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Aspects of Diraytata Morphology and Syntax:

A Lexical-Functional Grammar Approach

Doctoral thesis
for the degree of doctor philosophiae

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I dedicate this thesis to my wife, Tariqua Zegeye and to my daughter, Rediet Wondwosen.

Abstract

This thesis examines Aspects of Diraytata Morphology and Syntax as it relates to lexical categories, predicate arguments, anaphoric binding relations and patterns of argument structure and mapping relations in light of the theory of Lexical-Functional Grammar. Diraytata is one of least-known languages in the Konsoid chain in the Oromoid subgroup in the Nuclear Southern Lowland East Cushitic group within the Cushitic family. The Ethiopian Languages Research Center (ELRC), of which the candidate is a member, gives priority and encourages its staff to conduct research on the least studied languages. The present thesis goes in line with the research priority of the Center. The data were obtained from informants from two longer fieldtrips to Dirashe Special District. The methods used for data collection were elicitation and group discussion.

The thesis has two parts and ten chapters. The first chapter gives a general introduction to the people, the language, previous studies on the language, etc. and the second chapter introduces the theoretical framework.

Part I, from chapters 3 to 5, examines the morphology of Diraytata. In chapter 3, the noun morphology has been presented. In Diraytata case and definiteness are inextricably bound up with the focus system and hence inexplicable without a prior exposure to the focus system. The major claim is that the nominative case is inappropriate to designate a subject case in Diraytata and be replaced by non-focalized subject case (NFS).

In chapter 4, the adjectives have been considered. Attributive adjectives inflect for gender and number. The predicative adjectives occur in clause final position. It has been argued that the attributive and predicative adjectives in Diraytata are derived from a common categorially unspecified bound stem.

In chapter 5, the verb morphology has been discussed. In the first section, we have dealt with inflections. We said that verbs inflect for various grammatical categories such as for agreement, aspect and mood. We posited a phonetically null bound affix ‘ø’ in order to fill the gap in a predicate paradigm. The newly introduced null bound affix ‘ø’ has a third person

masculine singular interpretation. In the second section, we have seen the verb derivations: passives, middles and causatives.

Part II, from chapters 6 to 9, discusses the syntax. In chapter 6, the phrasal arguments of Diraytata have been examined. We have classified the predicates into three types on the basis of the types of arguments they select at f-structure.

In chapter 7, the clausal complements have been considered. The clausal complements are classified into two: controlled and non-controlled. The latter type does not allow an external controller to control clause internal arguments whereas the former type allows an external controller to control clause internal argument.

In chapter 8, the anaphoric binding relation has been discussed. We have divided the anaphors of Diraytata into two: nuclear and non-nuclear anaphors. The nuclear anaphors subsume reflexives and reciprocals. There are two types of reflexive morphemes: *ʔiss* and *mašš-*. Reciprocity is indicated by the morpheme *ʔorr*. The reflexive and the reciprocal function as an object argument only. On the other hand, the non-nuclear anaphors subsume pronouns designated by PRO.

In chapter 9, the argument structure and the Lexical Mapping Theory have been discussed. We have considered the application of LMT to various predicates in Diraytata such as intransitive, transitive, passive, raising and causative predicates. The major claim is that the standard LMT is inadequate to account for the causatives of ditransitive predicates in Diraytata, as such predicates may have more than one OBJ functions that goes contrary to the Function-Argument Bi-uniqueness principle. We have seen that the version of LMT called FMT of Alsina (1996) is appropriate to handle the causatives of ditransitive predicates as the FMT allows more than one OBJ functions.

We have proposed the Recipient Suppression operation to the Morpholexical Operations of Bresnan and Kanerva (1989) and Bresnan and Moshi (1990) in order to account for the active intransitive counterparts of the ditransitive predicates. The newly introduced suppression operation takes care of recipient or benefactive deletion in a ditransitive predicate.

In conclusion, this study proves that the basic assumptions, the principles and the formal architectures of LFG are generally correct in handling the empirical facts of Diraytata. However, we need to add some operations (e.g. Recipient Suppression) to explain syntactic phenomena more adequately.

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Abbreviations and symbols

1	First person
2	Second person
3	Third person
A	Adjective
ABS	Absolutive
AD	Adposition
ADJ	Adjunct
ADP	Adpositional phrase
AFF	Affect
ag	Agent
AP	Adjectival phrase
ASP	Aspect
AVM	Attribute value matrix
ben	Benefactive
CAUS	Causative
CF	Core function
CFC	Complete functional complex
comp	Complementizer
COMP	Closed complement clause
CP	Clause/ complementizer phrase
c-structure	Constituent structure
CS	Conceptual Structure
DAT	Dative case
DEF	Definite
DET	Determiner
ELRC	Ethiopian Languages Research Center
equi	Equivalent NP Deletion
exp	Experiencer
F	Feminine
FMT	Functional Mapping Theory
FOC	Focus
f-structure	Functional structure
GB	Government /Binding Theory
GEND	Gender
INFL	Inflection
INS	Instrumental case

inst	Instrumental role
IP	Inflectional phrase
IPFV	Imperfective
LF	Logical Form
LFG	Lexical-Functional Grammar
LMT	Lexical Mapping Theory
loc	location
M	Masculine
MID	Middle
N	Noun
NFS	Non-focalized subject case
NP	Noun phrase
NUM	Number
OBJ	Object
OBL	Oblique
-o	Non-objective feature
+o	Objective feature
P.A	Proto-Agent
P.P	Proto-Patient
P.R	Proto-Role
PASS	Passive
PERS	Person
PL	Plural
PRF	Perfective
PRO	Pronoun
PRONTYPE	Pronoun type
PROP	Proposition
pt	Patient
Q	Question
RDU	Reduplication
recip	Recipient
RECP	Reciprocal
REFL	Reflexive
Rest.	Restricted
RRG	Role and Reference Grammar
-r	Semantically unrestricted feature
+r	Semantically restricted feature
SG	Singular
SUBJ	Subject
th	Theme
Unrestr.	Unrestricted
V	Verb/ Predicate
VFOC	Verb focus

VP	Verb phrase
w.f.	Well-formedness Condition
XCOMP	Open complement clause
σ	Syllable structure
´	High tone
↑	Mother node
↓	Self node
=c	Constraining equation
<	Linear Precedence relations (LP)
→	Expands or points to the f-structure that is the value of the attribute associated with
ɸ	Phi
$ɸ^{-1}$	Inverse of phi
*	Ill-formed sentence or f-structure
α	Alpha
ê	Theta-hat
¬	does not contain

Chapter 1

General Introduction

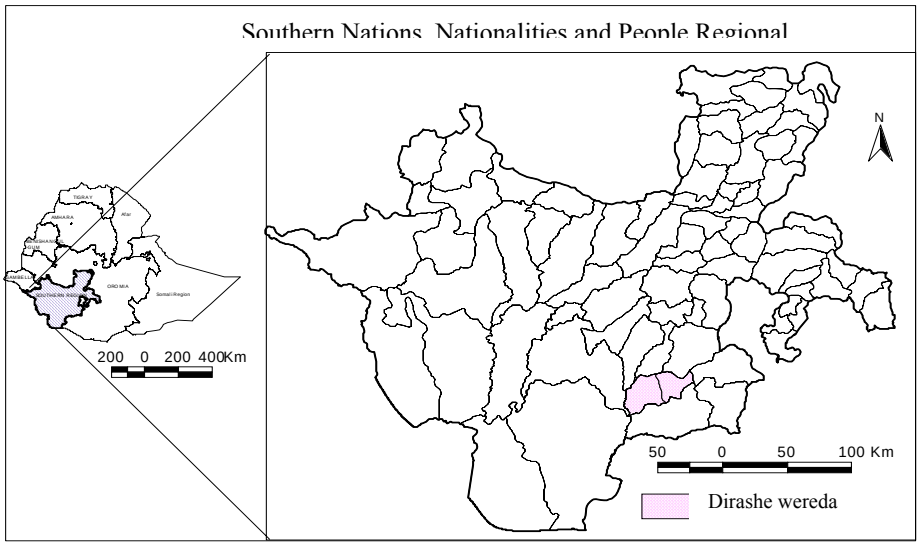
1.1 Introduction

The Ethiopian Languages Research Center (ELRC), of which the candidate is a member, gives priority and encourages its staff to conduct research on the least studied and known languages of Ethiopia. "…In this regard, the Center has made the study of least-known languages of Ethiopia to be its main priority… Thus, the Center gives more emphasis to and devotes its energy for the study of poorly known languages" (ZENA LISSAN 2001:1). As Diraytata is one of the least known languages, the present research goes in line with the research priorities of the Center.

The thesis, *Aspects of Diraytata morphology and Syntax: A Lexical-Functional Grammar Approach*, has two parts and ten chapters. In chapter 1 we give a general introduction about the people, the language, a review of related literature, and limitations of the study and the fieldwork; some notes on the phonology and the lexical categories of Diraytata will be provided. In chapter 2 the theoretical framework of the study will be introduced. In part I, from chapters 3 to 5 the noun, the adjective and the verb morphology will be considered. In part II, from chapters 6 to 9 phrasal and clausal arguments, anaphoric binding relations, and patterns of argument structure relating to Lexical Mapping Theory will be discussed. The final chapter summarizes the main findings of the study.

1.2 The people

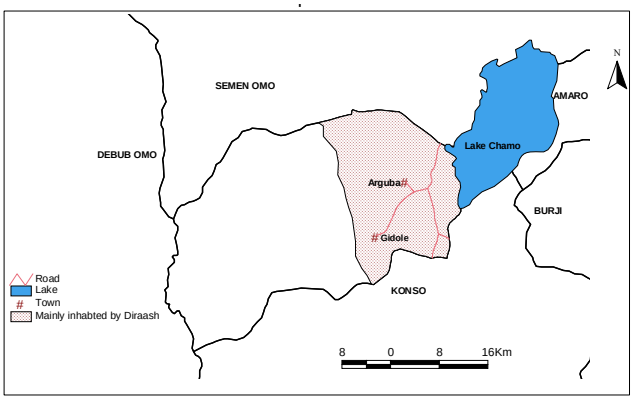
The *Dirasha* people live in *Dirashe* Special District (Wereda). The *Dirashe* Special District is located within the Southern Nations, Nationalities and People Regional State of the Federal Democratic Republic of Ethiopia. This is shown in map 1.



Map 1 the Southern Nations, Nationalities and People Regional State

The Southern Nations, Nationalities and People Regional State shares boundaries with Oromiya Regional State in the east, south-east and north, with Sudan and Gambela Regional State in the west and with Kenya in the south.

Map 2 shows the *Dirashe* Special District (Wereda).



Map 2 Dirashe Special District (Wereda)

The Dirashe Special District (Wereda) shares boundaries with Koyra, Burji and Lake Chamo to the east, with Konso to the south, with Bonke to the west and with Arba Minch to the north. This Special District comprises of about five Nationalities out of which the *Dirasha* are the majority in number.

The dotted part in map 2 indicates the areas mainly inhabited by *Dirashas*. According to the 1994 census, there are estimated to be about 49,980 in habitants (Central Statistical Authority 1994: 117). The people use the self-name *Dirasha* to refer to themselves. Their basic economic activity is mixed agriculture. They are pastoralists and cultivators. Mostly they cultivate maize, sorghum, t'eff (*Eragrostis abyssinica*), barley, and wheat. They grow pulses such as peas, chickpeas, lentils, and beans. They also grow cash-crops such as coffee and č'at (*Catha edulis*). Their mode of cultivation is usually ox-drawn plough. They rear goats, cattle, donkeys, etc.

1.3 The language

The *Dirashas* are bilingual in Oromo, the dominant language of the area. They refer to their own language by three different names: *Dirashitata,*

Dirayta and *Diraytata*. The most commonly used name is *Diraytata*. However, their neighbors and the linguistic literature refer to both the people and the language by the name *Gidole*. *Diraytata* is one of the least described languages in the Konsoid chain in the Oromoid subgroup in the Nuclear Southern Lowland East Cushitic group within the Cushitic family. Figure 1 shows the family tree of Cushitic languages (adopted from Tosco 2000:108).

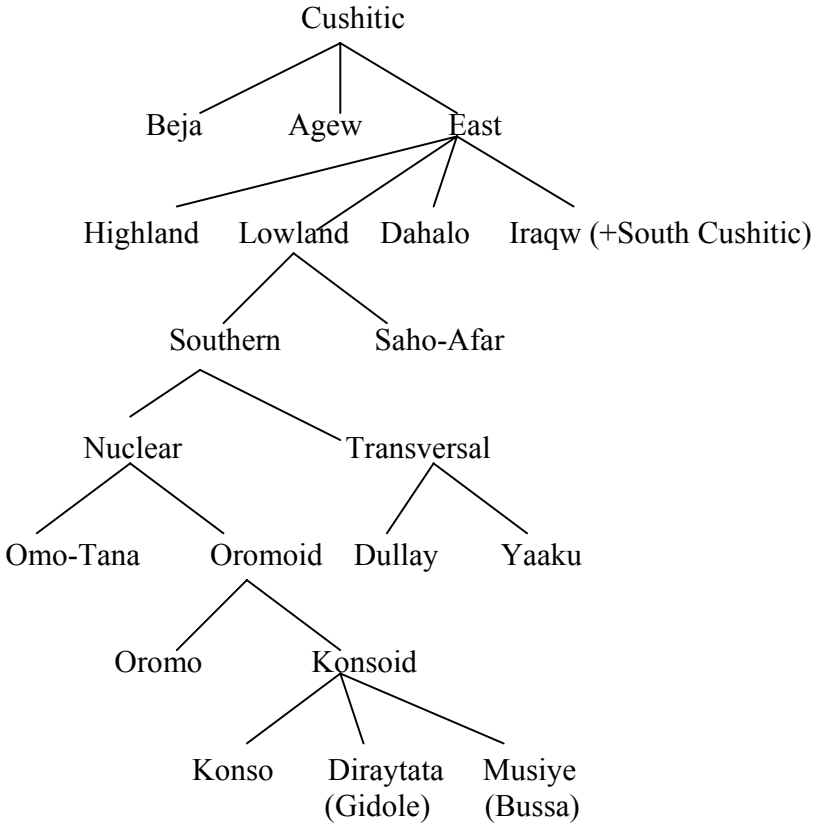


Figure 1 The subdivision of Cushitic family

Diraytata has three varieties: the west, the east and the south (Black, 1973a). The east and the west varieties are spoken by the lowlanders and the south variety is spoken by the highlanders who inhabited in and around the township of Gidole. This thesis is based on the south variety of Diraytata as spoken by the highlanders.

