative clauses in the language. Such an analysis of adjectives has been proposed by Kayne (1994), among others, but there is increasing evidence that there are (at least) two types of adjectives: direct modification and indirect modification adjectives, in Cinque's (2010) terminology (which is itself borrowed from Sproat & Shih 1988). Only the latter type pattern with reduced relative clauses, and for my analysis to be correct, all adjectives in Kipsigis should pattern with indirect modification adjectives in other languages. The goal of this section is to show that this indeed the case.

The distinction between two types of adjectives has been discussed in many studies (e.g., Sproat & Shih 1988; Larson 1995; 1998; Alexiadou, Haegeman & Stavrou 2007), but Cinque (2010) is the most comprehensive, summarizing all syntactic and semantic differences between the two types of adjectives, and providing an explicit syntactic account for both. Irrespective of the details of implementation, most researchers (Cinque included) agree that indirect modification adjectives should be analyzed as reduced relative clauses, with analyses differing in the structure given for reduced relatives. The syntax of direct modification adjectives is more elusive, with

various proposals being available (e.g., adjuncts at the NP level for Sproat & Shih 1988, but specifiers of dedicated functional projections in a cartographic fashion for Cinque 2010).

For Cinque (2010), among others, the difference between the two types of adjectives is syntactic; i.e., the same adjective can have different semantic and syntactic properties depending on the structure in which it is used to modify a noun. This is why the differences between the two types correlate with ordering facts in Romance and Germanic. Pre-nominal adjectives in English are ambiguous between direct and indirect modification, while post-nominal adjectives have the properties of indirect modification adjectives only; conversely, in Romance it is post-nominal adjectives that are ambiguous, with pre-nominal adjectives always being direct modification adjectives.¹²¹ Even though most languages have both types of adjectives, there exist languages with only one type or the other; for example, Slave is reported to lack direct modification adjectives (Baker 2003a, b), while Yoruba is a language without indirect modification adjectives (Ajíbóyè 2005).

In what follows, I apply Cinque's (2010) diagnostics to a number of different types of adjectives in Kipsigis. Not all diagnostics can be applied to Kipsigis, because of general syntactic properties of the language (e.g., one diagnostic concerns the interpretation of superlatives, and Kipsigis adjectives do not have a superlative form), and I do not discuss the ones that are not applicable (see Chapters 2 and 3 of Cinque 2010 for a complete list). Therefore, if a diagnostic is not discussed, it is because it could not be used.¹²²

¹²¹ In reality, Romance adjectives exhibit significant variation, from Sardinian or Barese, where almost all are post-nominal, to Walloon, where almost all are pre-nominal (Richard Kayne, *personal communication*). Cinque's (2010) diagnostics are mostly based on Italian, with occasional mentions to other Romance languages.

¹²² The only exception is the criterion related to specificity, discussed in Cinque (2010: 12-14). More specifically, pre-nominal (i.e., direct modification) adjectives in Romance force a specific interpretation on the DP (at least in *realis* contexts), unlike post-nominal adjectives. However, we do not find a similar contrast in English, and we do not know how robust this generalization is outside of Romance. As was already discussed earlier, all adjectives in Kipsigis force

A) Availability of the adjective in predicative position

Indirect modification adjectives are analyzed as reduced relative clauses because the interpretation of this type of adjective is the same as the interpretation that the adjective would have if it were a predicate in a relative clause. For example, (73a) is semantically equivalent to (73b) in English.

(73)a. the stars **visible**

b. the stars that are **visible**

Therefore, for an adjective to be of the indirect modification type, it must also be able to appear in predicative position. This is why adjectives like *main*, *former*, or *alleged*, which can never appear in predicative position, are of the direct modification type.

In Kipsigis, all adjectives can also appear in predicative position; adjectives that usually lack predicative forms in other languages (e.g., adjectives like *former* or *alleged* mentioned above) do not exist, with these notions being expressed via other means, as shown in (74) for a translation of the English phrase ‘former runner’.

(74) né kii-labaatiindet
REL PAST3-runner
‘former runner (*lit.* the one who was a runner)’

Furthermore, as has been discussed in detail, all adjectives are introduced by the same marker (relativizer or demonstrative) as relative clauses, and native speakers have intuitions that adjectives are equivalent to relative clauses, a fact that was mentioned in Chapter 4.

a specific interpretation. However, I argued that this is due to the nature of the relativizer, which is a specific determiner; it is, therefore, not related to the nature of the adjective (direct vs. indirect modification).

B) Ordering restrictions

When multiple adjectives modify the noun, direct modification adjectives are subject to strict ordering restrictions (with respect to semantic categories such as size or color) cross-linguistically, while indirect modification adjectives are not. In English, the ordering restrictions are not as strict as in other languages, but there is a preferred or unmarked order, which corresponds to the rigid order found in other languages. For example, color adjectives in English are closer to the noun than size adjectives in the unmarked order, shown in (75).

(75) a big white dog $Adj_{size} < Adj_{color} < N$

In Mandarin, where there is a distinction between adjectives introduced by the marker *de* and *de*-less adjectives, only the latter have rigid ordering; the former are usually analyzed as reduced relatives (Sproat & Shih 1988; 1990). In Kipsigis, we find no ordering restrictions, with both orders in (76) being equally acceptable by speakers, confirming that adjectives in the language pattern with indirect modification adjectives.

(76) a. ngóoktá né òo né lèel $N < Adj_{size} < Adj_{color}$
 dog REL big REL white

 b. ngóoktá né lèel né òo $N < Adj_{color} < Adj_{size}$
 dog REL white REL big
 ‘a/the big white dog’

C) Restrictive vs. non-restrictive interpretation

Restrictive interpretations are associated with indirect modification adjectives, while non-restrictive interpretations arise with direct modification adjectives (Bolinger 1967; Larson & Marušič 2004 among others). The following English examples from Cinque (2010) illustrate the difference; the pre-nominal adjective in (79) is ambiguous between the two interpretations, while

the post-nominal adjective in (80), which is an indirect modification adjective, can only have a restrictive interpretation.

- (77) a. All of his **unsuitable** acts were condemned (*ambiguous*)
 b. ‘All his acts were condemned; they were unsuitable’ (non-restrictive)
 c. ‘All (and only) his acts that were unsuitable were condemned’ (restrictive)
- (78) a. Every word **unsuitable** was deleted. (*unambiguous*)
 b. # ‘Every word was deleted; they were unsuitable’ (non-restrictive)
 c. ‘Every word that was unsuitable was deleted’ (restrictive)

(Cinque 2010: 7-8, examples 5, 6; emphasis in the original)

In Kipsigis, adjectives are always post-nominal, and all types of adjectives that were investigated during elicitation were consistently interpreted restrictively, as shown in (79). This is expected if Kipsigis adjectives are of the indirect modification type.

- (79) Rú-è làakwèet ágè-tùgúl né tòróor.
 sleep-IPFV child.NOM every.NOM rel.NOM tall.NOM
 a. ‘Every child that is tall is sleeping (now).’ (restrictive)
 b. # ‘Every child is sleeping (now); they are tall.’ (non-restrictive)

There is preliminary evidence suggesting that Kipsigis lacks not only non-restrictive adjectives, but also non-restrictive relative clauses (this is, in fact, explicitly stated in Creider & Creider’s 1989 grammar of the closely related dialect Nandi). Further research on the semantic interpretation of different types of relative clauses is needed to confirm this statement, but if it is true, it suggests a potential link between direct modification adjectives and non-restrictive relative clauses. Such a link would support analyses that derive non-restrictive adjectives from non-restrictive relative clauses (e.g., Chomsky 1965; Luján 1973; Kayne 1994). However, there are problems with this view (see Cinque 2010: 51-54 and references therein), and more work is needed to understand the exact relationship between non-restrictive adjectives and non-restrictive relative clauses.

D) Relative (to a comparison class) vs. absolute readings

Scalar adjectives (e.g., size adjectives) can be interpreted either in an absolute manner, or relative to a comparison class (provided by the noun they modify) (Higginbotham 1985 among others). The contrast is illustrated in (82) for English.

- (80) a. New York's very **tall** buildings impress everybody. (*ambiguous*)
b. 'New York's buildings, which are very tall objects, impress everybody.' (absolute)
c. 'New York's buildings, which are very tall compared to the average height of buildings, impress everybody.' (relative)
(Cinque 2010: 11, example 17; emphasis in the original)

Cinque (2010) observes that direct modification adjectives are consistently associated with an absolute reading, while indirect modification adjectives are associated with a relative reading. The latter is what we find with scalar adjectives in Kipsigis (81), which shows adjectives in Kipsigis pattern with indirect modification.¹²³

- (81) Kárâarán tyàngik ché èchéén ché mîi Kenya.
beautiful animals.NOM REL.PL.NOM big.PL.NOM REL.PL.NOM COP Kenya
'Kenya's big animals are beautiful (animals that are big compared to the average size of animals)' (relative)

E) NP-dependent vs. discourse anaphoric readings of 'different'

The adjective *different* in English is ambiguous between two interpretations, which Cinque (2010) calls 'NP-dependent' and 'discourse anaphoric', using Beck's (1998; 2000) terminology. The distinction is illustrated in (82).

- (82) a. Detmar and Kordula live in **different** cities. (*ambiguous*)
b. 'The city that Detmar lives in is different from the city that Kordula lives in.' (*NP-dependent reading*)
c. 'Detmar and Kordula live in cities that are different from some salient city.' (*discourse anaphoric reading*)
(Cinque 2010: 15, example 37, emphasis in the original)¹²⁴

¹²³ However, my consultants did not seem entirely confident in their judgments (i.e., they were not sure they understood the different semantic scenarios I presented them with), which is why we have to take the results of this diagnostic with a grain of salt.

¹²⁴ Cinque attributes the original example to Beck (1998: 19).

In English, the adjective *different* can only appear in pre-nominal position, and it is always ambiguous between the two readings. In Italian, the equivalent adjective is ambiguous between the two readings in post-nominal position, but can only have the NP-dependent reading in pre-nominal position. This shows that the NP-dependent reading is a property of direct modification adjectives (as a reminder, pre-nominal adjectives in Romance always pattern with direct modification adjectives).