1.4 Previous studies on the language

In this part both the published and unpublished works on Diraytata will be briefly reviewed.

The published works include the following two articles by Hayward the first of which is 'Some observations on Dirayta (Gidole) pronouns' (1980). In the introduction of this article he presents a brief overview of the focalization system working in the language to facilitate the discussion on pronouns. He says that within a clause any constituent phrase may be contrastively focalized. The article identifies three constituents which have the potential to be focalized, that is, verb phrases, subject noun phrases and complement phrases. The form of the verb indicates which of these constituents are focalized. The main focus of the article is on the pronoun system of Diraytata. Six types of pronouns are distinguished: personal, possessive, reflexive, deictic, reciprocal and interrogative pronouns.

The second article is 'Nominal suffixes in Dirayta (Gidole)' (1981). In this article Hayward describes the noun forms in Diraytata with respect to the grammatical categories gender, number, case and definiteness. Regarding the interaction and non-interaction between gender and number he characterizes the nouns in Diraytata into three groups. The first group comprises nouns that show a clear gender distinction in the singular and which do not distinguish gender in the plural. His second group consists of those singular nouns which do not have plural counterparts. The final group subsumes the nouns which are inherently plural, which do not have singular counterparts. Regarding definite markers he identifies two types, the simple and possessive definitives. There are five simple definite suffixes: **-in** (**-initt**), **-set** ~ **sét**, **-se**, **-ánét**, and **–án**. There are three sets of possessive definite markers, which can be identified in terms of their initial vowel as the **a**, **i** and **o** sets:

	a set	**i** set	**o** set
1SG	-aw	-iyyu	-oyyu
2SG	-ayt	-it	-ot
3MSG	-ayy	-iyy	-oyy
3FSG	-aɗɗ	-iɗɗ	-oɗɗ
1P	-aynu	-innu	-onnu
2P	-ayn	-in	-on
3P	-aɗɗu	-iɗɗu	-oɗɗu

The third one is a joint article by Hayward and Saeed 'NP focus in Somali and Dirayta: a comparison of *baa* and *pa*' (1984). This article is concerned with a comparison of the focus word *baa* in standard Somali with a proposed cognate *pa* in Diraytata. The study outlines briefly the relation of *baa* structures to clefts, and to relative clauses in general is explicitly recognized by a transformational derivation. Against this background Diraytata *pa* being considered as a cognate, is described. Firstly the phonological evidence is considered, and then there is a comparison of the grammar of *pa* and *baa*.

Another published work is a Sociolinguistic Survey Report of the languages of the Gawwada (Dullay), Dirasha (Gidole) and Muusiye (Bussa) area made by the research group called Survey of Little-Known Languages of Ethiopia (S.L.L.E). They have collected a word list of 320 entries on Diraytata. The list was published in 1994 in the S.L.L.E report no. 19 (Wedikind 1994).

The unpublished works include three BA and one MA theses undertaken at the Addis Ababa University. The first BA thesis is ' The Phonology of Gidole' (1983) by the candidate Sinkeneh. The study identifies 21 consonant and 5 vowel phonemes. It is argued that simple and geminate consonant as well as long and short vowels contrast in analogous environments.

The second BA thesis is ' The verb morphology of Gidole' (1988) by the candidate Hailu. He describes the verb morphology of the language. He presents the perfective and the imperfective conjugation of verbs with the help of examples. The study has a few problems, though the main problem of this study is the treatment of the perfective marker as a discontinuous morpheme *he…i*. The affix *he-* in Diraytata is a focus marker and not a perfective marker (cf. Hayward 1980). The perfective marker is the suffix *-i* (cf. Wondwosen 1993).

Regarding the derivation of verbs, he says that in Gidole verb stems can be derived from verb roots to describe various kinds of action such as passive, causative, intensive, reflexive and reciprocity. The other problem is the identification of the morpheme *–sis* as causative marker. According to the present study Diraytata has two causative morphemes: *-i* and *-osi*.

The third BA thesis is 'The Syntax of Simple sentences in Dirayta' (2000) by the candidate Dawit. The study describes the structure of declarative, interrogative, imperative and negative sentences. It also describes the constituents of NPs and VPs. The short comings of this study relate to the fact that some of the sentences that are given as examples are not well-formed. For the sake of illustration, example (5) on page 14 and example (12a) on page 18 are repeated below as (i) and (ii).

(i) Jinka-t man(a)-ye-p an
Jinka-nom house-his-to goes
'Jinka goes to his house.'

(ii) nam-in humma'a maaka-se ikaye
Man-Def short snake-Def killed
'The short man killed the snake.'

Example (i) is ill-formed because the verb *an* 'go' is in its neutral form and such verb requires an absolutive case marked subject NP but not a nominative case marked NP. In (i) the subject is nominative case marked and this subject cannot go with the verb *an-*. By the same token, in (ii) the definite marker *–in* wrongly attached to the head noun *nam* 'man', however, such definite marker in Diraytata occurs following the nominative case marker as *nam* +*-at* +*-in* = *namatin* and it cannot be attached to *nam* + *-in* = **namin* with the absolutive form.

The fourth study is an MA thesis 'The structure of verb complements in Gidole' (1993) by Wondwosen (the present author). In the study he identifies the verbs and the complement types that such verbs subcategorize. The study is based on Government and Binding Theory.

1.5 The present study

From the review of literature we can see the many directions that linguistic research in Diraytata will have to take. The gaps in the areas of phonology, morphology, syntax etc. are extremely large. For example, there is no material on the word formation processes and various aspects of syntax. In some other cases, the available material is scanty.

The present study, therefore, examines the morphology and syntax of Diraytata as it relates to lexical categories and predicate arguments. The morphology part is limited to the description and analysis of nouns, adjectives and verbs (predicates). The syntax part, on the other hand, is limited to the description and analysis of predicates and their subcategorized arguments, binding relations, argument structure and mapping relations. It does not include adjuncts. The study is hoped to fill some of the above mentioned gaps.

1.6 About fieldwork

The data for this study were collected in two field trips to Dirashe Special District (Wereda). The first field trip was for 5 months from 15 January to 15 June 2003. The second field trip was for 6 months from 15 January to 15 July 2004. The key informants were *Terrefe Yohannis*, *Nigusse Kassaye*, *Kissallo Dennebe*, *Mitiku Bekele* and *Kussiyy Tolonke*. *Terrfe Yohannis* was 42 and born in *Alkayo*. He works as vice director of an elementary school close to the town of Gidole. He worked as language helper on both field trips. The second informant was Nigusse Kassaye, aged 27, born in *Gindille* and has also served as language assistant. He is an evangelist working in South-West Synod Gidole District. The third informant was *Kissallo Dennebe*, aged 35, he worked as language assistant. He is also an evangelist working in South-West Synod Gidole District. The fourth informant was *Mitiku Bekele,* he served as language helper only on the first field trip. *Mitiiku* was a post-graduate student in the Department of Education, Addis Ababa University. The fifth informant was *Kussiyy Tolonke*, aged 45, who currently lives in Addis Ababa.

The methods and techniques used for data collection were interview and group discussion. By eliciting the informants structured data were collected and recorded on tape. Group discussions were made with informants occasionally to learn more about some difficult structures. With the help of these methods and techniques, linguistic data which are relevant for the description and analysis of the morphology and syntax of Diraytata were collected.

The shortage of transportation from Arba Minch to Gidole together with the absence of adequate hotel and restaurant facilities were among some of the difficulties that made the field trip to such a remote area more challenging.

1.7 Some notes on the phonology of Diraytata

Although an in-depth exposition of the phonology of Diraytata is beyond the scope of the present research, listing the segmental phonemes, the permissible syllable structures and the morphophonemic processes seem relevant for a better understanding of the morphology and the syntax of the language.

1.7.1 Phonemes

The phonemic inventory of Diraytata is presented from Sinkeneh (1983:11). The consonant phonemes are given in Table 1 and the vowel phonemes in Table 2.

	Point of articulation					
Manner of articulation	Bilabial	Labio-dental	Alveolar	Palatal	Velar	Glottal
Stops v/s	p		t		k	ʔ
Ejectives			t’	č’	k’	
Implosives v/d	ɓ		ɗ			
Fricatives v/s		f	s	š		h
Affricates v/s				č		
Nasals	m		n	ñ		
Laterals			l			
Flap			r			
Semi-vowel	w			y		

Table 1 The consonant phonemes

	Front	Central	Back
High	i		u
Mid	e		o
Low		a	

Table 2 The vowel phonemes

Diraytata has 21 consonant and 5 vowel phonemes. Consonant gemination and vowel length are phonemic.

1.7.2 Syllable structure

A syllable contains onset, nucleus and coda. The coda is optional as compared to onset and nucleus. Diraytata has a branching nucleus and coda but not onset. The maximum syllable templates of Diraytata are as in Figure 2 below.

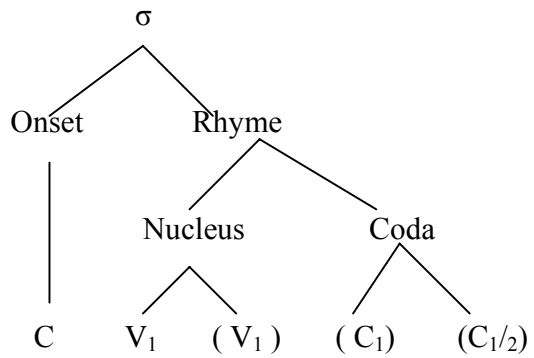


Figure 2 The syllable structure

The following are illustrative examples.

(1) a. CV so-ha ‘meat’
b. CVV ɗii-ɗa ‘males’
c. CVVC laap-pa ‘ears’
d. CVC tor ‘spear’
e. CVC_1C_1 huss ‘soil’
f. CVC_1C_2 fart ‘horse’

1.7.3 Accentual patterns

Diraytata has two tones: high and low. The high tone is represented by (´) and the low tone is unmarked. In monosyllabic words with CVC pattern, the vowel always carry a high tone as the following examples illustrate.

(2) káp ‘mouth’
pár ‘year’
pón ‘dry season’
tór ‘spear’
kús ‘penis’
hén ‘five’

On the other hand monosyllabic words with CVVC or CVCC pattern carry a low tone as exemplified in (3).

(3) a. paas ‘ cleaver’
kaas ‘horn’
kaal ‘camel’
hiip ‘local beer’
meet ‘child’

b. ʔarp ‘elephant’
last ‘leach’
ʔilt ‘eye’
left ‘bone’
mahh ‘name’

Most of the disyllabic words receive a high tone in their initial syllable as illustrated in (4).

(4) sóha ‘meat’
hópa ‘sandals’
rífant ‘hair’
ʔérpa ‘lie’
mááka ´snake´

ʔórayt ´hyena´

However, there are a few disyllabic words which have a high tone in their ultimate syllable as in (5).

(5) harrét 'donkey'
haayyá 'wind'
paač'ét 'beard'

In trisyllabic words the ultimate syllable receives the high tone as exemplified in (6).

(6) mat'aat'ét 'round white potato'
palawwát 'type of bird'
parsaafét 'eucalyptus tree'
torrayyá 'locust'

We can say that Diraytata is a tone-accent language[1] as there is a single high tone in a word. We will not incorporate the pitch marking in the transcription as such a feature has no direct relevance to the present study.

1.7.4 Morphophonemics

Some of the morphophonemic processes that occur across word boundaries are assimilation, deletion, insertion and coalescence.

1.7.4.1 Assimilation

In Diraytata, some consonants become more like their neighbors as exemplified in (7).

(7) a. he- + n- + piɗɗ- + -i → hempiɗɗi
FOC- 1- buy- PRF '(I) bought.'

[1] Diraytata is a tone-accent language in that words carry a single high tone (cf. Hayward 1999:231).

b. ʔiskattet + -se → ʔiskattesse
woman -DEF 'the woman'

In (7a) the first person marker morpheme n- becomes more like the following consonant of the stem in point of articulation. Similarly, the final consonant of the stem *ʔiskattet-* 'woman' becomes identical to the initial consonant of the definite affix.

1.7.4.2 Deletion

The final vowel of a stem or an affix may be deleted when a suffix is attached. Consider the following examples.

(8) a maaka + -ot → maakot
snake -NFS ´(a) snake`

b. fart + -aɗa + -an → fartaɗan
horse - PL - DEF 'the horses'

In some cases the stem final vowel consonant sequence can be deleted as exemplified in (9).

(9) a. k'urt'ummet + -awwa → k'urt'ummawwa
fish -PL 'fishes'

b. ʔuwwat + -awwa → ʔuwwawwa
cloth - PL 'clothes'

1.7.4.3 Insertion

As the syllable structure of Diraytata does not allow onset cluster, in order to avoid the impermissible consonant cluster the epenthetic vowel [-i] is inserted as shown below.

(10) a. piɗɗ- + -h + -in → piɗɗihin
buy - 1 -IPFV '(I) will buy.'

b. ɗɗikk → **i**ɗɗikk
good good

When two vowel morphemes come together the consonant [y] is used to break the sequence as illustrated in (11).

(11) a he-kaal-i-i → hekaali**y**i
FOC-enter- CAUS-PRF '(He) caused to enter'

b. he- ʔell-osi-i → heʔellosi**y**i
FOC-stand-CAUS-PRF '(He) caused to stand.'

As shown above the consonant y is inserted to break the sequence of two vowel morphemes.

1.7.4.4 Coalescence

In Diraytata when the consonants **nʔ** occur together in sequence they coalesce into **ŋ** as illustrated in (12).

(12) a. he-n-ʔan-i → heŋani
FOC-1-go-PRF '(I) WENT.'

b. he-n-ʔuk-i → heŋuki
FOC-1-drink-PRF '(I) DRANK.'

1.8 Lexical categories

In this section we will outline the lexical categories of Diraytata in order to facilitate the discussion on the morphology and syntax parts.

1.8.1 Nouns

In Diraytata nouns function as subject of a clause, can be modified by quantifiers, determiners and adjectives. Consider the following examples.

(13) a. fart-at he-k'im
horse- NFS FOC-strong
'(A) horse IS STRONG.'

b. fart lekk
horse many
'many horses'

c. fart hin
horse this
'this horse'

d. fart ikkaan
horse big
'(A) big horse'

Pronouns function as a subject of a clause as in (14).

(14) a. ʔiyy-at he-k'im
he- NFS FOC-strong
'He IS STRONG.'

b. ʔit-i he-k'in[2]-t
she-NFS FOC- k'im-3FSG
'She IS STRONG.'

The same can be said about proper nouns. They function as a subject of a clause as illustrated in (15).

(15) kussiyy-at he-k'im
Kussiyy- NFS FOC-strong
'Kussiyy IS STRONG.'

[2] -m changes into -n preceding the alveolar stop t

1.8.2 Verbs

In Diraytata verbs inflect for aspect, person, prefix the focus morpheme *he-* in the perfective aspect and occur in clause final position. This is illustrated in (16).

(16) i a. he-piɗɗ-i
FOC-buy-PRF
'(He) BOUGHT.'

b. piɗɗ- in
buy- IPFV
'(He) BUYS/ WILL BUY.'

ii a. he-m[3]- piɗɗ- i
FOC-1-buy-PRF
'(I) BOUGHT.'

b. he-p- piɗɗi-t-i
FOC-2-buy-2-PRF
'(You (SG)) BOUGHT.'

iii. kussiyy-at laha he-piɗɗ-i
Kussiyy- NFS ram.ABS FOC-buy-PRF
'Kussiyy BOUGHT a ram.'

The morphemes *–i* and *–in* on the predicate *piɗɗ-* 'buy' in (16i) are perfective and imperfective aspect markers respectively. The prefix morpheme *n-* in (16iia) is a first person marker and the discontinuous morpheme *p---t* in (16iib) is a second person marker (for the details see chapter 5, section 5.2). The morpheme *he-* in (16(ia, ii and iii)) is a focus marker and it appears on a verb (see chapter 3, section 3.2).

[3] The first person marker morpheme n- changes in to m- preceding the voiceless bilabial stop p.

1.8.3 Adjectives

In Diraytata adjectives modify the head noun in a noun phrase as exemplified in (17).

(17) kussiyy-at [kaman ikkaan] he- kaaš -i
Kussiyya- NFS cow big FOC-sell-PRF
'Kussiyy SOLD (a) big cow.'

The word *ikkaan* 'big' modifies the noun *kaman* 'cow' in (17). Besides, this syntactic property, adjectives have the following morphological properties. They are morphologically marked for gender. This can be gathered from (18).

(18)

Masculine	Feminine	Gloss
ikkaan	ikkaan-t	'big'
immerɗ	immerɗ-at	'fat'
iɗɗikk	iɗɗikk-at	´good´
ik'k'im	ik'k'in-t	´strong´

As can be learned from (18) the feminine gender is indicated by attaching the morpheme -(*a)t* to the base form. There is no masculine gender marker on adjectives and hence the masculine form seems similar to the base form. Plural in adjectives is indicated by reduplication as shown in (19).

(19)

Singular	Plural	Gloss
ippoor	ippoppoor	'black'
immerɗ	immemmerɗ	'fat'
iɗɗikk	iɗɗiɗɗikk	´good´
ik'k'im	ik'k'i ik'k'im	´strong´

1.8.4 Adpositions

Diraytata has both prepositions and postpositions as the following examples illustrate.

(20) a. kussiyy-at [ʔoota [ʔolattet]] he-šam-i
Kussiyya- NFS about war FOC-speak-PRF
'Kussiyy SPOKE about war.'

b. kussiyy-at [[ʔappa-yy] ʔolle] he-ɗ ey-i
Kussiyy- NFS father-his with FOC-come- PRF
'Kussiyy CAME with his father.'

In (20a) the word *ʔoota* 'about' occurs preceding the noun *ʔolattet* 'war', whereas the word *ʔolle* 'with' occurs following the noun *ʔappa-yy* 'his father'. The general name adposition is used in this thesis to represent both prepositions and postpositions. The adpositions like *ʔoota* and *ʔolle* neither inflect for number and gender nor can they inflect for person and aspect. In addition to the independent forms there are adpositions that are bound to the preceding nouns as shown in (21).

(21) a. kittonnayyu-t kitoll-ep he-ʔan-t-i
Kittonnayyu-NFS Gidole- to FOC-go-3FSG-PRF
'Kittonnayyu WENT to Gidole.'

b. kaakur-ot hak'-ila kal-in
crocodile-NFS water-in FOC-live-IPFV
'(A) crocodile LIVES in water.'

In (21) the suffixes *–ep* 'to' and *–ila* 'in' are encliticized to the preceding nouns. These forms do not have independent lexical correlates.

1.8.5 Other categories

Thus far we have outlined the major categories of Diraytata. These categories are characterized by being heads in a constituent structure. Regarding adverbs, from the analysis of the collected data only the word *kana* 'still, yet' is identified. This word seems to be similar to the Amharic word *gəna* 'still, yet'. Various adverbial functions, in Diraytata, are expressed by nominal or adpositional phrases. On the basis of this it seems plausible to argue that the lexical category adverb does not exist in the language.

In addition to the above mentioned major categories, there are also minor categories which can optionally occur with the major categories to form a corresponding maximal or phrasal category such as NP, VP, AP etc. The minor categories are subsumed under the cover term functional categories. They include determiner (DET), complementizer (comp) and inflection (INFL).

The class of determiner includes deictics, and genitives. The deictic *hin* 'this' and *sed* 'that' follow the head noun in an NP. This is shown in (22) below.

22 a) fart-at hin he-kaan
horse-NFS this FOC-big
'This horse IS BIG.'

b) fart-at sed he-kaan
horse-NFS that FOC- big
'That horse IS BIG.'

Possessive pronouns occur following the head noun in an NP as shown in (23).

23 a) man hekaw
house my
'My house'

b) man hekayy
house his
'His house'

c) man hekaɗɗi
house her
'Her house'

As can be seen from the above examples the forms *hekaw* 'my', *hekayy* 'his' and *hekaɗɗî* 'her' are possessive pronouns. When such forms appear in a noun phrase, they occur following a head noun. Functionally, we use the name specifier to refer to both demonstratives and genitives.

We also recognize the category **comp** for complementizer, which is the head of CP. Consider example (24).

(24)a. kussiyy-at [ʔakkum kittonnayyu-t ɗe-t-i] he-ɗakay-i
Kussiyy-NFS comp kittonnayyu-NFS come-3FSG-PRF FOC-hear-PRF
'Kussiyy HEARD that Kittonnayyu came.'

b. ʔiyy-at [ɗam olle] he-ʔan-i
he-NFS eat as FOC-go-PRF
Literally 'He WENT as he ate.'

In (24), the embedded clauses are introduced by the complementizers *ʔakkum* and *ʔolle*. We also recognize inflections such as *faɗosin* and *koɗɗin* as shown in (25).

(25) a. heɗ dey-a faɗosin
you.ABS come-to must
'You must come.'

b. heɗ ʔerkan-t koɗɗin
you.ABS work-2 may
'You may work.'

The modals faɗosin 'must' and koɗɗin 'probability' are inflectional (INFL) elements.

1.9 Summary

In sum, we have outlined four major categories: noun, verb, adjective and adpositions. These categories have the potential to project into maximal categories such as NP, VP, AP and ADP.

It is also mentioned that the category adverb does not exist and hence the various adverbial functions are carried out either by noun phrases or adpositional phrases.

Furthermore, we have distinguished the minor category determiner. This category includes demonstratives and genitives that can optionally be selected by the major categories, to form maximal category. We have also recognized the minor categories complementizers and inflections (INFL), which can function as the head of CP and IP respectively. Such minor categories are subsumed under the general functional category name specifier.

Chapter 2

Theoretical Framework

2.1 Introduction

This thesis is based on the Theory of Lexical-Functional Grammar as described in Kaplan and Bresnan (1982), Sells (1985), Simpson (1991), Bresnan (2001), Falk (2001), Dalrymple (2001) and others. The Theory of Lexical-Functional Grammar was introduced in the late 1970's by the founders Ronald Kaplan and Joan Bresnan. Their work initially appeared in print in 1982 in the book entitled "The Mental Representation of Grammatical Relations" edited by Joan Bresnan.

There are some important dimensions which make the theory of Lexical-Functional Grammar (henceforth LFG) different from other competing syntactic theories. The first dimension relates to the fact that it is non transformational, but uses only lexicon and phrase structure as derivational devices. The second is that it makes extensive use of unification, and regular language. The third dimension is that unlike transformational grammar which defines grammatical relations based on their position in the syntactic tree, in Lexical-Functional Grammar, grammatical relations such as subject, objects etc. are primitives of the theory. The fourth dimension is that much of the work is encoded in lexical specification rather than in traditional generative grammar.

The standard model of LFG has the following organization (adopted from Sells 1985:137 and Alsina 1993:47)[1]

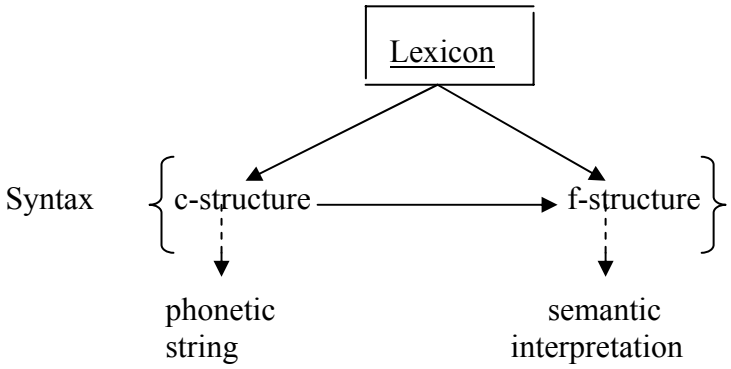


Figure 3 Standard Model of LFG

Lexical-Functional Grammar postulates three modules: the lexicon, the syntax and the semantics. Lexicon as we shall shortly see is at the heart of LFG. The syntactic module has two parallel levels of representation, namely: c-structure and f-structure. Here our discussion is confined to the two modules, the lexicon and the syntax and we will not address the semantics as this module is beyond the scope of the present thesis.

In this chapter we will outline the theory of LFG. The chapter is divided into six sections. In section 2.2 we will discuss the lexicon. In section 2.3 we will consider the c-structure. In section 2.4 we will explore the f-structure. In section 2.5 we will examine the interaction between c-and f-structures and the final section gives a summary of the highlights of the chapter.

2.2 Lexicon

Lexicon plays a central role in LFG in the sense that much of the work which is done by transformation, in transformational grammar, is done in LFG, in the lexicon. Lexicon contains lexical entries for words and affixes. The lexical entry contains phonological information, categorical information, other syntactically relevant information, meaning, and the subcategorizable grammatical function it selects (provided that if it is an argument taking predicate). In LFG, subcategorization is by grammatical function and not by category. It is therefore appropriate first to consider grammatical functions before we discuss the subcategorization.

[1] Butt, Dalrymple and Frank (1997) propose a revised version of the standard model. According to their proposal, argument structure is combined outside the lexicon in the c-structure.

2.2.1 Grammatical Functions

In LFG grammatical functions are primitives. The following list of grammatical functions is assumed in LFG (adopted from Dalrymple 2001: 9).

(1) Lexical-Functional Grammar

SUBJect, OBJect, OBJ_{θ}, COMP, XCOMP, $OBLique_{\theta}$, ADJunct, XADJunct

The grammatical functions OBJθ and OBLθ have the subscript "θ". This subscript designates the thematic roles linked with such arguments. That is to say OBJ_{th} is member of OBJθ with THEME thematic role. Similarly, OBL_{loc} is a member of OBLθ holding a LOCATION thematic role.

The grammatical functions in (1) can be characterized into the following four different classes (following Dalrymple 2001).

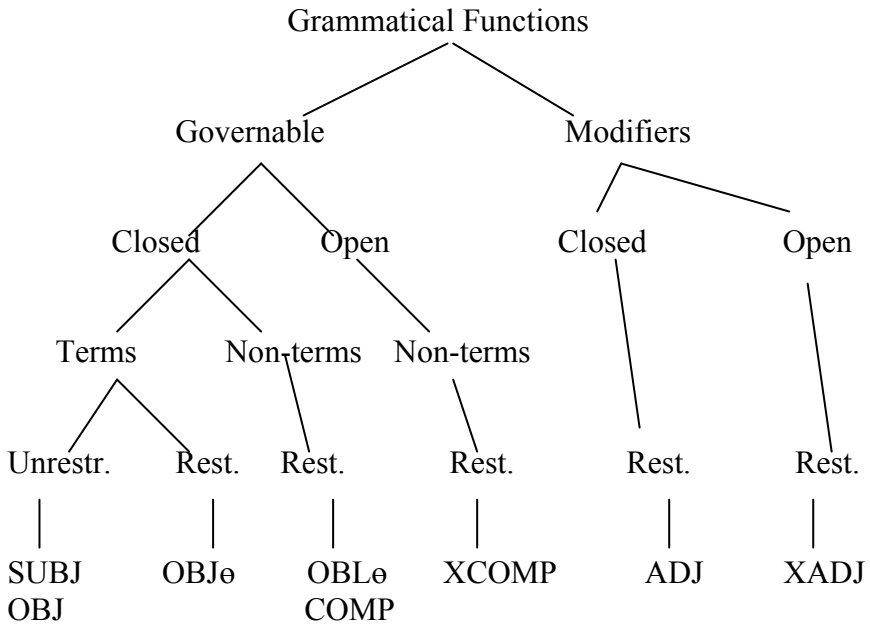


Figure 4 The Grammatical Functions

In Figure 4 the governable vs. modifiers criterion has to do with whether a given grammatical function is governable (or subcategorisable) by the predicate or not. This criterion enables us to characterize the grammatical

functions into two broad classes. Accordingly the modifiers ADJ and XADJ are distinguished from the governable grammatical functions: SUBJ, OBJ, OBJθ, OBLθ, COMP, and XCOMP.