Testing the possible interpretations of the adjective *ter* ‘different’ in Kipsigis, we find that only the discourse anaphoric reading is available when the adjective modifies a noun, with the NP-dependent reading being impossible, illustrated in (83). This shows that the Kipsigis adjective for ‘different’ never patterns with direct modification adjectives, which are the ones associated with the NP-dependent reading.¹²⁵

- (83) Mény-è Kíbêet ák Chèebêet kòokwàatínwêek ché tètér.
 live-IPFV Kibeet.NOM and Cheebet villages REL.PL different.PL
 ‘Kibeet and Cheebet live in different villages (Kibeet and Cheebet live in villages different from the one salient in the discourse)’

To sum up, Kipsigis adjectives pattern with indirect modification adjectives for all of Cinque’s (2010) criteria. Therefore, Kipsigis is a language that completely lacks direct modification adjectives; adjectives can only modify nouns as predicates in a (reduced) relative clause. This fact was introduced in Chapter 4, and is a basic component of the analysis of DS outlined in this

¹²⁵ The NP-dependent reading is possible in Kipsigis when the adjective *ter* ‘different’ is reduplicated, as shown in (vi). However, this reading is also available when the reduplicated adjective is in predicative position (shown in vii), and is, thus, consistent with a relative clause analysis of the adjective.

- (vi) Mény-è Kíbêet ák Chèebêet kòokwàatínwêek ché tètér tètér
 live-IPFV Kibeet.NOM and Cheebet villages REL.PL different.RED.PL
 ‘Kibeet and Cheebet live in different villages (from each other)’ (NP-dependent reading)

- (vii) Tètér tètér kòokwàatínwêek.
 different.RED villages.NOM
 ‘The villages are different from each other.’

chapter; the above diagnostics strengthen this claim. In Chapter 3, I discussed how this reinforces Baker's (2003a) conclusion that the ability to directly modify a noun is not the flagship property of adjectives, but in section 4 of this chapter, I discuss in more detail what the implications of Kipsigis-type languages are for theories of the distinction between direct and indirect modification adjectives. In the next section, I give arguments for the treatment of both the relativizer and the demonstratives as determiners external to the relative clause.

3.3. The relativizer and demonstratives as external determiners

In my analysis, the three demonstratives and the relativizer are D heads that take a clausal complement (CP for full relative clauses, SC for adjectives). They are outside of the relative clause and head the DP. This is straightforward for demonstratives: it is uncontroversial that demonstratives are merged outside of the relative clause. However, elements introducing relative clauses are often associated with the C layer, which is why more arguments are needed for the analysis of the relativizer *ne* as an external determiner. In section 2.2., I gave a number of arguments for analyzing the relativizer as a determiner; in this section, I give three arguments in favor of its treatment as an external determiner, as opposed to a relative determiner associated with C.

First, analyzing the relativizer on a par with demonstratives provides a straightforward solution to the simple fact that they are in complementary distribution, and are both able to introduce a relative clause or an adjective.

Second, analyzing the relativizer as a determiner outside of the relative clause, which takes scope over the whole DP, can account for the observation that any noun phrase that includes the relativizer must be interpreted as specific. If *ne* is a specific determiner, it follows that the DP that it heads will have a specific interpretation.

The third and strongest argument comes from coordination. More specifically, in English (and, to my knowledge, all European languages), if two relative clauses that include a complementizer or a relative determiner are coordinated, the resulting interpretation is that of both relative clauses modifying one head noun, as shown in (84). Additionally, the phrase in (84) involves one DP (hence, the singular form of the verb *to be*).

(84) [The man who sings and who dances] **is** my uncle.
 Interpretation of bracketed DP: There is one man; he sings and he dances.

In Kipsigis, on the other hand, coordinating two phrases introduced by *ne* is not equivalent to coordination of two relative clauses. Rather, the interpretation is that of coordination of two individuals, which follows from the analysis of *ne* as an external determiner: what is coordinated in (85) below is two DPs headed by *ne* (with the head noun being elided in the second DP). As a result, the predicative adjective in (86) must bear plural agreement.

(85) ngóoktá nè á-tíny-é] ágò [nè á-chám-é]
 dog REL 1SG-have-IPFV and REL 1SG-like-IPFV
 ‘the dog that I have and the one that I like’
 # ‘the dog that I have and that I like’

(86) ngóoktá nè á-tíny-é ágò nè á-chám-é kó tûu-èen (*tûuy)
 dog REL 1SG-have-IPFV and REL 1SG-like-IPFV TOP black-PL black.SG
 ‘The dog that I have and the one that I like are black.’

In sum, what is called the relativizer in Kipsigis is a determiner that selects a CP complement.¹²⁶ This analysis bears on the important question of the nature of relative markers cross-linguistically. De Vries (2002), building on Lehmann (1984), proposes a typology of relativizers, according to which there are four types of relative elements: relative pronouns, relative complementizers, relative markers, and relative affixes.¹²⁷ The first two are common in European

¹²⁶ Alternatively, it could be analyzed as the allomorph of a specific D in the context of a CP.

¹²⁷ I do not discuss relative affixes, which are not relevant for the topics in question. See de Vries (2002: 155-178) for a detailed discussion of the typology of relative elements.

languages (e.g., English *who* is a relative pronoun, while English *that* is a relative complementizer), while relative markers are common in Afro-Asiatic and Niger-Congo languages (e.g., the relativizer in Ancient Egyptian and Arabic). A relative marker is, in brief, a marker present in the context of relative clauses, which agrees with the head noun in phi features, and which does not seem to be associated with a gap inside the relative clause. The Kipsigis relativizer has these characteristics, and, in fact, de Vries (2002) mentions Kupsabiny (a Kalenjin dialect) as an example of a language with relative markers. We can, therefore, conclude it is a relative marker in this typology.

However, de Vries (2002) argues that relativizers must be associated with the C layer introducing relative clauses in all languages: they are either complementizers (C heads) or they are relative determiners, which move to SpecCP. He tries to explain away relative markers, which do not fit neatly in this picture. The argumentation is not as convincing as it could be, especially given the lack of data for most of these languages. For example, he claims that Kupsabiny is a classifier language (and gives a tentative theory of what relative markers could be in classifier languages), but, to my knowledge, no Kalenjin dialect has classifiers. In fact, the intricate system of number marking that is the topic of Chapter 3 is a feature of all Kalenjin dialects. However, my analysis of the Kipsigis relativizer is not necessarily inconsistent with de Vries' (2002) generalization: the C layer is silent in Kipsigis (which is a possibility according to his study), and what is called a relativizer is a clausal determiner. This highlights the need for a careful description of what is meant by 'relativizer' in typological studies. What seems to be clear from de Vries' (2002) discussion though is that relative markers look like classifiers or determiners, and there are analyses of these markers as such in individual languages: Ouhalla (2004) analyzes the Arabic relativizer as a determiner and argues that a D takes a DP, and not a CP, complement in

relativization in the language, while Cheng & Sybesma (2009) analyze the Chinese marker *de* as a classifier. We have to investigate more carefully the properties of relativizers and relative clauses in these languages, since it is possible that they correlate with other grammatical features. For example, there seems to be a connection to DS (e.g., Arabic has DS and the marker *de* in Chinese is repeated before each adjective, which some have analyzed as a flavor of DS; cf. Alexiadou 2014), a point that I discuss further in section 5.

3.4. DP vs. NP movement

A major component of the analysis of DS developed in this chapter is the movement of a DP, and not an NP, to SpecDP, due to an EPP feature on D. This analysis has the obvious advantage of accounting for the presence of multiple determiners in the context of modification. An EPP feature on D, which requires the specifier to be filled with a phrase (which includes the head noun), also accounts for the strict noun-initiality of the DP. Such an EPP feature on D has been proposed to account for certain properties of relative clauses, which resemble those in Kipsigis, in Gur languages (Hiraiwa 2008). Furthermore, movement of DP to SpecDP has been proposed to account for DS in Greek (Alexiadou & Wilder 1998), and for the possible word orders in the Hebrew DP (Sichel 2002). However, in no implementation of the raising analysis of relative clauses does a DP move outside of the relative clause, and, in fact, there is some evidence that the trace inside the relative clause is indefinite (e.g., the trace can be the subject of an existential inside the relative clause). Moreover, moving a DP to SpecDP does create some problems for semantics: most semantic analyses of relative clauses have the CP modifying an NP, which then combines with an external determiner. In this section, I give further arguments supporting the claim that what moves to SpecDP is indeed a DP, and not an NP. At the end of the section, I discuss what this might mean for the semantic interpretation of relative clauses in the language.

The first language-internal argument for DP movement comes from floating quantifiers. Bianchi (1999; 2000) argues that floating quantifiers cannot be stranded inside a (restrictive) relative clause in English and Romance. According to Sportiche (1988), strong quantifiers select for a definite DP. Since, according to Bianchi, the trace inside the relative clause is indefinite, and the determiner taking scope over the whole DP is the external determiner, which is not part of the head noun, it is predicted that floating quantifiers should not exist inside the relative clause.

Even though this seems to be the case for European languages (where it is indeed an NP moving outside of the relative clause), this prediction is not borne out in Kipsigis. More specifically, for half of the speakers consulted, the universal quantifier *tugul* ‘all’ can be stranded inside the relative clause; crucially, it is interpreted as if it were an external determiner.¹²⁸ In (87a) below, the quantifier is outside of the relative clause. In (87b), it is inside the relative clause, as shown by its position in the clause – preceding the temporal adverb *ámùt* ‘yesterday’. The interpretation of the two noun phrases is, however, the same. These facts suggest that the trace in Kipsigis can be a definite DP.¹²⁹

- (87) a. làagóok **tùgùl** ché [CP kii-á-géer ámùt]
 girls all REL PAST3-1SG-see yesterday
 ‘all the girls that I saw yesterday’
- b. làagóok ché [CP kii-á-géer **tùgùl** ámùt]
 girls REL PAST3-1SG-see all yesterday
 ‘all the girls that I saw yesterday’

¹²⁸ A universal quantifier internal to the relative clause, which is interpreted as if it were external, has also been reported for Navajo head-internal relative clauses (Grosu 2012), though see Bogal-Allbritten & Moulton (2018) for counter-arguments.

¹²⁹ It is, of course, possible that the universal quantifier behaves as some sort of adverbial element in (87b) (cf. Bobaljik 2003). Even if this is true, though, it does not explain why floating quantifiers in relative clauses are possible in Kipsigis, but not in European languages.