The second criterion closed vs. open has to do with whether or not a given grammatical function requires a controller that comes from the higher clause. This criterion distinguishes XCOMP and XADJ as open functions and the other grammatical functions as closed functions.

The third criterion terms vs. non-terms distinguishes the core or direct functions SUBJ, OBJ and OBJθ from oblique functions OBLθ, XCOMP and COMP.

The fourth distinction relates to restricted vs. unrestricted. This criterion distinguishes SUBJ and OBJ from the rest of the grammatical functions. The reason behind such distinction is that the grammatical functions SUBJ and OBJ entertain a wide variety of semantic roles (they even entertain non-thematic arguments such as expletives or pleonastic elements), whereas the other grammatical functions entertain restricted semantic roles.

Diraytata has all the above mentioned grammatical functions as the following examples illustrate.

(2) a. kussiyy-at he-ʔan-i
Kussiyy-NFS FOC- go-PRF
'Kussiyy WENT.'

b. kussiyy-at man-ap he-kal-i
Kussiyy-NFS house-to FOC-enter-PRF
'Kussiyy ENTERED into (a) house.'

c. kittonnayyu-t kittampo he-ɗaw-t-i
Kittonnayyu-NFS Kittampo.ABS FOC-hit-3FSG-PRF
'Kittonnayyu HIT Kittampo.'

d. Kussiyy-at kittonnayyu-s koɗaššet he-ɗaay-i
Kussiyy-NFS Kittonnayyu-DAT money.ABS FOC-give-PRF
'Kussiyy GAVE money to Kittonnayyu.'

e. kussiyy-at [ʔakkum kittampo-t ʔan-i] ʔup-in
Kussiyy-NFS comp Kittampo-NFS go-PRF know-IPFV
(Literally), 'Kussiyy KNOWS as Kittampo went.'
'Kussiyy KNOWS that Kittampo has left.'

f. . kittonnayyu-t [ʔakkum ʔan-t-i] pah-in-t
Kittonnayyu-NFS comp go-3FSG-PRF seem-IPFV-3FSG
(Literally), 'Kittonnayyu SEEMS that she has gone.'

g. kussiyy-at halate he-ɗey-i
Kussiyy-NFS yesterday FOC-come-PRF
'Kussiyy CAME yesterday.'

h. kittonnayyu-t [hellemmat piɗɗi[2]-t-i] he ɗe-t-i
Kittonnayyu-NFS ewe.ABS buy-3FSG-PRF FOC-come-3FSG-PRF
Literally 'Kittonnayyu having bought an ewe, she came.'
'Kittonnayyu CAME having bought a ewe.'

The examples in (2) show the grammatical functions in Diraytata. In (2a), for example, the predicate *ʔan-* 'go' has one argument, *Kussiyy* with the grammatical function SUBJ. In (2b) the predicate *kal-* 'enter' has two arguments, *Kussiyy* and *manap* 'into (a) house' with the grammatical functions SUBJ and OBLɵ respectively. In (2c) the predicate *ɗaw-* 'hit' has two arguments, *Kittonnayyu* and *Kittampo* with the grammatical functions SUBJ and OBJ. In a similar way, the predicate *ɗaay-* 'give' in (2d) has three arguments, *Kussiyy*, *Kittonnayyus* and *koɗaššet* 'money' with the grammatical functions SUBJ, OBJ and OBJɵ respectively. In (2e) the matrix predicate *ʔup-* 'know' has two arguments, *Kussiyy* and the clausal complement *ʔakkum Kittampo ʔani* 'as *Kittampo* went' with the grammatical functions SUBJ and COMP[3]. The predicate in (2f) has two arguments, *Kittonnayyu* and the clausal complement *ʔakkum ʔanti* 'as she went' with the grammatical functions SUBJ and XCOMP respectively. On the other hand, *halate* 'yesterday' in (2g) and *hellemmat piɗɗiti* 'having she bought a ewe' in (2h) are modifiers of their respective clauses with the grammatical functions ADJ and XADJ respectively. The difference between

[2] The vowel *–i* is an epenthetic vowel inserted to break the impermissible consonant cluster (for the details see chapter 1, section 1.7).
[3] The distinction between the arguments COMP and XCOMP has been discussed in chapter 8.

the ADJ and XADJ lies in the fact that in XADJ the subject of the modifying clause is controlled by the matrix clause subject.

2.2.2 Subcategorization

As mentioned above in LFG, subcategorization is by grammatical function and not by category. In example (2a) above, the predicate *ʔan-* 'go' subcategorizes for SUBJ grammatical function. The lexical entry for the predicate *ʔan-* is as in (3).

(3) ʔan- V (↑PRED) = 'ʔan- < (↑SUBJ)>'
(read as mother's PRED = one-place predicate with SUBJ function)
(↑VFOC) = +
(read as mother's focus = +)
(↑ASP) = PRF
(read as mother's aspect = PRF)
(↑SUBJ NUM) =c SG
(read as mother's SUBJECT's number must be SG)
(↑SUBJ PERS) =c 3
(read as mother's SUBJECT's person must be 3)
(↑SUBJ GEND) =c M
(read as mother's SUBJECT's gender must be M)
(↑SUBJ CASE) =c NFS
(read as mother's SUBJECT's case must be NFS)

The value of the PRED attribute in LFG is called a semantic form. In (3) the semantic form value of the PRED is 'ʔan- < (↑SUBJ)>'. A semantic form is enclosed in single quotes to indicate that its value is unique. The up arrow "↑" designates the mother node or the lexical category under which this lexical entry is found. The equations (↑VFOC) = + and (↑ASP) = PRF contribute the information that the predicate *ʔan-* is focalized and it has a perfective aspect. Moreover, the equations (↑SUBJ NUM) =c SG, (↑SUBJ PERS) =c 3, (↑SUBJ GEND) =c M and (↑SUBJ CASE) =c NFS restrict the features of the SUBJ function. This can be understood from the constraining equation (=c) (discussed in chapter 5). Such equations ensure that the SUBJ must be a third person masculine singular with non-focalized subject case. In other words, according to the lexical entry above, the predicate *ʔan-* 'go' requires a third person masculine singular non-focalized subject case marked argument as its SUBJ, and hence an argument that does not satisfy such a restriction cannot be a subject of the predicate *ʔan-*. However, constraining equations do not build an f-structure of a subject.

If we consider example (2f) above, the predicate *pah-* 'seem' subcategorizes for a grammatical function XCOMP. The entry for such a predicate is as shown in (4).

(4) pah- V (↑PRED) = 'pah- < (↑XCOMP)>'(↑SUBJ)
(read as mother's PRED = one-place predicate with XCOMP function)
(↑SUBJ) = (↑XCOMP SUBJ)
(read as mother's SUBJ = mother's XCOMP's SUBJ)
(↑ASP) = PRF
(read as mother's aspect = PRF)
(↑VFOC) = +
(read as mother's focus = +)
(↑SUBJ NUM) =c SG
(read as mother's SUBJECT's number must be SG)
(↑SUBJ PERS) =c 3
(read as mother's SUBJECT's person must be 3)
(↑SUBJ GEND) =c F
(read as mother's SUBJECT's gender must be F)
(↑SUBJ CASE) =c NFS
(read as mother's SUBJECT's case must be NFS)

The predicate *pah-* 'seem' subcategorizes for XCOMP grammatical function and the SUBJ grammatical function is not selected by this predicate. This is indicated by representing the SUBJ function outside the angled bracket in the lexical representation of the predicate *pah-* as shown above. Such representation would mean that the SUBJ grammatical function is not the thematic argument of the predicate *pah-*. The second line of the entry shows that the SUBJ argument of the matrix predicate *pah-* is the thematic argument of the embedded clause XCOMP. The equations (↑ASP) = PRF and (↑VFOC) = + contribute the information that the predicate *pah-* is focalized and it is in perfective aspect. The equations (↑SUBJ NUM) =c SG, (↑SUBJ PERS) =c 3, (↑SUBJ GEND) =c F and (↑SUBJ CASE) =c NFS restrict the potential SUBJ for the predicate *pah-*. That is to say, that in this particular case the SUBJ argument of the predicate must have the features: third person masculine singular with non-focalized subject case, which means that an argument without such feature specifications is not allowed. As mentioned above, the information expressed by constraining equations cannot be added to an f-structure of a subject.

Before we close this dicussion let us consider the lexical entry for *Kussiyy* in example (2a) above. Its lexical entry is as shown in (5).

(5) Kussiyy N (↑PRED) = 'Kussiyy'
(read as mother's PRED = 'Kussiyy')
(↑PERS) = 3
(read as mother's person = 3)
(↑NUM) = SG
(read as mother's number = SG)
(↑GEND) = M
(read as mother's gender = M)
(↑CASE) = NFS
(read as mother's case = NFS)

From the above entry we learn that the semantic form value of the PRED is 'Kussiyy'. The equations (↑PERS) = 3, (↑NUM) = SG, (↑GEND) = M and (↑CASE) = NFS contribute the information that it is a third person masculine singular with non-focalized subject case. Such features are included in the SUBJ f-structure. As mentioned above the up arrow ("↑") indicates the mother node or the lexical category immediately dominating the entry for *Kussiyy*.

2.2.3 Lexical Rules

Lexical rules are rules that operate on lexical forms[4]. One such instance is passivization. For many decades passivization has been the center of attention in syntactic theories. There has been much debate on passivization among theoretical linguists of formal bent, which in fact has led to the development of different syntactic theories. Chomsky (1970) in his article 'Remarks on Nominalization' proposes the lexicalist conception of morphology. In this article he claims that word formation rules are lexical rules rather than transformational rules. Nowadays, this hypothesis exists in two versions, namely, the 'weak lexicalist hypothesis' and the 'strong lexicalist hypothesis'. The weak lexicalist hypothesis treats derivation as a lexical process formed by lexical rules and inflection as a syntactic process formed by transformational rules.

In transformational grammar particularly in Government and Binding Theory, passivization is purely a syntactic process formed by transformational rules. In other words, passive is derived from its corresponding active form syntactically by applying transformational rules as in (6).

[4] Lexical rules were used to handle diathesis alternation in early design of LFG, such rules are now substituted by Lexical Mapping Theory (for the details see chapter 9, section 9.3).

(6) a. John hit Mary.
b. e was hit Mary by John.
c. Mary was hit by John.

(6a) is the active form (6b) is the d-structure and (6c) is the corresponding passive form. From (6b) we can observe that the object NP, *Mary* remains without being case assigned. The reason is that, the verb 'was hit' is a passive and hence passive verb absorbs accusative case in the sense of Chomsky (1986b: 74). As a result, it fails to assign accusative case to its object NP complement. In other words, the position of the object NP, *Mary* is not a case position, if it remains in that position the structure will be ill-formed as the case requirement is not satisfied. Thus, in order to satisfy the requirement, the object NP has to move to the position where it could receive case. And the only case position where it can move to is to the *e* position of the sentences as shown in (6c). There, the object NP complement *Mary* receives nominative case and by so doing the requirement of case filter[5] is satisfied. Therefore, the movement of the object NP, *Mary* from its d-structure position in (6b) to the *e* position in (6c) can be accounted for in terms of case. This is in brief how passivzation is treated under the weak lexicalist hypothesis.

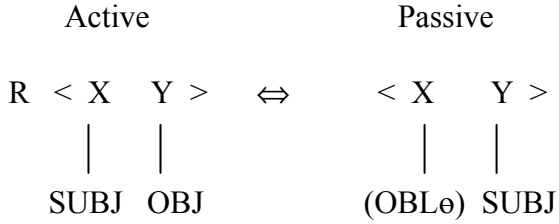
Bresnan (1978) in her article 'A realistic transformational grammar' embraces the stronger version of the hypothesis. She claims that syntactic transformation has no role to play in word formation. That is to say, syntactic transformation has nothing to do either in derivational or inflectional morphology. This idea was further developed by Lapointe , who proposes what is commonly known as the strong lexicalist hypothesis or the lexical integrity principle. This principle states that: 'No syntactic rule can refer to elements of morphological structure' (Lapointe 1985:8). The strong lexicalist hypothesis treats both derivation and inflection as a morphological process formed by lexical rules. The essential claim behind this hypothesis is that grammatical relation changes are lexical (Bresnan 2001). Contemporary works in LFG also share the stronger version of the lexicalist hypothesis. That is, both derivations and inflections are lexical and they are not post-lexical processes.

As will be discussed in chapter 5, LFG assumes that the active sentence in (6a) differs from the passive sentence in (6c) because of the predicates. This is because LFG considers passivization as a process that derives passive

[5] The case filter (cf. Chomsky 1986:94) requires any overt NP that appears in a case position to have case.

verbs. In light of this the passive predicate *hit*[6] is derived from the active predicate *hit* by applying a lexical rule as shown in (7).

(7) Passive rule (Bresnan 2001: 26)



The passive rule applies on the active predicate *hit*. When it applies to the active predicate *hit*, the subject of the active predicate *hit* becomes an optional (OBLɵ) in the passive predicate *hit* and the OBJ of the active predicate *hit* becomes the SUBJ of the passive predicate *hit*. This clearly shows that the lexical rules derive one lexical entry from another. In this particular case the passive lexical entry of a passive predicate *hit* is derived from its corresponding active lexical entry *hit*. The derived and the original lexical entries are listed in the lexicon separately as in (8).

(8) a. hit V 'hit < (↑SUBJ) (↑OBJ) >'
b. hit V 'hit < ((↑OBLɵ)) (↑SUBJ) >'

As shown above lexical rules have the ability to alter the pairing of grammatical functions to arguments in the argument structure. Such a change takes place in LFG in the lexicon and does not take place in the syntax by transformation. This is constrained by the Condition called Direct Syntactic Encoding (Kaplan and Bresnan 1982:180), which states that "No rule of Syntax may replace one function name by another". Besides this Condition there are also two other conditions that constrain the paring between arguments and grammatical functions. They are namely Function-Argument Bi-uniqueness and Subject Conditions discussed in chapter 9. The lexical redundancy rules are replaced by a new explanatory, more general monotonic theory known as Lexical Mapping Theory (see chapter 9).

2.3 Constituent Structure (c-structure)

Constituent structure is the overt organization of constituents that can make up a sentence. It encodes hierarchical organization, linear order, syntactic

[6] The auxiliary be is not important in the remapping (cf. Bresnan 2001:76).

categories, and the input to the phonological component of a grammar. Put differently, it shows the superficial arrangement of words and phrases in a sentence. In LFG the c-structure is one of the two structures which together constitute the syntactic representation of a sentence. A c-structure is commonly represented in a tree created by the phrase structure rules.

2.3.1 Phrase Structure Rules

Phrase structure rules are context- free rewriting rules. They take categories of a language as their input and output. Such rules are expressed in terms of Jackendoff (1977) X-bar Theory. Here we assume the version of X-bar Theory which is proposed in Bresnan (1982a). The theory allows more than one phrasal expansion of the basic lexical categories. That is to say, the following range of category types is allowed: X^o = lexical category, X^1, X^{11} …X^n, where $n \geq o$.

As described in chapter 1, we have identified four lexical categories for Diraytata: N(ouns), V(erbs), A(djectives) and AD(positions). These categories have uniform double bar maximal projections. Accordingly, N^0, V^0, A^0 and AD^0 are lexical categories and N^1,V^1, A^1, AD^1 and NP, VP, AP and ADP are *projections* of the respective lexical categories. The phrasal categories with double bar projections (i.e. NP, VP, AP and ADP) are called *maximal projections*. We also further assume that the functional categories I(nflection) and C(omplementizer) have double bar projections just as the basic lexical categories (i.e. I^0, C^0 and their projections: I^1,C^1,IP and CP).

The phrase structure rules for the sentence in (2c), for example, *kittonnayyut kittampo heɗawti* ‘Kittonnayyu HIT Kittampo’ is as shown below.

(9) Phrase structure rules

S → NP, VP NP < VP

VP → NP, V NP < V

NP → N

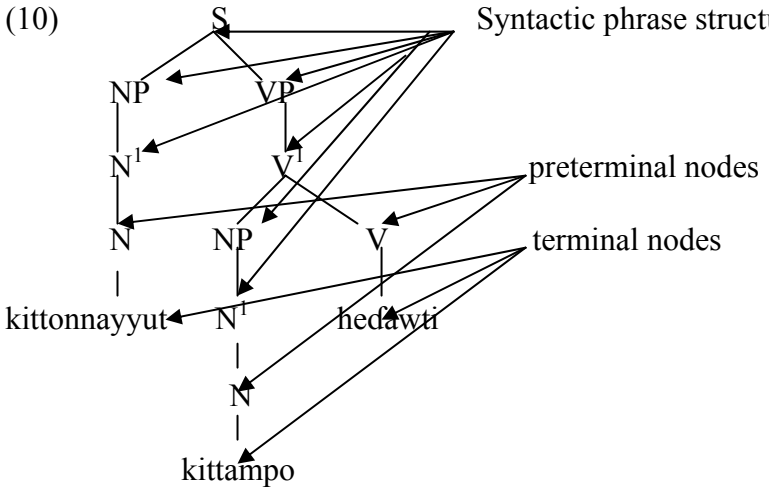
The phrase structure rules in (9) are interpreted as follows: The S node dominates the NP and the VP nodes with the order that the NP node preceding the VP node. Similarly, the VP node in the second rule dominates the NP and the V nodes with the order that the NP node preceding the V node. Note that in such rules Immediate Dominance (ID) relations are indicated by placing a comma (“,”) between the daughter nodes whereas the

Linear Precedence (LP) relations are indicated by placing the symbol "<" between the daughter nodes as in NP < VP and NP < V.

2.3.2 Constituent Structure Tree

As mentioned above constituent structures are commonly represented in a tree produced by phrase structure rules. A lexical item with full inflected form is inserted into the terminal node of a c-structure. According to Bresnan (2001:91) the nodes in a constituent structure will have three levels: the syntactic phrase structure nodes, preterminal nodes and terminal nodes. This is demonstrated by taking the sentence in (2c) with the phrase structure rule in (9) above as follows. .

(10)



In (10), the nodes S, NP, N^1, VP, V^1, NP and N^1 are syntactic phrase structure nodes. The nodes N, N and V are preterminal nodes. Similarly, the morphological words *kittonnayyut*, *kittampo* and *hedawti* are terminal nodes. From the above tree we can observe that the syntactic phrase structure nodes do not immediately dominate the terminal nodes.

Constituent structure trees are formed from the phrase structure rules combined with the categorical information that comes from the lexical entries of the lexical elements inserted by lexical insertion rules. This rule inserts the lexical elements into the terminal nodes of appropriate category on the c-structure tree. The lexical elements that are inserted into the terminal nodes contain categorical, morphological and semantic information. The categorical information is about the category of the lexical element and this information helps us to know on which terminal node a category should be inserted. The morphological information is information about person, number, aspect, etc. The semantic information, on the other

hand, provides information about the kind of lexical elements. That is, whether it is an argument or a predicate. If it is a predicate, then the semantic information further specifies the types of argument it selects.

A constituent structure tree is subject to two principles: the Principle of Economy of Expression and the Principle of Lexical Integrity. The Principle of Economy of Expression (Bresnan 2001:91) states that "All syntactic phrase structure nodes are optional and are not used unless required by independent principles (completeness, coherence, semantic expressivity)". The Principle of Economy of Expression, as mentioned above, applies only on the syntactic phrase structure nodes and it does not apply on preterminal and terminal nodes. This principle prunes empty syntactic phrase structure nodes that do not contribute to either the f-structure or the meaning. In other words, the Principle of Economy of Expression does not totally remove empty categories but it requires them to be functional. Thus, according to this principle syntactic phrase structure nodes containing redundant information are not allowed.

The Principle of Lexical Integrity applies to the terminal nodes of a constituent structure tree. One version of the Principle of Lexical Integrity states that "Morphologically complete words are leaves of the c-structure tree and each leaf corresponds to one and only one c-structure node" (Bresnan 2001:92). This means that the lexical items that can be inserted in the terminal nodes of the phrase structure tree must be morphologically complete words.

In addition to the Principle of Lexical Integrity the terminal nodes of a phrase structure tree are subject to The Revised Null Element Constraint. This constraint stated in Simpson (1991:161) as follows: "A non- terminal category cannot exhaustively dominate the empty string *e*, except … in the case of null structure created in the morphology by gaps in morphological paradigms." The Revised Null Element Constraint applies to lexical insertion and it prevents the insertion of empty elements at the terminal nodes except in some cases such as morphological gaps created in morphological paradigms.

2.4 Functional Structure (f-structure)

The functional structure is the abstract functional syntactic organization of a sentence that represents predicate argument structure together with grammatical function relations (such as subject and object). An f-structure consists of a set of pairs of features ('attributes') and their values. In other words, an f-structure is represented as a set of ordered pairs of attribute-

value matrices (AVMs). In such pairs the first member is always an attribute and the second member is its corresponding value. Conventionally, an f-structure is represented in tabular forms as shown below (adopted from Bresnan 2001:47).

(11)
$$\begin{bmatrix} \text{attribute}_1 & \text{value}_1 \\ \text{attribute}_2 & \text{value}_2 \\ . & . \\ . & . \\ . & . \\ \text{attribute}_n & \text{value}_n \end{bmatrix}$$

An attribute can be designated by a symbol such as SUBJ, TENSE, NUM, PRED etc. By the same token three kinds of values are possible: (a) an atomic symbol, such as SG, PL, in the specification [NUM SG] and [NUM PL]; (b) a semantic value , such as a value for the PRED *ʔan-* 'go' in (3) [PRED '*ʔan-* < (↑SUBJ) >']; (c) an f-structure, such as the value for the SUBJ *Kussiyy* in (5) above.

(12)
$$\begin{bmatrix} \textit{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'Kussiyy'} \\ \text{CASE} & \text{NFS} \\ \text{PERS} & 3 \\ \text{NUM} & \text{SG} \\ \text{GEND} & \text{M} \end{bmatrix} \end{bmatrix}$$

In LFG it is possible for two attributes to have the same value as shown below:

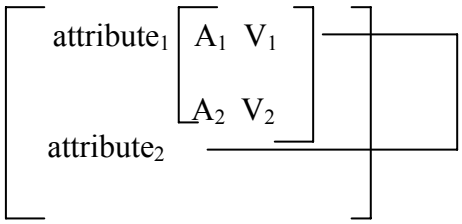
(13)
$$\begin{bmatrix} \text{attribute}_1 & \text{value}_1 \\ \text{arribute}_2 & \text{value}_1 \end{bmatrix}$$

However, it is not permissible for an attribute to have more than one value:

(14)*
$$\begin{bmatrix} \text{attribute}_1 & \text{value}_1 \\ & \text{value}_2 \end{bmatrix}$$

The f-structure in (14) is unacceptable because a single attribute with two different values is ruled out by the Uniqueness Condition, to be discussed shortly, which requires every attribute to have a unique value.

It is also possible for two different attributes to have identical f-structure as their values. Such attributes and value pairs can be represented as in (15).

(15)


2.4.1 Well-formedness conditions

In LFG, there are three conditions that constrain the well-formedness of an f-structure. They are the Coherence, the Completeness, and the Uniqueness (Consistency) Conditions. In what follows we shall briefly take up each of these conditions.

2.4.1.1 Coherence

The Coherence Condition is defined in Kaplan and Bresnan (1982:212) as:

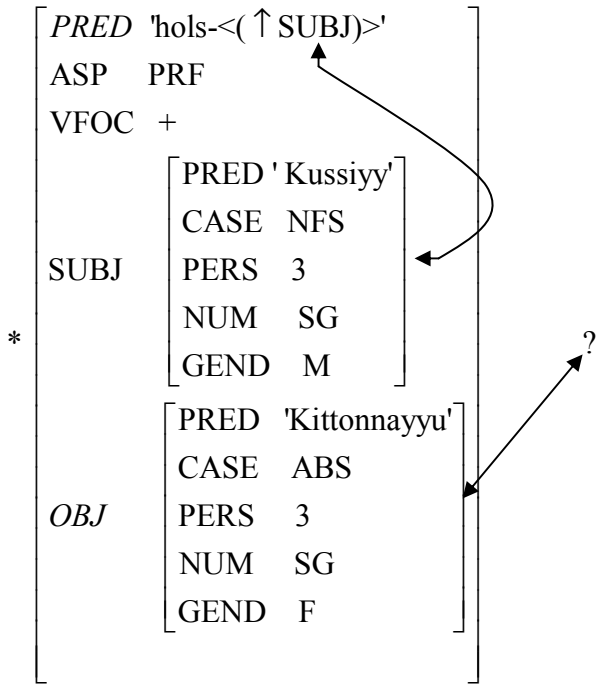
> An f-structure is locally coherent if and only if all the governable grammatical functions that it contains are governed by a local predicate. An f-structure is coherent if and only if it and all its subsidiary f-structures are locally coherent.

This is to say that an f-structure is coherent if and only if it does not contain any additional arguments beyond the subcategorization requirements of a predicate. The purpose of this constraint is to rule out f-structures containing additional arguments which can not be functionally interpreted. This condition, for example, rules out the f-structure in (17).

(16)* kussiyy-at kittonnayyu he-hols-i
Kussiyy-NFS kittonnayyu.ABS FOC-smile-PRF
'Kussiyy Kittonnayyu SMILED.'

The f-structure of the sentence in (16) is as in (17).

(17) Incoherent f-structure



The f-structure in (17) is incoherent because the predicate *hols-* 'smile' is an intransitive. It subcategorizes one argument only, the SUBJ function, which is in this particular case *Kussiyy*. However, as can be seen from this f-structure it has two arguments: *Kussiyy* and *Kittonnayyu* with SUBJ and OBJ grammatical functions respectively. This in fact goes beyond the subcategorization potential of the predicate which is why the f-structure is ill-formed.

2.4.1.2 Completeness

The Completeness Condition is stated in Kaplan and Bresnan (1982:211-212) as follows:

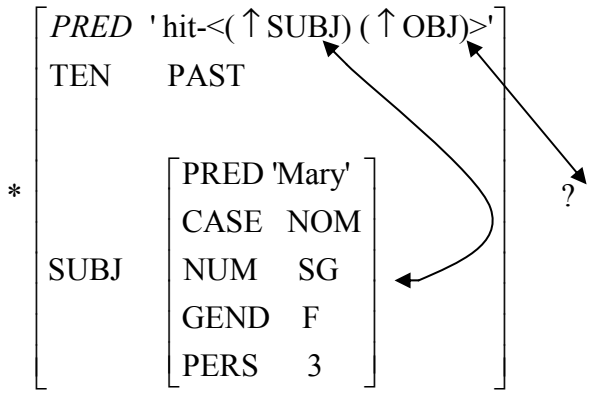
> An f-structure is locally complete if and only if it contains all the governable grammatical functions that its predicate governs. An f-structure is complete if and only if it and all its subsidiary f-structures are locally complete.