Stronger arguments for DP modification and movement come from coordination. In English (and, to my knowledge, all Indo-European languages), NP coordination is possible. In (88a), both cats and dogs are modified by the distal demonstrative, in (88b), there is one individual who is both my friend and colleague, and in (88c), the total number of boys and girls is three (depending on the noun, the result could also be that there are six individuals).

- (88) a. those [cats and dogs]
 b. my [friend and colleague]
 c. three [boys and girls]

In Kipsigis, however, coordination of NPs seems to be impossible. In all the examples in (89), the modifier – demonstrative in (a), possessive in (b), and numeral in (c) – only modifies the second conjunct, and the judgments are very robust for all speakers consulted. The data presented in (89) have the modifier following the second conjunct because the DP is noun-initial in the language, and this is the order in which the modifier is most likely to be modifying a conjunction. However, similar results are obtained if the modifier follows the first conjunct; in this case, it is only the first conjunct that is modified. For both nouns to be modified, the modifier has to be repeated for each conjunct.

- (89) a. págòonóok ák ngóogîi-**chúun**
 cats and dogs-DIST
 ‘cats and those dogs’
 #‘those [cats and dogs]’
- b. págòonóok ák ngóogîik-**chùuk**
 cats and dogs-my.PL
 ‘cats and my dogs’
 # ‘my [cats and dogs]’

c. págòonóok ák ngóogîik **sómòk**
 cats and dogs three
 ‘cats and three dogs’
 # ‘three [cats and dogs]’

Based on these data, I conclude that NPs cannot be coordinated in Kipsigis. As a reminder, numerals and demonstratives modify an NP in my analysis – it is only in a relative clause structure that DPs are modified. It has to be noted that the data in (89a) could be due to the (possibly) affixal nature of the demonstrative in the language. More specifically, Simonenko (2017), in her typology of determiners, makes a distinction between affixal, clitic, and full determiners, and notes that affixal determiners cannot modify both conjuncts in a coordination. However, it is not entirely clear that demonstratives are affixes in Kipsigis (it was discussed that they could also be analyzed as clitics). Even if they are, demonstratives in Kipsigis have the same phonological form, but a different prosodic status, depending on the syntactic context: they are either affixes or clitics when they modify a noun, they are clitics when they introduce an adjective/relative clause, and they are full phonological words when they are used as demonstrative pronouns. This is different from the type of determiners discussed by Simonenko (2017), which have different phonological forms altogether (e.g., *-en* vs. *den* in Scandinavian). Furthermore, the possessive morphemes in Kipsigis, illustrated in (89b), are straightforwardly clitics, and numerals in (89c) are independent words. Therefore, the facts in (89a) are most likely to be due to a general ban on NP coordination, and not to the prosodic status of the demonstrative.

What is interesting about coordination is that once a relative clause structure is involved, modification of both conjuncts becomes possible. In (90a), where the possessive morpheme is introduced by the relativizer, both cats and dogs are modified by the possessive (compare to 91b above, where this interpretation is impossible). Similarly, when a coordination is modified by an

adjective, both conjuncts are modified by the adjective, illustrated in (90b). The interpretation where one conjunct is modified is, of course, also possible, which follows if what is coordinated are two DPs: an unmodified DP and a second (modified) DP. This is not an available interpretation when two singular DPs are modified, in which case the relativizer and the adjective show plural agreement, illustrated in (90c).

- (90) a. págòonóok ák ngóogîik ché **chùuk**
 cats and dogs-my.PL REL.PL my.PL
 ‘my [cats and dogs]’ OR ‘cats and my dogs’
- b. págòonóok ák ngóogîik chè tûu-èn
 cats and dogs REL.PL black-PL
 ‘(the) black [cats and dogs]’ OR ‘(the) cats and (the) black dogs’
- c. págéet ák ngóoktá chè tûu-èn
 cat and dog REL.PL black-PL
 ‘a/the black dog and a/the black cat’

This pattern also holds when the element introducing the relative clause is a demonstrative. Compare (91b) below to (89a) – repeated here as (91a). In (91b) both conjuncts are interpreted as being far away from the speaker, unlike in (91a), where this interpretation is not available. What makes it possible in (91b) is the presence of the adjective, which implies a relative clause structure. Otherwise, a full (non-affixal/clitic) copy of the demonstrative as a modifier of both nouns is impossible, as shown in (91c).

- (91) a. págòonóok ák ngóogîi-**chúun**
 cats and dogs-DIST
 ‘cats and those dogs’
 ‘*those [cats and dogs]’
- b. págòonóok ák ngóogîik **chùun** tûu-èn
 cats and dogs DIST black-PL
 ‘those black [cats and dogs]’

c. *páɡòonóok ák ngóogîik **chùun**
 cats and dogs DIST
 ‘those cats and dogs’

These facts have a straightforward explanation in my analysis, where a DP is the subject of the adjective inside the relative clause and then moves to the edge of the external DP, headed by the relativizer or the demonstrative. Thus, in (90) and (91b) the coordinated DP [cats and dogs] is the subject of the adjective, and then moves to the specifier position of the DP headed by a relativizer in (90) and a demonstrative in (91b). Given the general ban on coordination of NPs suggested by the facts in (89), an account of (90) and (91b) that does not involve coordination of DPs at some stage of the derivation would probably not be successful.

A final piece of evidence that shows that it is indeed coordination of two DPs, and not the relative clause structure alone, that makes the modification of both conjuncts available is the behavior of numerals in the context of an adjective, illustrated in (92). The demonstrative introducing the relative clause and the adjective inside the relative clause modify both conjuncts, but the numeral only modifies the second conjunct of the coordination. This follows from my analysis: the whole coordinated DP [páɡòonóok ák ngóogîik sómòk] is the subject of the adjective, and moves to the specifier of the DP headed by the demonstrative. The numeral *sómòk* ‘three’ is part of the second conjunct only, because numerals are merged below D, and NP coordination is impossible; what is coordinated are two DPs: [páɡòonóok] and [ngóogîik sómòk].

(92) páɡòonóok ák ngóogîik sómòk chùun tîu-èn
 cats and dogs three DIST black-PL
 ‘those black cats and those three black dogs’

Coming back to the problem of the appropriate semantics for my derivations, it might be easy to work out the semantics for ‘simple’ relative clauses in Kipsigis by moving an NP outside of the relative clause, but such a move cannot account for the semantic interpretation of relative clause-

internal floating quantifiers, or for the coordination facts presented above (not to mention that multiple determiners are unaccounted for). In other words, our current semantic models of relativization cannot account for these particular facts about relative clauses in Kipsigis, which differ greatly from relative clauses in European languages (on which most of our semantic models are based).

Furthermore, various researchers working on the syntax of adjectives recognize that indirect modification adjectives (i.e., the only type available in Kipsigis) modify sets of individuals, while direct modification adjectives modify predicates. This points towards an NP vs. DP distinction, and various technical solutions have been used to implement this idea: Cinque (2010) uses a little *d*, which is above direct modification adjectives but below indirect modification adjectives, relative clauses and ‘big’ D, Pfaff (2015) uses ArtP (ArticleP), also below indirect modification adjectives and big D, to account for certain modification facts in the Icelandic DP, while Larson (1998) makes an explicit distinction between modifiers at the N level and modifiers at the D level. Moreover, even in English, there are cases where what seems to be modified is a DP, most prominently the so-called ‘hydras’ (Perlmutter & Ross 1970; Link 1984; Bobaljik 2017 among others), which are relative clauses that have two heads, illustrated in (93).

(93) [**The** Austrian_a and **the** Canadian_c who_{a+c} married each other] met in Cambridge.
(Bobaljik 2017: 13)

The presence of the reflexive *each other* inside the relative clause indicates that the relative clause modifies both *the Austrian* and *the Canadian* in (93). Bobaljik (2017) recognizes that this looks like restrictive modification above the DP, and discusses previous analyses, concluding that no analysis provides a solution for the presence of two determiners in (93).

Even though these facts do not provide a solution to the semantic interpretation of Kipsigis relative clauses, they highlight that assigning a semantic denotation to the Kipsigis derivations is part of a bigger problem regarding the semantics of indirect modification adjectives and relative clauses, which is far from being settled even for languages like English. Given the strong arguments from syntax and morphology in favor of my analysis, it is, I think, preferable to maintain the analysis and investigate its implications for semantics. However, it is clear that further, careful research on the semantics of different types of relative clauses in Kipsigis is necessary, which can shed light on the cross-linguistic variation in the syntax and semantics of relative clauses.

Before closing this section, it is worth noting that the current analysis can potentially account for a mysterious morphological form of the noun found in various Eastern Sudanic languages. More specifically, this form – which has been called *construct state* (e.g., Andersen 2016), *antigenitive* (e.g., Andersen 1988; 2002), and *modified noun form* (e.g., Reh 1996; Storch 2014) in the typological literature – is widespread in Western Nilotic languages, as well as in Daju languages (Boyeldieu 2009). It has also been reported for Datooga (Kiessling 2007), which belongs to the Southern Nilotic family, like Kipsigis. For lack of a better term, and to avoid confusion with the Semitic construct state, I opt for the term *antigenitive*.

The distribution of the antigenitive is very complex in the Luwo dialects of Western Nilotic (see Reh 1996 and Storch 2014 for an overview), but in Dinka, Shatt (Daju), and Datooga at least, its distribution mirrors the distribution of the relativizer in Kipsigis. More specifically, in all three languages the noun is used in the antigenitive with all modifiers, except for numerals. There is variation in the use of the form with demonstratives: in Datooga the distal, but not the proximal, demonstrative triggers the antigenitive on the noun (Kiessling 2007), while all demonstratives trigger it in Dinka and Shatt (Andersen 2016; Boyeldieu 2009).

The example below illustrates this morphological form of the noun for Dinka. Andersen (2002; 2016) explains that the formation of the antigenitive in Dinka is through complex phonological changes to the stem, which is typical in morphological processes in Western Nilotic. He also argues that it is not due to regular phonological processes of the coalescence of the noun with a linking element, and in Andersen (2002) he analyzes it as a DP-internal case form of the noun (in the same way that genitive is a DP-internal case).

- | | | | | | |
|--------------------|---------------|-------------|-------------------|----------|--------------|
| (94) a. tɪk | b. tɪ́ | di̱t | c. tɪ́ | è | móooc |
| woman | woman.AGEN | big | woman.AGEN | HAB | give |
| ‘woman’ | ‘senior wife’ | | ‘woman who gives’ | | |

(Dinka; Andersen 2016: 650)

Shatt is interesting in requiring the antigenitive form on the noun with numerals only if the numeral is in a relative clause structure, illustrated in (95) below (the antigenitive for this particular noun is formed tonally). The data from Shatt also show that the antigenitive can co-occur with a linking element (the relativizer in 95b), reinforcing the conclusion that it is not simply due to phonological coalescence with a linker.

- | | | | |
|------------------------------------------------------|---------------|-------------------|-----------------|
| (95) a. (mà) | máadɪŋ | gàp | pìdàx |
| he | PFV.3M.break | stick.PL | two |
| ‘He broke two sticks.’ | | | |
| b. (mà) | máadɪŋ | gàp-ì | pìdàx-aŋ |
| he | PFV.3M.break | stick.PL.AGEN-REL | two-DEF |
| ‘He broke the two sticks (the sticks that are two).’ | | | |

(Shatt; Boyeldieu 2009: 14)

Finally, Kiessling (2007) reports that the presence or absence of the antigenitive in Datooga correlates with the presence or absence of the specific suffix on the noun. More specifically, the proximal demonstrative and numerals modify the noun without the specific suffix and do not

trigger the antigenitive on the noun, while all other modifiers modify the noun with the specific suffix obligatorily attached to it, and require the antigenitive form of the noun.

These facts, and especially the contrast from Shatt in (95) and the correlation of the antigenitive with the specific suffix (i.e., a D element) in Datooga, support an analysis according to which the antigenitive is indeed a case form (as argued in Andersen 2002), assigned to DPs in SpecDP. If we extend the Kipsigis analysis to these languages, in the context of any modification that requires a relative clause structure, a DP moves to the specifier position of the external determiner. Since DPs, and not NPs, are assigned case, and SpecDP is a possible case position, nouns in these languages are assigned the antigenitive case when they move as DPs to SpecDP. We do not find the antigenitive with numerals (and with the proximal demonstrative in Datooga) because in this case there is no relative clause structure, and, therefore, no DP movement. Finally, the DP in these three languages is noun-initial (like Kipsigis), which is a fact captured by the obligatory movement to SpecDP.

The distribution of the antigenitive is, of course, more complex than that presented in the above brief discussion, with some languages (especially Western Nilotic, Dinka included) having two distinct forms for the noun, depending on the type of modifier. However, I hope that the sketch of an analysis presented in this section will inspire future work on DP structure in these languages, which differs in interesting ways from DP structure in Indo-European, and can shed light on our theories of cross-linguistic variation in noun phrases.

This section concludes the analysis of DS in Kipsigis advocated for in this chapter. Next, I discuss what the implications of my analysis are for the syntax of adjectives cross-linguistically.

4. Implications for theories of adjectival modification

In this chapter, I have shown that: a) Kipsigis is a language that completely lacks direct modification adjectives, and b) the syntax of its adjectives is (almost) identical to that of full relative clauses; crucially, no modifiers (apart from numerals and demonstratives) can modify a noun at the NP level. Rather, all modifiers modify a DP in a relative clause structure, which then moves to the specifier of a higher D head. There are questions that arise from such a view of modification: Why does Kipsigis lack direct modification adjectives? In general, why do some languages completely lack this type of adjectives? What are the implications of the syntax of adjectives proposed in this thesis for theories of cross-linguistic variation in adjectival syntax?

Starting with the first question, the short answer is that it is not entirely clear. It is, however, consistent with other facts about DP syntax in the language. First, as was shown in section 3.4., not only modification, but also coordination of NPs is impossible in Kipsigis. Second, nominal tense morphemes (the temporal morphemes discussed in section 2.1. and repeated in 96-98) in Kipsigis can only locate individuals in time, and can never be interpreted as modifying the NP predicate. For example, in a scenario where a girl changed her sex, the phrase in (98a) is not felicitous with the reading ‘the person who used to be a girl’. This follows if the nominal tense morphemes modify a DP, and not an NP. There is morphological evidence in favor of this claim, since the tense morphemes can only modify a noun that is already modified by the proximal demonstrative (which, in this case, is interpreted as a definite article), as can be seen in all examples in (96) – (98).¹³⁰

¹³⁰ The brief discussion of nominal tense is based on joint, ongoing work with Deniz Özyildiz.

(96) Current past *-kaan* (verbal prefix *ka-*):

- | | |
|------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| a. <u>l</u> àakwàa-nì- k âan
girl-PROX-PAST1
'this girl from earlier today' | b. làagóo-chù- k âan
girls-PROX-PAST1
'these girls from earlier today' |
|------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|

(97) Recent past *-koonye* (verbal prefix *ko-*):

- | | |
|-------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| a. <u>l</u> àakwàa-nì- k óonyè
girl-PROX-PAST2.SG
'this girl from yesterday' | b. làagóo-chù- k óochè
girls-PROX-PAST2.PL
'these girls from yesterday' |
|-------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|

(98) Remote past *-kiinye* (verbal prefix *ki-*):

- | | |
|------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| a. <u>l</u> àakwàa-nì- k iinyè
girl-PROX-PAST3.SG
'this girl from long ago' | b. làagóo-chù- k iichè
girls-PROX-PAST3.PL
'these girls from long ago' |
|------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|

Nominal tense is a relatively rare and understudied phenomenon. Nordlinger & Sadler (2004) is a cross-linguistic survey, while in-depth studies of specific languages include Ivan & Özyıldız (2017) and Lecarme (1996; 1998; 2008; 2016) for Somali, Tonhauser (2006; 2007) for Paraguayan Guaraní, and Thomas (2014) for Mbyá Guaraní. In some languages, nominal tense morphemes modify the interval of time of an NP-predicate, and indefinite nouns can be marked for tense, as shown in (99) for Guaraní. In other languages (e.g., Somali) only definite nouns can be marked for tense. Kipsigis patterns with the latter type of languages. Therefore, nominal tense is one more domain where an item that can modify NPs in other languages can only modify DPs in Kipsigis.

- (99) Juan ha'e pa'i-**kue/-rã**
Juan 3.PRON priest-**KUE/-RA**
'Juan is a former/future priest.'
(Guaraní; Tonhauser 2007: 836)

Two facts about DP syntax in Kipsigis that are probably related to the unavailability of NP modifiers are the tripartite system of number marking and the obligatory presence of the secondary suffix on the noun. More specifically, according to my analysis of number marking in Chapter 3,

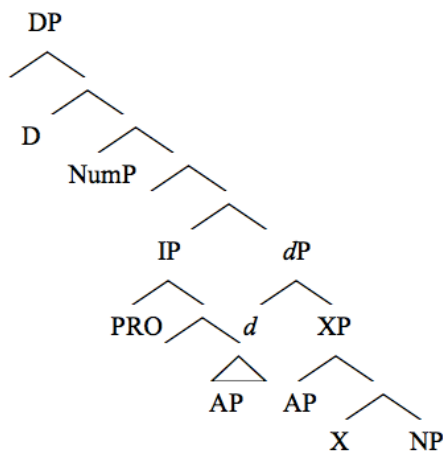
the Number node and little *n* must be structurally adjacent. It follows, then, that no element (such as adjectives) can intervene between the noun and Num. As for the secondary suffix, it seems to be still associated with the D domain, and its obligatory presence on the noun might indicate that no modifier can attach at a level of the derivation when the noun does not yet have this suffix. However, these are mere speculations, and it is not clear what the direction of causation (if any) would be; does the language lack direct modification adjectives because of the number system or does it have this number system because of the lack of this type of adjectives? Similarly, does the behavior of the secondary suffix lead to the unavailability of NP modifiers or did it evolve into a nominal marker because of the lack of these modifiers? These are left as topics for further research.

It is worth mentioning that it is likely that the lack of direct modification adjectives is a property of Eastern Sudanic languages more generally. For example, Reh (1996), in her detailed grammar of the Western Nilotic language Anywa does not mention any adjectives, while Storch (2014) argues that Western Nilotic languages have an extremely small, closed class of true adjectives. Dimmendaal (1983a), in his grammar of the Eastern Nilotic language Turkana, claims that the language has a small class of adjectives, but all of them are accompanied by the same marker that is used with relative clauses. Similarly, in the Surmic language Didinga (Lohitare et al. 2012) adjectives and relative clauses are introduced by the same marker (*ci*). Further research is needed to confirm whether these facts do indeed indicate that these languages lack direct modification adjectives, but Eastern Sudanic languages seem to be an excellent testing ground for theories of why some languages lack direct modification adjectives, to which I turn next.

Despite the importance of the question of why a language would lack one type of adjectives altogether, it has not been sufficiently investigated in the theoretical literature. It is well-known that there are both languages that lack direct modification adjectives and languages that lack

indirect modification adjectives (cf. Baker 2003a; Cinque 2010). Cinque (2010) takes this fact as evidence for the existence of two types of adjectives. While I agree with his conclusion (with Kiparsky providing one more example of such a language), Cinque does not provide an explanation for why some languages would only have one type of adjectives, while others (e.g., European languages) would have both. In his theory, the DP has the structure given in (100). Direct modification adjectives are generated in specifiers of dedicated functional projections (which are rigidly ordered, in a cartographic fashion) merged immediately above the NP. They are separated from the indirect modification adjectives by the little *d* head (which forms individuals). Indirect modification adjectives are also in specifier positions, but they are reduced relative clauses and are not strictly ordered. Numerals are merged as specifiers in a higher projection (demonstratives are presumably merged even higher; Cinque 2005).

(100) Syntax of direct and indirect modification adjectives (adapted from Cinque 2010: 55)



In such a theory, a language that lacks direct modification adjectives would simply lack the functional projections below *d*. However, this is simply a description of the facts, and is not a principled explanation. The only studies that have attempted to give one are, to my knowledge, Baker (2003a) and Baker (2003b). Baker (2003a), in his book on lexical categories, argues that in

some languages adjectives must be selected by PredP (meaning that they can only appear as predicates inside relative clauses). However, Baker (2003b) recognizes that his earlier claim is descriptive and not consistent with our theories of selection; we usually think of heads having selectional requirements for their complements, not complements having requirements about which heads they are selected by. He, therefore, develops a theory according to which the existence of direct modification adjectives is contingent on the availability of phi agreement between the adjective and the noun in a language. He argues that it is phi agreement that makes direct modification possible, and predicts that languages that lack agreement for phi features in the DP will only have indirect modification adjectives.