This is to say that the functional structure of a sentence must contain every grammatical relation which is obligatory in the subcategorization of its predicate. The purpose of this constraint is to rule out structures containing arguments below the subcategorization requirement of the predicate as in (18):

(18) *Mary hit.

The predicate *hit,* in English, is a two-place predicate and hence it subcategorizes for SUBJ and OBJ grammatical functions. The f-structure of (18) is as in (19).

(19) Incomplete f-structure



This f-structure is incomplete because the predicate *hit* requires two arguments as we can see from the example above there is only one argument, *Mary* with SUBJ function. The f-structure contains an argument below the subcategorization requirements of the predicate *hit* and hence the f-structure is incomplete.

2.4.1.3 Uniqueness (Consistency)

This is defined in Kaplan and Bresnan (1982:181) as "In a given f-structure, a particular attribute may have at most one value". When applied to predicates, the Consistency Condition prevents a predicate from having more than one identical grammatical function. Consequently, a predicate, for example, can not have more than one subject. Consider the following example.

(20) * kussiyy-at kittonnayyu-t he-ʔan-i
Kussiyy-NFS Kittonnayyu-NFS FOC-go-PRF
'Kussiyy Kittonnayyu WENT.'

In (20) the sentence has two subjects: Kussiyy and Kittonnayyu. The f-structure of the sentence is as in (21).

(21) Inconsistent f-structure

$$*\begin{bmatrix} PRED & \text{'ʔan-<(}\uparrow \text{SUBJ)>'} \\ ASP & PRF \\ VFOC & + \\ SUBJ & \begin{bmatrix} PRED & \text{'Kussiyy'} \\ PRED & \text{'Kittonnayyu'} \\ CASE & NFS \\ NUM & SG \\ PERS & 3 \end{bmatrix} \end{bmatrix}$$

This f-structure is inconsistent as there are two arguments, *Kussiyy* and *Kittonnayyu*, competing for the grammatical function subject. This violates the Consistency Condition.

When the Consistency Condition applies to functional attributes such as CASE, NUM, TENSE etc. it prohibits such attributes from having two different values. This can be seen from example (22).

(22) * ʔiyy-at he-ʔan-t-i
he-NFS FOC-go-3FSG-PRF

In example (22) the functional feature GEND has two conflicting values. This is because the subject argument *ʔiyy* has the attribute GEND whose value is masculine whereas the predicate *ʔan-* 'go' in the same sentence provides the information that the subject's GEND must be feminine. This is demonstrated by the following f-structure.

(23) Inconsistent f-structure

$$*\begin{bmatrix} PRED & \text{'ʔan- <(↑SUBJ)>'} \\ ASP & PRF \\ VFOC & + \\ SUBJ & \begin{bmatrix} PRED & \text{'PRO'} \\ PERS & 3 \\ NUM & SG \\ GEND & M, F \end{bmatrix} \end{bmatrix}$$

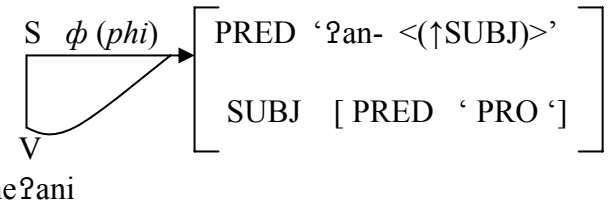
The f-structure in (23) is inconsistent as the attribute GEND has two different and conflicting values, masculine and feminine. This in turn violates the Consistency Condition, which is why the f-structure is ill-formed.

2.5 C-Structure to F-Structure Correspondences

In the preceding two sections we have seen the properties of c- and f-structures. We have mentioned that the f-structure is built up from the annotated c-structure tree. In this section we shall consider the building process of f-structure from the annotated c-structure tree.

The mapping relation from c-structure nodes to the corresponding f-structures is designated by the symbol ϕ (*phi*). That is each c-structure node is related to a particular f-structure through ϕ (*phi*). This is shown by taking the structure *heʔani* '(He) WENT' in example (24) (we do not give a detailed specification of the c- and f-structures because our interest here is only to show the ϕ (*phi)* correspondence)

(24)



The mapping from c-structure nodes to f-structures is done by the equation called f-description (or functional description). The equation for an f-description is similar to the mathematical equation for function f(x) = v, the only difference is that in f-description the parenthesis includes the function f as (fx) = v. It is the f-description that plays a key role in gathering scattered

information among the nodes in the annotated c-structure to build the corresponding f-structure.

The nodes in the annotated c-structure tree are labelled by functional equations involving meta-variables ↑ and ↓. The ↑ which is called 'up' arrow designates the immediately dominating node or the mother node whereas the ↓ which is called 'down' arrow designates the immediately dominated node or the self node. Thus, the equation ↑ = ↓ (read as "up" equals "down") would mean that information about mother's node is information about self node. As we will see shortly, the functional equation which are enriched by ↑ and ↓ arrows are replaced by function (f) to create the functional description (or f-description). As mentioned above it is the f-description which is used to construct f-structure.

Let us consider the annotated phrase structure rules. According to Bresnan (1982a) the rules for annotating phrase structure rules are: assign the functional equation (↑G) = ↓ to a maximal projection (where G stands for the grammatical functions SUBJ, OBJ, etc.) and assign ↑=↓ to non-maximal categories. In order to illustrate these rules; we will repeat the phrase structure rules in (9) above as (25).

(25) Annotated phrase structure rules

S	→	NP,	VP	NP < VP
		(↑SUBJ) =↓	↑=↓	
VP	→	NP,	V	NP < V
		(↑OBJ) =↓	↑=↓	
NP	→	N		
		↑=↓		

Now if we consider the annotated phrase structure rule expanding NP, we can learn that since N is the phrase structure head of NP, it must be assigned the functional equation ↑=↓. In the phrase structure rule expanding VP, the NP is assigned (↑OBJ) =↓ as it is the maximal projection and the head V is assigned ↑=↓. Similarly, in the phrase structure rule expanding S, the NP is assigned the functional equation (↑SUBJ) =↓ as it is the maximal projection and the VP is assigned ↑=↓. The reason for assigning the functional equation ↑=↓ to the VP is that VP is not the phrase structure head of S, it is the functional head of S. This means that information about V is information about VP and information about VP is information about S. Therefore, V is the lexical head of VP and VP is the functional head of S. The annotated

phrase structure rules in (25) are for the sentence in (2c), *kittonnayyut kittampo heɗawti* 'Kittonnayyu HIT Kittampo'. The lexical elements in this sentence have the following entries:

(26) Lexical entries

kittonnayyu N (↑PRED) = 'Kittonnayyu'
(↑CASE) = NFS
(↑PERS) = 3
(↑NUM) = SG
(↑GEND) = F

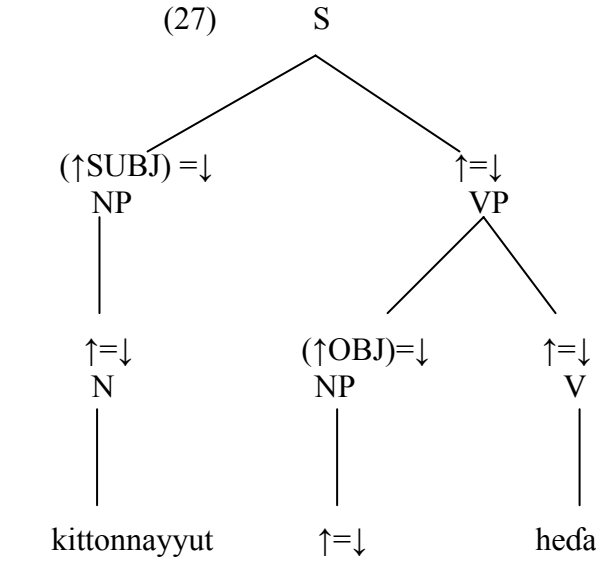
kittampo N (↑PRED) = 'Kittampo'
(↑CASE) = ABS
(↑PERS) = 3
(↑NUM) = SG
(↑GEND) = M

heɗawti V (↑PRED) = 'ɗaw- <(↑SUBJ) (↑OBJ)>'
(↑ASP) = PRF
(↑VFOC) = +
(↑SUBJ NUM) =c SG
(↑SUBJ GEND) =c F
(↑SUBJ PERS) =c 3
(↑SUBJ CASE) =c NFS

We will build up the f-structure based on the annotated phrase structure rules in (25) and the lexical entries in (26). The process of building up an f-structure has three steps. The first step has to do with annotating the phrase structure tree. The second step is generating the f-description and the third step is solving the functional description by constructing the minimal f-structure. We will illustrate these steps by taking the phrase structure rules (25) together with the lexical entries in (26).

As mentioned above the first step is the assignment of a functional annotation to each node on the c-structure tree. The functional annotations on the nodes on the c-structure tree show the way in which the f-structure of that particular node is integrated into the c-structure tree.

(27)



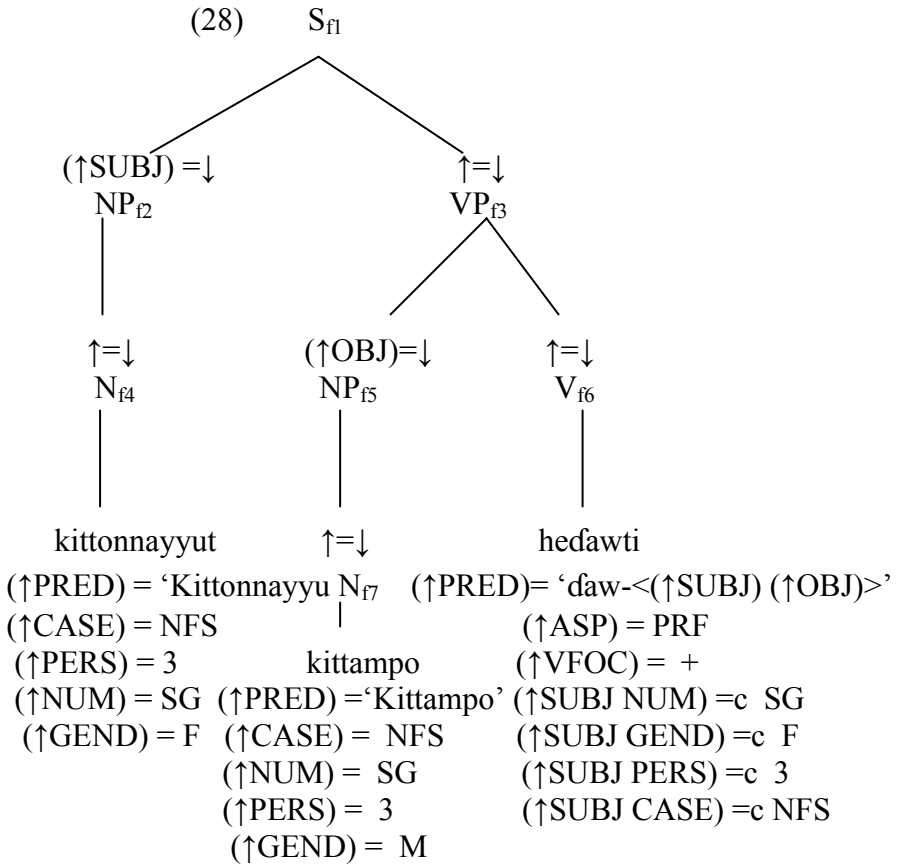
(↑PRED) = 'Kittonnayyu
(↑CASE) = NFS
(↑PERS) = 3
(↑NUM) = SG
(↑GEND) = F

N
kittampo
(↑PRED) ='Kittampo'
(↑CASE) = NFS
(↑NUM) = SG
(↑PERS) = 3
(↑GEND) = M

(↑PRED)= 'ɗaw-<(↑SUBJ) (↑OBJ)>'
(↑ASP) = PRF
(↑VFOC) = +
(↑SUBJ NUM) =c SG
(↑SUBJ GEND) =c F
(↑SUBJ PERS) =c 3
(↑SUBJ CASE) =c NFS

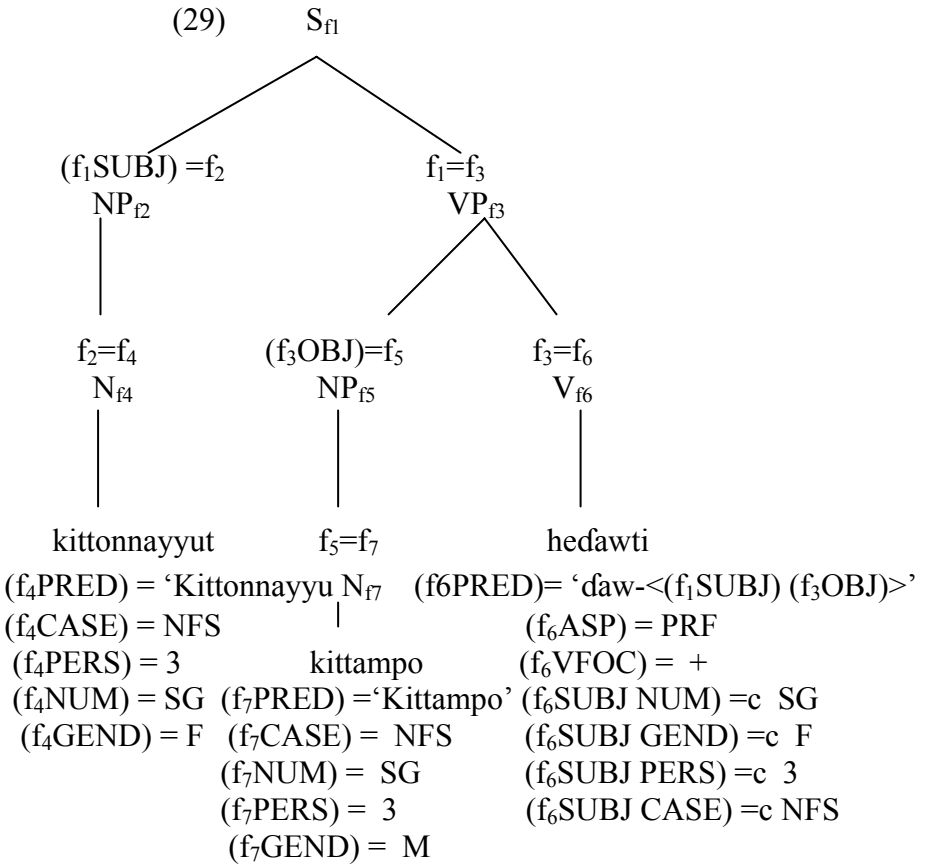
The second step has two parts, the first assigns an index to each node on the c-structure tree as shown in (28).