Even though Baker's (2003b) theory works for the languages that he discusses (Slave, Ika, and also verbal adjectives in Japanese), it cannot be the answer to the general question of why a language would lack direct modification adjectives: Kipsigis adjectives agree with the noun that they modify in both number and Case. Therefore, phi agreement between a noun and its modifiers cannot be a sufficient condition for the availability of direct modification. Unfortunately, I do not currently have an answer to the question of what the sufficient condition would be. However, I hope that the discussion of the Kipsigis facts, and the syntax of modification proposed in this thesis can shed light on this important question.

Additionally, I would like to mention some data from Greek comparative syntax, which I think are relevant to this debate. Lekakou & Karatsareas (2016) report data from Cappadocian Greek, a dialect of Greek that differs from Standard Greek in not having gender, having obligatory DS, and lacking adjectives that cannot appear in predicative position (e.g., *former*, *main*, *alleged*). These properties are very similar to those of the Kipsigis DP, but further research is needed to confirm whether all adjectives in this Greek dialect behave as reduced relative clauses. If so, the lack of

gender in Cappadocian indicates that Baker's (2003b) theory is on the right track: it might be gender, and not phi features in general, that is crucial for the availability of direct modification.

Finally, my analysis (and my discussion on the lack of direct modification adjectives in Kipsigis and other languages) heavily relies on the distinction between NP and DP modification. In this sense, my view of adjectival syntax is closest to Larson's (1991; 1998) theory of modification, which explicitly distinguishes between NP and DP modifiers. The details of my analysis are different from Larson's implementation, which uses DP shells (an extension of his VP shells theory to the nominal domain), but the intuition is very similar: there are multiple D layers in the case of indirect modification.

The presence of multiple D layers in the case of indirect modification (i.e., adjectives, reduced and full relative clauses) is, in my opinion, the reason why multiple determiners are so common in the context of modification cross-linguistically. The question that arises is why these determiners are absent (or, perhaps, silent) in languages like English. In the next section, I show how DS is more common than previously thought, and I discuss the implications of the Kipsigis data for the conclusions reached in Alexiadou (2014), which is a typology of DS in those languages that have been studied in the theoretical literature.

5. A typology of Determiner Spreading

The occurrence of multiple determiners (or definiteness/specificity markers) in the context of modification is more common than usually thought. The following list includes languages (from a wide range of language families) that have been discussed in the theoretical literature: Swedish and Norwegian (Delsing 1993; Embick & Noyer 2001; Hankamer & Mikkelsen 2005; Julien 2005; Katzir 2011 a.o.), Romanian (Giusti 1994; Campos 2005; Dobrovnie-Sorin & Giurgea 2006), Aromanian (Campos & Stavrou 2004; Campos 2005; Manzini & Savoia 2014), Standard Modern

Greek (Androutsopoulou 1995, 2001; Alexiadou & Wilder 1998; Kolliakou 2004; Campos & Stavrou 2004; Ntelitheos 2004; Panagiotidis & Marinis 2011; Velegrakis 2011; Lekakou & Szendroi 2012), Cappadocian Greek (Lekakou & Karatsareas 2016), Albanian (Androutsopoulou 2001; Turano 2002; Campos 2009), Slovenian (Marušič & Žaucer 2010; Leu 2015), Arabic (Fassi Fehri 1999), Hebrew (Ritter 1991; Borer 1999; Wintner 2000; Sichel 2002; Shlonsky 2004; Pereltsvaig 2006), Maltese (Fabri 2001; Winchester 2019), Amharic (den Dikken 2007; Kramer 2010), and Noon (Baier 2015).

DS almost certainly occurs in many more languages, but has not been discovered yet, since it is a phenomenon that is often not described in descriptive grammars. For example, the Kipsigis data discussed in this dissertation do not feature in any grammar of Kalenjin dialects, which do not include examples with multiple adjectives, or combinations of an adjective and a demonstrative. According to Mark Norris (personal communication), a type of DS also occurs in Beja (Cushitic), Diola-Fogny (Niger-Congo), and Evenki (Tungusic). In the previous section, I mentioned that adjectives and relative clauses are introduced by the same marker *ci* in Didinga (Lohitare et al. 2012), which is morphologically similar to determiners in the language. In Turkana, each adjective and relative clause that modifies the noun is preceded by a marker which spells out specificity and gender (of the head noun) (Dimmendaal 1983a). The augment in Bantu languages, which is often analyzed as a determiner (e.g., de Dreu 2008; Visser 2008; Taraldsen 2010; Carstens & Mletshe 2015; Schneider-Zioga & Mutaka 2015) appears on the noun in the context of modification in many languages, while in some it also appears on each relative modifier (see Halpert to appear for an overview of the relevant phenomena). The multiple occurrences of the marker *de* in Chinese have been analyzed as DS by some (see Alexiadou 2014 and references therein). It is also well-known that many languages have linkers that appear with modifiers (e.g., den Dikken 2006; Philip

2012; Scontras & Nicolae 2014), and it is possible that some of these linkers are determiners. Finally, in some languages case concord between the noun and an adjective only appears in discontinuous DPs, which has been analyzed in terms of multiple determiners in the syntax in some studies (e.g., Clem & Dawson 2018 for the Tibeto-Burman language Tiwa and the Panoan language Amahuaca).

The long list of languages mentioned above is not there to overwhelm the reader, but simply to point out that multiple determiners in the context of modification is a common phenomenon cross-linguistically. Therefore, accounting for the cross-linguistic variation should be an important question in linguistic theory. However, Alexiadou (2014) is, to my knowledge, the only typological study of the phenomenon that aims at providing a theoretical account of the attested variation.¹³¹ She provides an in-depth review of previous analyses of DS in Greek, Semitic, Scandinavian, Albanian, French (in the case of superlatives), Romanian, and also discusses Slovenian *ta* and Chinese *de* as possible cases of DS (though she concludes that these are not real determiners). I discuss Alexiadou's (2014) theoretical findings regarding multiple determiners and show that my analysis of the Kipsigis data indicates that some of the conclusions there should be revisited.

The main conclusion reached by Alexiadou (2014) is that there is significant cross-linguistic variation in the occurrence of multiple determiners in the DP, and that no single analysis for all languages is possible. She recognizes three broad types of multiple occurrence, summarized in (101).

- | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| <p>(101) a. [_{DP} [_{CP} [_{IP} DP AP]]]
 b. [_{DP}...[_{FP} AP [_{DP}]]]
 c. [_{SC} NP en AP]
 (Alexiadou 2014: 111)</p> | <p>reduced relative clause, e.g. Greek
 split-DP, e.g., Norwegian, Swedish
 spurious determiners</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|

¹³¹ Typological work on DS in the functional literature includes Plank (2003), Lyons (1999), and Corbett (2006).

One relevant distinction is the difference between determiner doubling and determiner spreading. In the former, a maximum of two (sometimes non-identical) determiners are available in the DP in the context of modification (that is, irrespective of the number of modifiers, only two copies are present in the DP). This pattern is illustrated in (102), with data from Swedish, which is analyzed along the lines of (101b) in Alexiadou (2014).

(102) **den** ny-a bok-**en**
the new-weak book-**the**
'the new book'
(Alexiadou 2014: 2)

I agree with Alexiadou (2014) that this phenomenon should be treated differently from true spreading, i.e., the occurrence of a determiner for each modifier, which is the case in Greek, Semitic, and Kipsigis (among other languages), and will set it aside. This leaves us with the analyses in (a) and (c) in (101) above. Alexiadou (2014) calls the former the 'syntactic case', and the latter the 'morphological pattern'. The morphological pattern is, in turn, divided into two cases: definiteness agreement (which is common in Semitic languages), and morphophonological variation in adjectival articles in Albanian. The latter is quite complex, and I will not discuss it here (see Turano 2002; Campos 2009; Alexiadou 2014); I focus instead on definiteness concord as the primary representative of the 'morphological pattern'. Indeed, definiteness concord is the consensus for all Semitic languages, despite differences in the details of the various analyses. The syntactic case is mainly represented by Greek in Alexiadou's data.¹³² In what follows, I briefly present the properties of DS in Greek and Hebrew (representative of the morphological pattern), and explain the conclusions that Alexiadou draws based on these data.

Greek DS is optional for pre-nominal adjectives, but obligatory for post-nominal adjectives, as

¹³² Alexiadou (2014) also includes Romanian in this category. For reasons of space, I do not discuss Romanian, but see Alexiadou (2014: 53-62).

shown in (103).

- (103) a. **to** kokkino (**to**) forema
 the red the dress
- b. **to** forema ***(to)** kokkino
 the dress the red
 ‘the red dress’

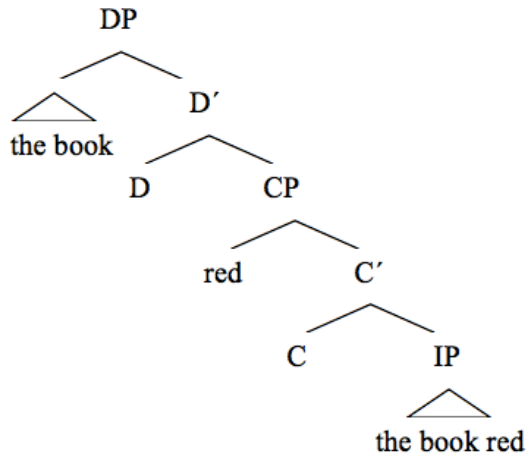
Furthermore, the occurrence of multiple determiners in Greek is restricted to adjectives that can also appear in predicative position; adjectives in the context of DS have a restrictive interpretation. Using the terminology in this dissertation, DS in Greek is only possible with indirect modification adjectives, as shown by the ungrammaticality of multiple determiners with pure attributive adjectives, such as *proin* ‘former’, illustrated in (104).

- (104) **o** proedros (***o**) proin
 the president the former
 ‘the former president’

Finally, DS in Greek is associated with pragmatic effects related to focus and familiarity. For example, Tsakali (2008) shows that DS in Greek patterns with clitic doubling in the clausal domain in being subject to Heim’s (1982) *Prominence Condition* (see Alexiadou 2014: 21-29 for details).

Alexiadou (2014) argues that all these facts can be accounted for in an analysis of adjectives as reduced relative clauses, which are the complement of D, along the lines of Kayne (1994). She gives the structure in (105) for DS in Greek (originally suggested in Alexiadou & Wilder 1998). In this structure, raising of the adjective to SpecCP leads to the order D – A – D – N, while raising of the DP₁ the book to SpecDP₂ leads to the order D – N – D – A. This summarizes what Alexiadou calls the ‘syntactic case’, given in (101a) above.

(105) Greek DS derivation (Alexiadou 2014: 35)



Hebrew DS, on the other hand, is obligatory, is not associated with interpretive effects, and is not subject to restrictions with respect to adjectival type, as shown by the grammaticality (and, in fact, obligatory presence) of the article with the adjective *kodem* ‘former’ below.

(106) ha-nasi’ *(ha)-kodem
 the-president the-former
 ‘the former president’
 (adapted from Pereltsvaig 2006: A27)

Alexiadou (2014), therefore, concludes that the phenomenon in Hebrew is morphological (the pattern in 101c), and multiple occurrences of the definite article are the spellout of definiteness agreement on the adjective. There are various implementations of the agreement/concord analysis in the literature (e.g., Borer 1999; Wintner 2000; Shlonsky 2004; Pereltsvaig 2006), but it seems to be the consensus for most Semitic languages (e.g., see Kramer 2010 for Amharic), and has also been used to account for DS in Cappadocian Greek (Lekakou & Karatsareas 2016), and in Noon, a Niger-Congo language of Senegal (Baier 2015).

Based on the differences between Greek-type languages and Semitic-type languages, Alexiadou (2014) concludes that the following three criteria can be used to decide between a syntactic account using reduced relative clauses, and a morphological account featuring

definiteness concord: a) is the phenomenon obligatory or optional?, b) is the phenomenon associated with semantic effects?, c) are there restrictions with respect to adjectival type (direct vs. indirect modification in our terminology)? If it is optional, has semantic effects, and is restricted to predicative (i.e., indirect modification) adjectives, then a relative clause account is appropriate; if, on the other hand, it is obligatory, without semantic effects, and applies to all types of adjectives, a concord analysis is appropriate.

Coming back to the analysis of Kipsigis DS, it is clear that my analysis is a syntactic one, making use of reduced relative clauses; in fact, it is almost identical to Alexiadou’s (2014) analysis of Greek DS, illustrated in (105). The evidence for a relative clause structure in Kipsigis is even stronger than in Greek, since full relative clauses in the language follow exactly the same DS pattern as adjectives, as was discussed in section 3.

However, DS in Kipsigis is obligatory, and does not have semantic effects of the Greek type (though it does have the semantic effects associated with indirect modification adjectives, such as a restrictive interpretation). Moreover, it applies to all adjectives, with the caveat that the language lacks direct modification adjectives altogether. It, therefore, seems to present a mix of the properties of Greek and Hebrew; these properties are summarized in the table below.

	DS with pre-nominal modifiers	DS with Post-nominal modifiers	Interpr. effects	Adj. type	D position wrt N	D position wrt A
Kip.	NA	✓	No	Pred.	post-nominal	pre-adj.
Gr.	(✓)	✓	Yes	Pred.	pre-nominal	pre-adj.
H.	*	✓	No	Pred./Attr	pre-nominal	pre-adj.

Table 15 – Comparison of DS in Kipsigis, Greek, and Hebrew

The Kipsigis pattern, therefore, shows that we have to be careful with (or even revise) Alexiadou’s (2014) criteria. Regarding the first two criteria, whether the phenomenon is optional

or not, and associated or not with semantic effects cannot be used as a criterion to decide in favor of, or against the relative clause analysis: Kipsigis differs from Greek in this respect, yet a relative clause analysis is appropriate for both languages. We also have to define carefully what is meant by ‘semantic effects’. For Alexiadou (2014), ‘semantic effects’ encompass both the semantics associated with relative clauses (e.g., a restrictive interpretation) and pragmatic effects of the Greek type. The former are, of course, crucial for a relative clause analysis: for such an analysis to be applied to DS in a given language, the adjectives involved must pattern semantically with Cinque’s (2010) indirect modification adjectives. The pragmatic effects, on the other hand, are not as relevant. Kipsigis lacks the interpretations associated with DS in Greek, yet the syntax of the phenomenon is almost identical in the two languages. The semantic differences could, for example, be due to the nature of the SpecDP position in the two languages, and not the syntax of DS *per se*. Finally, the criterion referring to the restrictions with respect to adjectival type has to be taken with a grain of salt as well: in well-studied languages like Greek or Hebrew, we know that both types of adjectives (direct and indirect modification) are available, but when working on an understudied language, this is not an assumption that can be made without further investigation. In Kipsigis, there are no restrictions on the surface, since DS occurs with all adjectives, but further investigation reveals that the language lacks one type of adjectives altogether. The importance of being careful with these criteria is especially clear in the analysis of DS in Noon and Cappadocian Greek as concord by Baier (2015) and Lekakou & Karatsareas (2016) respectively. I briefly discuss the properties of DS in these two languages; Noon will also be relevant for the discussion on the status of demonstratives in the next section, since the definiteness marker that is repeated on the noun and the adjectival modifiers is specified for spatial deixis.

The DP in Noon is noun-initial; when adjectives modify a definite noun, each adjective is marked by a suffix that spells out definiteness and spatial deixis (near speaker, near addressee, distant).¹³³ This suffix has to match the suffix on the noun, and it is obligatory for all adjectives, as shown in (107).

- | | | |
|-------------------------------|--------------------------|-------------------------|
| (107) baay-*(faa) | fi-jowi’-*(faa) | fi-yaak-*(faa) |
| dog-2SG.DEF | 2SG-good-2SG.DEF | 2SG-big-2SG.DEF |
| ‘the good big dog’ | | |
| (adapted from Baier 2015: 19) | | |

Baier (2015) analyzes the pattern as concord, and gives three arguments against an analysis using reduced relative clauses. First, he alludes to the obligatory nature of the phenomenon, and writes: “If the suffix were actually a determiner, we might expect there to be a semantic effect of omitting one or more of the suffixes. This is not the case; omission of even one definite suffix leads to ungrammaticality” (Baier 2015: 74). Second, he notes that the suffix on the adjective is not present independently of definiteness; it is not present in indefinite contexts with the role of introducing the adjective. Third, he notes that it is not possible to have deixis mismatches in (107), and argues that if these were instances of D heads in the syntax, we might expect to get semantic effects by mixing deixis features.

Note how these three arguments are reminiscent of Alexiadou’s (2014) criteria on the (non-) optionality of DS and the presence/absence of semantic effects. In light of the Kipsigis data and analysis, though, none of these arguments rule out a relative clause analysis. First, DS in Kipsigis is obligatory, without semantic effects, just like in Noon. Second, the presence of the relativizer in Kipsigis (or the pre-adjectival demonstrative) is contingent on the noun being specific, and is impossible if the noun is non-specific. More importantly, the pre-adjectival definite article in

¹³³ The suffix also reflects noun class and number agreement; this information is also reflected in the prefix of the noun. These facts are not relevant for the discussion on DS.

Greek is ungrammatical with indefinite nouns, just like in Noon.^{134, 135} Third, no deixis mismatches are allowed in the Kipsigis DP, just like in Noon. It is possible that a concord analysis is, indeed, preferable for Noon (in fact, Noon is one of the most convincing cases), but this is besides the point; the arguments used (loosely based on Alexiadou’s 2014 criteria) do not provide evidence for such an analysis and/or against a relative clause analysis.

As for Cappadocian Greek, this dialect differs from Standard Greek in exhibiting obligatory DS, without semantic effects, as shown in (108). In this dialect, adjectives can never appear post-nominally.

- (108) a. du omurfu du kuritʃ
 the pretty the girl
 ‘the pretty girl’
- b. *du kuritʃ du omurfu
 the girl the pretty

(Lekakou & Karatsareas 2016: 195)

Lekakou & Karatsareas (2016) report that adjectives can have either a restrictive or a non-restrictive interpretation, but they also report that non-intersective adjectives do not exist in the language, and there is no adjective that cannot also appear in predicative position. In light of the Kipsigis data, only the existence of non-restrictive interpretations can be used as an argument for a concord analysis in Cappadocian Greek. However, the lack of non-intersective adjectives is surprising if the language has a direct vs. indirect modification distinction like Standard Greek; in general, I am not aware of any European language that completely lacks non-intersective

¹³⁴ With the exception of the indefinite pronoun *kati* ‘something’, as in (viii).

- (viii) kati to dhiaforetiko
 something the different
 ‘something different’

¹³⁵ We will also see later that a definite article in the context of an indefinite noun is possible in Hebrew.

adjectives. This highlights the need for a careful investigation of adjectival syntax in Cappadocian Greek, before settling on the concord analysis.

Turning now to the analysis of DS in Semitic languages, we conclude that the obligatory nature of the phenomenon and the lack of semantic effects can no longer be used as evidence in favor of a concord analysis for these languages. The presence of multiple determiners with direct modification adjectives is, therefore, the only reason to opt for a concord analysis in Semitic. However, this raises an important question: is DS with direct modification adjectives the same as DS with indirect modification adjectives in Semitic? More specifically, in light of the Kipsigis data and the refinement of Alexiadou's (2014) criteria, DS with indirect modification adjectives in Semitic can be accounted for by extending the Greek/Kipsigis analysis. There are, in fact, some reasons to believe that multiple determiners are associated with relative clauses even in Semitic.

First, DS occurs not only with adjectives, but also with relative clauses in Amharic (Kramer 2009; 2010). In the case of stacked relative clauses, each relative clause must be followed by the definiteness marker, as shown in (109), while the marker is optional for linearly non-first adjectives.