(28)



The second part substitutes the meta-variables ↑ and ↓ by the index of each node. This is illustrated in (29).

(29)



In step 2 we have generated the f-description for the sentence in (2c). Now in step 3, we construct the minimal f-structure of the above f-description. For the sake of convenience we shall move from the left to right starting from the top to the bottom of the tree. For example, in the NP_{f2} node ($(f_1SUBJ) =f_2$ it is clear that f_1 has the attribute SUBJ with the value f_2. On the basis of this fact, we construct the following minimal f-structure that satisfies this f-description.

(30) f_1: [SUBJ f_2]

In a similar way, from VP_{f3} node we add the f-description $f_1=f_3$, that is, that f_1 has the same f-structure as f_3 to the f-structure in (30).

(31) f_1,f_3: [SUBJ f_2]

When we come to N_{f4} node, we know that $f_2=f_4$, which means that f_2 is identical to f_4. When we add this information to the f-structure in (31) we get the f-structure in (32).

(32) f_1,f_3: [SUBJ f_2, f_4]

In the NP_{f5} node $(f_3OBJ)=f_5$ we learn that f_3 has the attribute OBJ with the value f_5. When we add this to the f-structure in (32) we get the f-structure in (33).

(33) f_1,f_3: $\begin{bmatrix} \text{SUBJ} & f_2, f_4 \\ \text{OBJ} & f_5 \end{bmatrix}$

From the V_{f6} node we know that $f_3 = f_6$. When we add this information to the previous f-structure we obtain the f-structure in (34).

(34) f_1,f_3,f_6 $\begin{bmatrix} \text{SUBJ} & f_2,f_4 \\ \text{OBJ} & f_5 \end{bmatrix}$

Similarly, in the N_{f7} node we have the f-description $f_5=f_7$. When we add this information to the f-structure in (34) we obtain the f-structure in (35).

(35) f_1, f_3, f_6: $\begin{bmatrix} \text{SUBJ} & f_2, f_4 \\ \text{OBJ} & f_5, f_7 \end{bmatrix}$

From the lexical entry of f_4 we get the information that (f_4PRED) = 'Kittonnayyu, (f_4CASE) = NFS, (f_4PERS) = 3, (f_4NUM) = SG and (f_4GEND) = F. From this information we know that it is a function with four attribute-value pairs. When we add this information to the f-structure in (35) we get the f-structure in (36).

(36) f_1,f_3,f_6 :

$$\begin{bmatrix} SUBJ & f_2,f_4 & \begin{bmatrix} PRED & 'Kittonnayyu' \\ CASE & NFS \\ PERS & 3 \\ NUM & SG \\ GEND & F \end{bmatrix} \\ OBJ & f_5,f_7 & \end{bmatrix}$$

In a similar way, from f_7 we get the information that (f_7PRED) =‘Kittampo’, (f_7CASE) = NFS, (f_7NUM) = SG, (f_7PERS) = 3 and (f_7GEND) = M. When we add this information to the previous f-structure we obtain the f-structure below.

(37) f_1, f_3, f_6:

$$\begin{bmatrix} SUBJ & f_2, f_4 & \begin{bmatrix} PRED & 'Kittonnayyu' \\ CASE & NFS \\ PERS & 3 \\ NUM & SG \\ GEND & F \end{bmatrix} \\ OBJ & f_5, f_7 & \begin{bmatrix} PRED & 'Kittampo' \\ CASE & ABS \\ PERS & 3 \\ NUM & SG \\ GEND & M \end{bmatrix} \end{bmatrix}$$

Finally, we get the information from f_6 that (f6PRED)= ‘ɗaw-<(f_1SUBJ) (f_3OBJ)>’, (f_6ASP) = PRF and (f_6VFOC) = +. When we integrate the information into the above f-structure we get the complete f-structure below.

(38) f_1, f_3,f_6:

$$\begin{bmatrix} SUBJ & f2, f4 & \begin{bmatrix} PRED & 'Kittonnayyu' \\ CASE & NFS \\ PERS & 3 \\ NUM & SG \\ GEND & F \end{bmatrix} \\ OBJ & f5,f7 & \begin{bmatrix} PRED & 'Kittampo' \\ CASE & ABS \\ PERS & 3 \\ NUM & SG \\ GEND & M \end{bmatrix} \\ PRED & \text{'ɗaw-<(SUBJ) (OBJ)>'} & & \\ ASP & PRF & & \\ VFOC & + & & \end{bmatrix}$$

2.6 Summary

Lexical-Functional Grammar was introduced in the late 1970s by the founders Ronald Kaplan and Joan Bresnan. As its name implies it is a lexical and non-transformational and functional and non-configurational theory. The standard model of LFG comprises of three modules: the Lexicon, the syntax and the semantics. The syntactic module has two parallel levels of representations: the constituent structure (c-structure) and functional structure (f-structure).

Lexicon is at the heart of LFG. It contains lexical entries for words and affixes. The lexical entry contains phonological, categorical and other syntactically relevant information, meaning and the subcategorization. In LFG subcategorization is by function and not by category. The grammatical functions SUBJ, OBJ, OBJθ, OBLθ, COMP, XCOMP, ADJ and XADJ are identified. These grammatical functions are characterized into four different groups based on the criteria such as governable vs. modifiers, open vs. closed, terms vs. non-terms and restricted vs. unrestricted. The lexicon is subject to three Conditions: the Direct Syntactic Encoding, Function-Argument Bi-uniqueness and Subject Conditions.

In LFG c-structure is one of the two structures which together make up the syntactic module. The c-structure encodes hierarchical organization, linear

order, syntactic categories, and the input to the phonological component of grammar. A c-structure is commonly represented in tree structure created by the phrase structure rules. The c-structure is subject to the Principle of Economy of Expression, the Principle of Lexical Integrity and the Revised Null Element Condition. The Principle of Economy of Expression applies on the syntactic phrase structure nodes whereas the Principle of Lexical Integrity and the Revised Null Element Condition apply on the terminal nodes of a constituent structure tree.

The f-structure is the abstract syntactic organization of a sentence that represents argument structure together with grammatical function relations. It is represented as a set of ordered pairs of attribute-value matrices (AVMs). The f-structure is subject to three well-formedness conditions: Coherence, Completeness and Uniqueness (Consistency) Conditions.

The correspondence from c-structure to f-structure is designated by the symbol ϕ (read as *phi*). The mapping between c-structure is done by the mathematical equation f-description. The building process takes three steps. In the first step each c-structure node is instantiated by meta-variables (i.e. by up "↑" and down "↓" arrows). The second step is the substitution of each meta-variable by functional variable *f* to form the f-description. The third step is solving each f-description to build the minimal f-structure.

PART I

MORPHOLOGY

Chapter 3

Noun morphology

3.1 Introduction

In this chapter, we will deal with the noun morphology of Diraytata. The chapter is divided into three sections. The first section deals with inflections, the second with derivations and finally the third section summarizes the highlights of the chapter.

3.2 Inflections

In Diraytata, nouns inflect for case, definiteness, number and gender. This section, therefore, discusses each of these grammatical categories.

As we shall see shortly case and definiteness, in Diraytata, are inextricably bound up with the focus system[1] and hence inexplicable without a prior exposure to the focus system. Thus as a prerequisite to our analysis of case and definiteness it seems appropriate to give some background information about the focalization system at work in Diraytata.

Regarding the constituents that are focalized, three constituent phrases need to be identified: subject noun phrase, verb and constituents such as complements or adpositional phrases of adverbial functions. It is the form of the verb that indicates which of the above constituents is focalized in a clause. A perfective verb appears in three forms (adopting Hayward's 1980:276 classification) we refer to them the full, reduced and neutral forms. To be more concrete the perfective forms of the verb ʔuk- 'drink' are as given in (1).

(1)	Full form	Reduced form	Neutral form	Gloss
	heŋuki	ŋuki	ʔuk	'I drank.'
	heʔʔukiti	ʔʔukiti	ʔuk	'You (SG) drank.'
	heʔuki	ʔuki	ʔuk	'He drank.'
	heʔukiti	ʔukiti	ʔuk	'She drank.'
	heŋukini	ŋukini	ʔuk	'We drank.'

[1] Focus in this thesis is used in the sense of new information. That is, a focused constituent provides new information.

heʔʔukiteni	ʔʔukiteni	ʔuk	'You (PL) drank.'
heʔukeni	ʔukeni	ʔuk	'They drank.'

The differences between the neutral and reduced paradigms lie on the fact that the former can take no inflectional affixes whereas the latter can take the inflectional affixes for person and aspect markers. The full paradigm takes the focus, person and aspect markers. In other words, when the full paradigm is compared to the reduced paradigm, it has the focus marker in addition to the person and aspect markers. The following basic questions arise from this state of affairs:

i) What is the reason behind the existence of these three sets of perfective paradigms?
ii) How do we determine the use of one or another of these forms?

The main reason for the existence of the above three sets of paradigms in Diraytata can be accounted for in terms of the presence of focus. In Diraytata focus is obligatory in a clause. The language uses morphological means to express focalization (cf. Hayward, 1980,1981). However, this is not unique to Diraytata, in many Cushitic languages focalization is expressed morphologically (cf. Oomen, 1978 for Rendille, and Sim, 1977 for Konso).

Coming to the second question, it is focalization, which determines the use of one or another form of the predicates in (1) above. The selection of the full form[2] indicates that it is the predicate (or verb), which is focalized. Such forms are used as a reply to polar interrogative (yes or no) questions. Consider the following examples.

(2) a. Question- he-ʔ-ʔuki-t-emmo?
FOC-2-drink-2- Q
'Did you DRINK?'

Answer- heyye he-ŋ-uk-i
yes FOC-1-drink-PRF
'Yes, I DRANK.'

By the same token, the reduced form is used when a constituent other than subject noun phrase and verb is focalized. These constituents could be

[2] This form is indeterminate in the sense that it can also be used as a reply to questions such as what happened. In which case no particular constituent is focused but the entire sentence focused, as the sentence contains all new information.

objects or various adpositional phrases of adverbial functions. This is illustrated in (3).

(3) a. Question- maana ʔ-ʔuki-te ?
what 2-drink-2
'WHAT did you dirnk?'

Answer - ʔaanna ŋ-uk-i
milk 1-drink-PRF
'(I) drank MILK.'

b. Question- awwam ʔ-ʔuki-te?
when 2-drink-2
'WHEN did you drink?'

Answer- hal ŋ-uk-i
yesterday 1-drink-PRF
'(I) drank YESTERDAY.'

In (3a), the object NP, *ʔaanna* 'milk' is focalized whereas in (3b) the noun *hal* 'yesterday' which has a temporal adverbial function is focalized.

Finally, the neutral form is used when the subject noun phrase is focused as illustrated in (4).

(4) Question- ʔayno ʔuk?
who drink.PRF
'WHO drank'

Answer- ʔan ʔuk
I.ABS drink.PRF
'I drank.'

3.2.1 Case

Diraytata has four cases: non-focalized subject, absolutive, dative and instrumental cases. In what follows we shall take up each in turn.

3.2.1.1 Non-focalized subject case

The non-focalized subject case, in Diraytata, is morphologically marked by *–(a)t*, *-ot,* and *–i*. The morphemes *–(a)t* and *–ot* attach to masculine nouns, whereas the morpheme *–i* attaches to feminine nouns. The following are illustrative examples.

(5) a. Masculine	Gloss
pillaw-at	'knife'
k'ililayt-at	'monkey'
maak-ot	'snake'
leeh-ot	'month'
ɗak-ot	'stone'

b. Feminine	Gloss
ahhot- i	'grand mother'
ʔinant-i	'girl'
ʔalawt-i	'elder sister'
ʔoraytet-i	'hyena'
talmiššet-i	'virgin'

As shown above, non-focalized subject case markers that are attached to masculine nouns can be of two types, that is, *-at* and *–ot*. The former is attached to a noun that ends in a consonant whereas the latter form is attached to a masculine noun that ends in a vowel (as the citation form of these words end in vowel: *maaka*, *leeha* and *ɗaka*). On the other hand, the feminine nouns all affix *–i* to form their non-focalized subject case forms. Hayward (1981:138) singles out the masculine nouns below, as they do not take the non-focalized subject case markers.

(6)		
	ɗiirt	'male'
	hararayt	'pig, warthog'
	kolkolt	'young man'
	pinant	'wild animal'
	sookitt	'salt'
	haššitt	'shoulder'

But according to my data these nouns do take the non-focalized subject case marker morpheme *–at*, as in *ɗiirtat*, *hararaytat*, *pinantat*, etc.

In proper nouns, the non-focalized subject case marker *–(a)t* is attached. This is illustrated in (7).

(7)	Proper nouns	Gloss
	Datikko-t	‘an eldest son’
	Datona-t	‘an eldest daughter’
	Kittampo-t	‘a younger son’
	Kittonna-t	‘a younger daughter’
	Kussiyy-at	‘a youngest son’
	Kittonnayyu-t	‘a youngest daughter’

As can be seen from these examples, the non-focalized subject case affix *-(a)t* is attached to both masculine and feminine proper nouns without making any kind of gender distinction. The non-focalized subject case affix *-at* is attached to the proper nouns that end in consonant, whereas the vowel *-a* of the affix is dropped when it attaches to a proper noun that ends in a vowel.