(109) a. *tinantinna* *yä-mät't'-at[ɬ]-iw* *kemistri* *y-at'änn-at[ɬ]-iw* *tämari*
 yesterday C-come.PF-3FS-DEF chemistry C-study.PF-3FS-DEF student
 ‘the student who studied chemistry who arrived yesterday’

b. *k'ondzo-w* *tillik'(-u)* *k'äyy(-u)* *kwäs*
 beautiful-DEF big(-DEF) red(-DEF) ball
 ‘the beautiful big red ball’

(Amharic; Kramer 2010: 200 – 201)

In Kramer's (2010) analysis of the phenomenon in Amharic, the linearly first definiteness marker (the one which appears obligatorily on the adjective in 109b) spells out a D head in the syntax, while the subsequent ones spell-out definiteness agreement. One argument that Kramer

(2010) uses in favor of a concord analysis is that the optionality of the agreement morpheme in (109b) is consistent with the optionality of (number/gender) concord more generally in the Amharic DP. However, under this account, it is puzzling why the marker is obligatory with stacked relative clauses. Kramer (2010) recognizes that these data are not easily accounted for in her analysis, and tentatively suggests that stacked relative clauses in Amharic might be *asyndetically coordinated*.¹³⁶ While this might be indeed the case, it is also possible that the obligatory markers with relative clauses spell out D heads in the syntax, which introduce relative clauses, along the lines of the analysis developed in this chapter for Kipsigis.¹³⁷

Stronger evidence for the link between relative clauses and the definiteness marker on adjectives comes from Arabic. Remember that in my discussion of relativizers, I mentioned that the (Standard) Arabic relative marker falls under de Vries' (2002) category of relative elements that resemble determiners. The relativizer in Arabic has been analyzed as a determiner by at least Ouhalla (2004), though analyses of it as a complementizer do exist (e.g., Alqurashi & Borsley 2012). What is important for our purposes is the parallelism between the distribution of the relative marker with relative clauses, and that of the definite article with adjectives. More specifically, in definite DPs, adjectival modifiers are obligatorily preceded by a copy of the definite article, while relative clauses are obligatorily preceded by the relative marker, as shown in (110) and (111) respectively.

¹³⁶ She also notes in a footnote that one of her consultants did accept stacked relative clauses with optional definiteness marking.

¹³⁷ Demeke (2001) argues against a D – CP analysis of relative clauses in Amharic. A version of such an analysis (which has important differences from Kayne's 1994 original implementation) is, however, argued for in Ouhalla (2004) and it seems to me that there is no consensus on the syntax of Amharic relative clauses. There is, therefore, no reason to rule out the possibility of (a version of) the D – CP hypothesis being adequate for the Amharic data. In any case, the goal of this short discussion is not to provide a full analysis of the complicated Amharic system, but simply to point out that definiteness marking is associated not only with adjectives, but also with relative clauses in the language.

(110) **al-kalb** **al-kabiir**
 the-dog the-big
 ‘the big dog’
 (Standard Arabic; Joyce Saad; p.c.)

(111) a. Daaʕa l-kitaabu *(**allaði**) sʔtaraytu-hu l-baari hata
 lost.3MS the-book **that** bought.1S-it yesterday
 ‘The book that I bought yesterday is lost.’

b. Turida l-waladu *(**allaði**) mazzaqa l-kitaaba
 expelled.3MS the-child **that** tore.3MS the-book
 ‘The boy that tore up the book was expelled.’
 (Standard Arabic; adapted from Aoun, Benmamoun, & Choueiri 2009: 164; emphasis mine)

In indefinite DPs, on the other hand, adjectives are not preceded by any determiner, as shown in (112); crucially, the relative marker is ungrammatical with relative clauses in indefinite contexts as well, as shown in (113). This is one of Ouhalla’s (2004) main arguments for analyzing the relativizer as a determiner.

(112) kalb kabiir
 dog big
 ‘a big dog’
 (Standard Arabic; Joyce Saad, p.c.)

(113) a. ʔufattisʔu ʕan kitaabin *(**allaði**) ʔaDaʕtu-hu l-yawma
 look.1S for book that lost.1S-it the-day
 ‘I am looking for a book that I lost today.’

b. Taradat l-muʕallimatu bintan *(**allaði**) Darabat tilmiiðan fi S-Saffi
 expelled.3FS the-teacher.FS girl that hit.3FS student in the-class
 ‘The teacher expelled a girl that hit a student in the class.’
 (Standard Arabic; adapted from Aoun, Benmamoun, & Choueiri 2009: 164; emphasis mine)

Furthermore, what looks like the definite article can act as a relativizer in some Arabic dialects. The data in (114a) below are from Lebanese Arabic, but Joyce Saad (p.c.) informs me that the

equivalent of (114a) with the definite article is also grammatical in Egyptian Arabic. The data in (b) and (c) below show that the relativizer is required in this context in Standard Arabic.

(114) a. haidi hiyye l-bint I-must'bal-a hilu. (Lebanese Arabic)
 this she DEF-girl DEF-future-3.SG.FEM nice
 'This is the girl whose future is nice.'

b. *ha:thihi hiya l-bint-u I-mustqabal-u-ha: jami:l-un. (SA)
 this she DEF-girl-NOM DEF-future-NOM-3.SG.FEM nice-NOM
 Intended: 'This is the girl whose future is nice.'

c. ha:thihi hiya l-bint-u I-lati: mustqabal-u-ha: jami:l-un.(SA)
 this she DEF-girl-NOM REL DEF-future-NOM-3.SG.FEM nice-NOM
 'This is the girl whose future is nice.'
 (adapted from Matar 2016: 10; emphasis mine)^{138, 139}

Turning now to Hebrew, Sichel (2002) reports data according to which the definite article in the language can introduce a reduced relative clause even if the DP has an indefinite interpretation. In (115) below, (b) and (c) are semantically equivalent; in (c) the definite article performs the function of the complementizer in (b). The contrast between (a) and (c) indicates that the pre-adjectival article is not necessarily linked to definiteness.

(115) a. ha-tmuna ha-tluya al ha-kir
 the-picture the-hanging on the-wall
 'the picture that is hanging on the wall'

b. tmuna *(Se-)tluya al ha-kir
 picture that-hanging on the-wall
 'a picture that is hanging on the wall'

¹³⁸ The definite article in Arabic has various allomorphs – mostly conditioned by phonological factors – which is why you will notice different transcriptions for the same gloss *the* or DEF in all my Arabic examples. In general, I have maintained the transcriptions and glosses of the examples in the original sources.

¹³⁹ Matar (2016) gives further arguments for treating definiteness agreement in Arabic in terms of a relative clause structure, but most of them pertain to a particular class of adjectives (Causal Adjectives), which have a strange behavior in Arabic (see also Kremers 2003). It is beyond the scope of this chapter to account for all the intricacies of the phenomenon in Arabic.

c. tmuna ha-tluya al ha-kir
picture the-hanging on the-wall
'a picture that is hanging on the wall'

(Hebrew; Sichel 2002: 314)

Sichel (2002) claims that the definite article can be used in indefinite contexts (as in c above) only with phrasal/reduced relative-type adjectives (indirect modification in our terminology), and uses these data as an argument in favor of the view that the pre-adjectival copy of the definite article in Hebrew is related to definiteness agreement only with direct modification adjectives, and gives a relative clause analysis (similar to Alexiadou & Wilder's 1998 analysis for Greek) to account for its presence with indirect modification adjectives.¹⁴⁰

Finally, there is evidence that in Maltese, the distribution of the pre-adjectival definite article is sensitive to the direct vs. indirect modification distinction. According to Cinque (2010: 98-99 and references therein), the pre-adjectival article is optional in Maltese, but the adjective has a restrictive interpretation when the article is present; Winchester (2019) provides an analysis of the facts in terms of a relative clause structure (which is very similar to the analysis provided for Kipsigis in this dissertation and Alexiadou & Wilder's 1998 analysis of Greek DS).

The above facts from Semitic, and especially the resemblance of the Arabic relativizer to the Kipsigis relativizer (in particular, the probable conclusion that they are both determiners) and the data in Hebrew in (115), suggest a strong link between determiners and relative clauses in those languages that display multiple determiners in the DP (of the spreading type, as opposed to doubling of the Scandinavian sort). Concord analyses miss this link, as well as any chance of meaningful cross-linguistic comparison to languages like Greek and Kipsigis. I, therefore,

¹⁴⁰ The terminology in Sichel (2002) is slightly different, because she makes a distinction between adjectives as heads and adjectives as phrases. However, these correspond roughly to the direct vs. indirect modification distinction that I have been referring to throughout the dissertation.

conclude that in languages with DS, a relative clause structure is always involved with indirect modification adjectives. In general, if we accept that at least one type of adjectives are analyzed as reduced relative clauses (which seems to be the consensus in research on adjectival syntax, as has already been discussed), it is to be expected that these adjectives will vary in the ways that reduced relative clauses (and, by extension, full relative clauses) vary from language to language. Therefore, in work on understudied languages, a detailed investigation of both adjectival syntax and relative clause syntax is necessary before deciding on an analysis for multiple determiners.

The only phenomenon for which concord is the best analytical option at our disposal is the presence of DS with direct modification adjectives. If, after careful investigation of the syntax and semantics of adjectives in a given language, the conclusion is that multiple determiners occur with direct modification adjectives as well, then a concord analysis can be adopted. However, it is worth investigating whether even multiple determiners on direct modification adjectives can be related to relative clauses. A careful investigation of variation within Semitic, especially the Arabic dialects, where we find significant variation in the distribution of the definite marker, will definitely shed light on this question. It is also important to investigate the connection of languages with determiner-like relativizers (called ‘relative markers’ in de Vries’ 2002 typology) to DS more generally. Finally, further research is needed on the distribution of multiple determiners in the great range of languages mentioned at the beginning of the section (e.g., the distribution of the augment in Bantu), which are rarely discussed in connection to the Greek and Semitic facts, despite some obvious similarities.

In the next section, I take up the question of why we do not find demonstrative spreading of the Kipsigis type in Greek and Semitic, where it is the definite article that participates in spreading. The very important question that I do not discuss is why DS does not occur in all languages; for

example, English (and many European languages) do not have such a phenomenon. The existence of null determiners in these languages is one option, but I refer the reader to Alexiadou (2014: 114-121) for a more detailed discussion of this question.

6. Why demonstrative spreading?

In most languages with DS, it is a definiteness marker (e.g., a definite article) that participates in spreading, and not a demonstrative.¹⁴¹ In fact, Kipsigis is very rare in displaying demonstrative spreading; the only other phenomenon that is similar to Kipsigis in this respect is the specification of the definiteness marker for spatial deixis in Noon, discussed in the previous section.¹⁴² The question that arises is, of course, why Kipsigis differs from other languages.

My answer to this question is that demonstratives in Kipsigis are syntactic D heads, while demonstratives in most languages appear to be phrasal. As a result, demonstratives in Kipsigis, but not other languages, can function as clausal determiners that introduce relative clauses, and, thus, participate in spreading. It is relatively uncontroversial that demonstratives are phrasal in many languages. The literature on the syntax of demonstratives is vast, and I am not going to discuss it in detail here, but see Alexiadou, Haegeman, & Stavrou (2007) and Leu (2015) for comprehensive reviews of the existing literature. In brief, most researchers agree that demonstratives are phrasal and occupy a specifier position in the nominal spine (one position that is often argued for is SpecDP). Leu (2015) suggests that demonstratives (at least in Germanic) consist of a determiner part, and an adjectival part.

¹⁴¹ In some languages, an indefinite determiner may participate in spreading; see Alexiadou (2014) and Leu (2015) for details.

¹⁴² According to Alexiadou (2014), the determiner that participates in determiner doubling in Romanian (*cel*) is a demonstrative. However, as the name of the phenomenon indicates, Romanian does not display true spreading, since only one additional copy of the determiner is possible. Furthermore, there are no matching effects for spatial deixis of the Kipsigis and Noon type.

Leu's (2015) analysis is attractive because it can account for the morphological make-up of demonstratives in Germanic, as well as for the mixed behavior of demonstratives in a variety of languages: they share some properties with determiners (e.g., in English demonstratives and the definite article are in complementary distribution), but also many properties with adjectives (e.g., the morphological paradigm of demonstratives, especially with respect to agreement, is similar to the morphological paradigm of adjectives in many languages). The Kipsigis data indicate that in some languages, demonstratives might only consist of the determiner part.

Unfortunately, I do not have an explanation for why demonstratives would be heads in some languages, but phrasal in others. However, there are some facts about demonstratives in Kipsigis that are consistent with such a view, namely the lack of a definite article and the phonological behavior of the demonstratives, which are ambiguous between an affix and a clitic. More specifically, if a language has a definite article, we might expect to observe a clear-cut distinction between the article and the demonstratives, which is more blurred in an article-less language. As for the phonology of demonstratives, Diessel (1999), in his large-scale typological work on demonstratives, states that very few languages have demonstratives that are not independent phonological words. The prosodic status of Kipsigis demonstratives, however, varies depending on the syntactic environment, and they are independent phonological words only when they are used as stand-alone demonstrative pronouns. In the context of nominal modification, they are clearly clitics when they introduce relative clauses/adjectives, and they could even be affixes when they attach to the noun.¹⁴³ Even though their prosodic status does not necessarily show that they

¹⁴³ Even though I have been agnostic as to whether they are affixes or clitics in this case, what is clear is that their connection to the noun is 'tighter' than when they are in pre-adjectival position (where they are certainly clitics). For example, native speakers perceive the noun – demonstrative complex as one word, while they do not analyze the demonstrative – adjective complex as one word. Moreover, the proximal demonstrative is obligatorily in the [ATR]

are heads, what it does show is that they pattern like articles in other languages (which are usually clitics or affixes). Furthermore, the fact that demonstratives are independent phonological words in the vast majority of the world's languages raises the question of why they would not be independent words in Kipsigis. The head vs. phrasal distinction is one possible answer to this question; furthermore, the rarity of phonologically bound demonstratives parallels the rarity of demonstrative spreading. It is interesting to note that the deixis concord observed in Noon is also expressed through affixes on the noun. I, therefore, make the tentative suggestion that a language will allow demonstrative spreading only if it also allows phonologically bound demonstratives.

7. Conclusion

In this chapter, I have provided an analysis of DS in Kipsigis in terms of reduced relative clauses, and I have shown that there is a link between relative clause structure and multiple determiners in many languages. More specifically, there seems to be a connection between languages with determiner-like relativizers and DS in the context of modification. Further research is needed into the nature of this type of relativizers, and the syntax of relative clauses and adjectives in these languages. Additionally, I have mentioned a wide range of phenomena that have similarities to DS (e.g., the distribution of the augment in the context of modification in Bantu), and it is obvious that further research is needed to establish their implications for the typology of DS.

Finally, the syntax that I have proposed for adjectives in Kipsigis (which is identical to the syntax of relative clauses in the language) leads to three important conclusions: a) some languages might only have adjectives that have a relative clause syntax, b) variation in adjectival syntax for

harmony domain of the noun, irrespective of speech rate, but it takes the [ATR] value of the adjective only in fast speech.

this type of adjectives will necessarily correlate with variation in relative clause syntax, and c) the relevant distinction for the difference between direct and indirect modification adjectives lies in the distinction between NP and DP modification (Larson 1998 among others). These conclusions, in addition to the claim that demonstratives are heads in some languages, but phrasal in others, have important ramifications for theories of the typology of the relative surface orders of these elements in the DP (Greenberg's Universal 20, Cinque 2005; Abels & Neeleman 2012 among others), which sometimes propose a universal underlying structure for adjectives and demonstratives.

Chapter 6: Conclusion

1. Introduction

It is my hope that this dissertation has brought interesting data into the theoretical discussion on the syntax and morphology of noun phrases, and that it will inspire future work on the severely understudied languages of the Nilo-Saharan family. In this last chapter, I provide a summary of the main claims made in the dissertation, and I discuss some open issues and directions for further research.

2. Summary

In **Chapter 2**, I provided basic information on Kipsigis, as well as a description of the phonological system of the language, which is the first such description since Toweett's (1979) work. In this chapter, I briefly discussed previous research on Nilo-Saharan languages more generally, and Kalenjin dialects in particular, which, hopefully, highlighted how understudied the languages of this area of Africa are compared to languages elsewhere in the world.

In **Chapter 3**, I described and analyzed the intricate system of number morphology in Kipsigis, which features a large number of singulative and plural suffixes. I argued that this pattern of number marking reflects a noun classification system, based on inherent number features on little *n*. I further argued that the singulative in Nilo-Saharan languages more generally is an allomorph of singular morphology, unlike the singulative in other languages, which has a classifier-like function in the syntax.

In **Chapter 4**, I established the existence of adjectives as a distinct morphosyntactic category in Kipsigis, and I argued that adjectives are a universal lexical category. However, I showed that they may only modify nouns inside a relative clause in some languages, reinforcing Baker's (2003a) claim that direct modification of a noun is not the defining characteristic of adjectives.

Finally, in **Chapter 5**, I analyzed multiple determiners in the context of modification in Kipsigis in terms of a relative clause structure. Furthermore, I argued that a relative clause structure is involved even in these languages that are thought to display definiteness concord.

3. Topics for further research

3.1. Number-based noun classification and singulatives

In Chapter 3, I provided a brief comparison of the Kipsigis system to the number system of languages with singulatives (e.g., Arabic) and to that of other languages with a number-based noun classification system, such as Kiowa (Harbour 2007; 2011). However, there are a number of open issues. What are the limits of variation in the behavior of singulatives? Are a classifier-like singulative (of the Arabic type) and a singular allomorph singulative (of the Kipsigis type) the only possible types of singulatives? Are there morphosyntactic differences between these two types of singulatives? Why do heads in Kiowa (and other Tanoan languages) agree with number features on two heads, but languages like Kipsigis only agree with number features on one head? Is this related to simultaneous agreement with multiple arguments in the clausal domain? What can these languages tell us about the nature of agreement (and/or nominal concord) and about the theory of grammatical number?

In order to answer these questions, further research is needed on the morphosyntactic properties of number in languages with a tripartite system of number marking and/or singulatives. These languages are generally understudied in the theoretical literature, but I have highlighted a number of them in this dissertation: many Nilo-Saharan languages, some Afro-Asiatic languages spoken in East Africa, and Welsh would be good starting points.

3.2. Direct vs. indirect modification adjectives

A recurring theme in this dissertation is the distinction between direct modification and indirect modification adjectives (Cinque 2010 among many others). It is often claimed that some languages may lack one or the other type, with Kipsigis being a language without direct modification adjectives. The big question that remains unanswered though is the following: Why do some languages lack direct modification adjectives? What can these languages teach us about the syntax of adjectival modification cross-linguistically?

In order to answer these questions, a careful investigation of the properties of adjectives in a large sample of languages is necessary. More specifically, descriptive grammars rarely include the information necessary for a theoretical linguist to know whether adjectives in a language are of the direct or indirect modification type. As a result, we do not have a good understanding of which languages lack one type or the other, and whether this grammatical property correlates with other grammatical features. One possible candidate for a feature is the presence of gender and/or nominal concord in a language, as briefly discussed in chapter 5.

3.3. Determiner Spreading

I argued in chapter 5 that in languages with multiple determiners in the context of modification, there is a connection between determiners and relative markers (as in Kipsigis, and possibly Arabic) and/or the phenomenon is restricted to adjectives that have a reduced relative clause structure (as in Greek). It is an open question whether determiner spreading can be analyzed in terms of a relative clause structure in all languages, and if so, what the parameters of variation are. Further research is needed into the phenomenon of determiner spreading in other languages (some languages that have not been sufficiently investigated in the theoretical literature were mentioned in chapter 5), especially in relation to adjectival and relative clause syntax in those languages.

Finally, further research is needed on the syntax of relative clauses in languages with relative markers (in de Vries' 2002 typology), since they seem to be related to determiners and/or classifiers.

3.4. Nilo-Saharan languages

I'd like to conclude this dissertation by pointing out once again the need for additional work – both descriptive and theoretical – on Nilo-Saharan languages. The language family is underdocumented, and surprisingly neglected in the syntactic literature. However, Nilo-Saharan languages feature a wealth of phenomena that are relevant for syntactic theory. For example, compare the great amount of generative papers on verb initiality in Mayan, Celtic, and Austronesian languages (too many to be counted) to the one available paper on verb initiality in Nilo-Saharan (Bossi & Diercks to appear), despite the high frequency of occurrence of this order in certain branches of the family. Similarly, the case system of many of these languages (marked nominative) has been given an explanation only by Baker (2015) and van Urk (2015), despite the obvious importance of such a case system for theories of case and agreement (e.g., a morphologically marked nominative form is problematic for theories of case that treat the nominative as the absence of case and for theories according to which the accusative is built on top of the nominative; e.g., Caha 2009).

Closing with some of the phenomena that are important for our understanding of DP syntax – the topic of this dissertation – the following are just a small subset of the areas for further research on Nilo-Saharan nominal morphosyntax: variation in the tripartite system of number marking, the antigenitive form of the noun (mentioned in chapter 5), the relative clause-like structure of adjectives, the strong noun-initiality of the DP, and the tonal expression of case distinctions. It is

my hope that this dissertation serves as an inspiration for further work on these fascinating phenomena.

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