In pronouns, the non-focalized subject case is marked by different morphemes as shown in (8).

(8) Non-focalized subject case	Gloss
ʔan-tot /ʔan-tu	‘I’
ʔatt-it /ʔatt-i	‘you (SG)’
ʔiyy-at	‘he’
ʔit-i	‘she’
ʔinn-ot	‘we’
ʔinn-at	‘you (PL)’
ʔiyyaa	‘they’

As can be seen from paradigm (8) above, the first person singular is non-focalized subject case marked either by *–tot* or *-tu*, second person singular by *-i(t)*, third person masculine singular by the morpheme *–at*, third person feminine singular by *–i*. By the same token, first person plural by *–ot*, second person plural by *–at* whereas third person plural does not have a non-focalized subject case marker (for a detail account of the pronoun system see Hayward, 1980).

3.2.1.2 Absolutive case

The absolutive case or general case is not morphologically marked. This can be learned from the examples in (9)

(9) Absolutive form	Gloss
pillaw	'knife'
k'ililayt	'monkey'
maaka	'snake'
leeha	'month'
Kussiyy	'a youngest son'(proper name)
Datikko	'an eldest son' (proper name)
Kittonna	'a younger daughter' (proper name)

The absolutive case form of pronouns is given in (10).

(10) Absolutive	Gloss
ʔan	'I/me'
he(ɗ)	'you (SG)'
ʔiyy	'he/him'
ʔit	'she/her'
ʔinnu	'we/us'
ʔinn	'you (PL)'
ʔiyyaa	'they/them'

Comparing (10) to (8) the absolutive form of the second person singular is different from its non-focalized subject case form. The third person plural is identical in the two cases.

If we compare first person singular and plural, second person plural, third person singular masculine and feminine non-focalized subject case pronouns in (8), with their corresponding absolutive case forms in (10), it may seem that in all cases the non-focalized subject case form is derived from the corresponding absolutive case form by suffixing the non-focalized subject case markers. However, in such analysis the newly derived form will have two values for the attribute 'case', which is not allowed by the Consistency Condition (discussed in chapter 2). The best solution is then to assume another form, which is unspecified or unmarked for case, and it is from this unmarked form that both the non-focalized subject case and the absolutive case forms are derived. If, for example, we take the third person singular masculine according to the above claim, it will have the form *ʔiyy*,

not specified for case, which is used as a base to derive both the absolutive form *ʔiyy* and the non-focalized subject case form *ʔiyyat*. If such an argument is plausible, then we have a first person singular unspecified form *ʔan*, first person plural *ʔinnu*, third person feminine unspecified form *ʔit*, and second person plural *ʔinn*. Thus, it is these unspecified forms that are used as input to derive the corresponding non-focalized subject case and the absolutive case forms.

The use of the term 'absolutive case' here needs an explanation. It is not used in the same sense as is used in ergative languages. In ergative languages the term is used to refer to the subject of intransitive and the object of transitive verbs as opposed to the ergative case, which marks the subject of transitive verbs (Lapointe 1985:130). However, in Diraytata the absolutive case has a much wider syntactic function in the sense that it can occur as a subject of both intransitive and transitive verbs, when the subject is focalized and it can also occur as an object of transitive verb. If, however, we use the term accusative case, it cannot serve our purpose simply because the accusative case is restricted to direct object only. The absolutive case form is identical to the citation form of a noun and is the form that can be used as a reply to questions such as what is this? Or what is that? This form in Diraytata is not morphologically marked.

3.2.1.3 Dative case

The Dative case, in Diraytata, is marked by the morpheme *–(a)s* as shown in (11).

(11) a. kussiyy-at kittonnayyu-s koɗaššet he-ɗaay-i
Kussiyy-NFS Kittonnayyu-DAT money.ABS FOC-give-PRF
'Kussiyy GAVE money to Kittonnayyu.'

b. kittonnayyu-t kussiyy-as mat'af he-piɗɗi-t-i
Kittonnayyu-NFS Kussiyy-DAT book.ABS FOC-buy-3FSG-PRF
'Kittonnayyu BOUGHT (a) book for Kussiyy.'

The dative case is encoded by suffixing the morpheme *–(a)s*. When such a morpheme is attached to a noun that ends in a vowel, the vowel of the dative suffix is dropped as in (11a).

3.2.1.4 Instrumental case

The instrumental case is marked by the affix *–an*. The following are examples.

(12) a. kussiyy-at karma šikutt'et-an he-ʔikay-i
Kussiyy-NFS lion.ABS pistol-INS FOC-kill-PRF
'Kussiyy KILLED (a) lion with pistol.'

b. kittonnayyu-t sittim-an man he-uššuk'i-t-i
Kittonnayyu-NFS broom-INS house.ABS FOC-clean-3FSG-PRF
'Kittonnayyu CLEANED (a) house with broom.'

In (12) the nouns *šikutt'et* 'pistol' and *man* 'house' suffix the instrumental case marker morpheme *–an*.

Before we close our discussion on case, it seems reasonable to make a few statements about genitives in Diraytata. Genitive is not morphologically marked and hence it is indicated by word order as in (13).

(13) a. man kussiyy
house Kussiyy
'Kussiyy's house'

b. k'ool hellemmat
skin ewe
`Ewe's skin'

c. siitta karma
tail lion
'Lion's tail'

As can be seen from (13) there is no overt morpheme that can mark genitive. In such construction the possessed and possessor nouns occur in juxtaposition, the former preceding the latter.

Other clause internal relationships such as locative, etc. are expressed by means of adpositionals as shown in chapter 1, section 1.8.

3.2.2 Definiteness

In Diraytata nouns are marked as definite by means of a definitive suffix. There is no indefinite marker as such. In some cases the numeral *šokku* 'one

(M)' for masculine and *šokka* 'one (F)' for feminine nouns may be used. Such forms have the interpretation of a certain thing or entity.

(14) a. hellemmat šokk-a 'a certain ewe'
ewe one-F

b. taltet šokk-a 'a certain she-goat'
she-goat one-F

c. laaha šokk-u 'a certain ram'
ram one-M

d. ʔorkeet šokk-u 'a certain he-goat'
he-goat one-M

The numeral forms *šokka* and *šokku* are usually used to introduce a certain entity or item in a discourse. However, there is no indefinite marker, which is equivalent to the English indefinite article. The citation form of a noun is used as an indefinite form.

In Diraytata, definiteness closely interacts with case and number. That is to say, the type of definite marker that is attached to a given noun is determined by whether the noun in question has non-focalized subject case or absolutive case form and also whether it is singular or plural. For the sake of presentation, we will start our discussion by considering singular nouns. The definite suffixes that are attached to singular nouns are of two types: -*in(ett*) and –*se(t)*. The former attaches to a noun with non-focalized subject case (NFS). Consider the following examples.

(15) a. karm-ot-in(ett) he-toy-i
lion-NFS-DEF FOC-die-PRF
'The lion DIED.'

b. herr-ot-in(ett) nam he-k'anin-i
dog- NFS -DEF man.ABS FOC-bite-PRF
'The dog BIT a man'

c.* karm-in(ett) he-toy-i
lion.ABS-DEF FOC-die-PRF

A close examination of the sentences in (15) reveals that the definite suffix morpheme *–in(ett)* goes with a noun in non-focalized subject case and it occurs following the case marker. It is, however, not possible to attach the

definite suffix *–in(ett)* to a noun in an absolutive case form. This can be seen from the ill-formedness of example (15c). In (15c) the subject NP, *karma* is in the absolutive case form and the definite marker *–in(ett)* is attached to it. Such definite markers cannot be attached to an absolutive case form that is why the sentence is ill-formed.

The other singular definite suffix *–se(t)* occurs with nouns in the absolutive case form. This is shown in example (16).

(16) a. karma-se(t) toy
lion.ABS-DEF die.PRF
'THE LION died'

b. herra-set nam-se k'anin
dog.ABS-DEF man.ABS-DEF bite.PRF
'THE DOG bit the man'

From (16) above, we can see that the definitive suffix *–se(t)* is sensitive to the absolutive case form and it occurs with a noun in the absolutive case form only. The absolutive case is not morphologically marked in Diraytata as discussed in section 3.2.1.2, and hence the absolutive form is identical to the citation form.

Before we proceed to the next point it is worth pointing out the distribution of the affix *–se(t)*. If two definite absolutive nouns occur in a sentence or a clause, one of them should be marked with *–set* and the other with *–se*. However, it is not possible to mark both of them with *–set*. My informants are reluctant to accept such structures. The possible combinations are given in (17a,b) and the impossible one in (17c).

(17) a. herra-set nam-se k'anin
dog.ABS-DEF man-DEF bite.PRF
'THE DOG bit the man.'

b. herra-se nam-set k'anin
dog.ABS-DEF man.ABS-DEF bite.PRF
'THE DOG bit the man.'

c.* herra-set nam-set k'anin
dog.ABS-DEF man.ABS-DEF bite.PRF

Regarding, the singular definitive forms, Hayward (1980) identifies the forms *–set* (or *-sét*) and *–se* (or *-sé*) as a definitive marks attached to nouns

with absolutive case forms. According to him, the former forms occur with a noun without modifier and the latter a noun with modifier. However, according to my data there are only two forms, namely, *-set* and *-se* as shown above. And these forms occur regardless of whether the noun has a modifier or not. For example, one can say: *appa-se ɗɗer toy* or *appa-set iɗɗer* toy, both of them mean 'THE TALL MAN died'

Coming to the plural definite forms, there are two definite markers that can be attached to plural nouns. These definite affixes are *–an* and *–anet.* Their distribution is dependent on the focus structure, that is to say, whether the subject or object or various adpositional phrases of adverbial functions are focalized. The former form *-an* is used with plural nouns when none of the above mentioned phrases are focalized. The following are examples:

(18) a. karm-aɗ-an fart-aɗ-an he-ʔikay-en-i
lion-PL-DEF horse-PL-DEF FOC-kill-PL-PRF
' The lions KILLED the horses'

b. * karm-aɗ-an fart-aɗ-an ʔikay-en-i
lion-PL-DEF horse-PL-DEF kill-PL-DEF

c.* karm-aɗ-an fart-aɗ-an ʔikay
lion-PL-DEF horse-PL-DEF kill.PRF

In the above examples, (18a) is well-formed and (18b,c) are ill-formed. This is because in (18a) it is the verb which is focalized. This can be inferred from the form of the predicate because it appeared in the full form implying that it is the verb which is focalized and such NPs take the definite affix *–an* without the sentences being ungrammatical. Whereas in (18b) the predicate is in the reduced form which means that it is the object noun phrase which is focused and by the same token in (18c) the predicate is in the neutral form showing that the subject noun phrase is focalized. As hinted above, focused noun phrases cannot take the plural definite marker *–an* that is why (18b,c) are ill-formed. From this we can generalize following Hayward (1980) that when the definite suffix *–an* is used it is the verb which is focalized, though the non-focalized subject case marker is missing from the structure.

The latter form *–anet* is attached to a subject or other phrases when they are focused. This can be learned from the following examples.

(19) a. karm-aɗ-an fart- aɗ-anet ʔikay-en-i
lion-PL-DEF horse-PL-DEF kill-PL-PRF
'The lions killed THE HORSES.'

b. karm- aɗ-anet fart- aɗ-an ʔikay
lion-PL-DEF horse-PL-DEF kill.PRF
'THE LIONS killed the horses.'

c.* karm-aɗ-an fart- aɗ-an ʔikay-en-i
lion-PL-DEF horse-PL-DEF kill-3PL-PRF

d.* karm-aɗ-an fart- aɗa-an ʔikay
lion-PL-DEF horse-PL-DEF kill.PRF

In the above examples, (19a,b) are well-formed and (19c,d) are ill-formed. The reason is that in (19a), for example, it is the object noun phrase, which is focalized, and this can be inferred from the form of the verb (i.e. the verb is in the reduced form). Such a noun phrase requires the definite suffix *-anet* but not *-an*, which is why the example in (19c) is ill-formed. If we compare example (19a) with (19c) we realize that the two sentences are identical except that they differ in the definite markers attached to the object noun phrases, the former has *-anet* and the latter has *-an*. And the ungrammaticality of (19c) can be accounted for in terms of the presence of the definite form *–an*. This is because as we have said above such an affix cannot be attached to a focused object noun phrase without the structure being ill-formed. By the same token, if we look at example in (19b) we can see that in such a structure it is the subject noun phrase which is focalized. This can also be inferred from the form of the verb (i.e. the verb is in the neutral form (for the details see section 3.2, of this chapter). Focused plural subject noun phrases require a definite affix *-anet* but not *-an*. That is why the example with *-anet* in (19b) is well-formed and the example with *-an* in (19d) is ill-formed.

However, there are few exceptions to the above generalization. In some cases it is possible to have a focused subject noun phrase with the definite suffix *–an* rather than *-anet*. This happens when the subject noun phrase occur with modifiers (modifiers in Diraytata usually follow the head noun they modify). This is shown in the following examples.

(20) a. herr- aɗ-an lakki toy
dog-PL-DEF two die.PRF
'THE TWO DOGS died.'

b. herr-aɗ-an ikkakkaan toy
dog-PL-DEF big-PL die.PRF
'THE BIG DOGS died.'

In (20) *lakki* 'two' and *ikkakkaan* 'big-PL' are modifiers. They modify the head noun *herraɗan* 'the dogs'. When a focused subject noun phrase occurs along with modifiers, as shown in (20) it takes the plural definite affix *–an* but not *–anet*. The definite suffixes in Diraytata can be summarized in the Table below.

	SUBJECT		OBJECT	
NUMBER	+FOC	-FOC	+FOC	-FOC
SG	-se(t)	-in(ett)	-se(t)	-se(t)
PL	-anet	-an	-anet	-an

Table 3 Definiteness

3.2.3 Number

Hayward (1981) treats number and gender together and identifies three patterns. His first pattern subsumes those nouns which in their singular form fall into masculine or feminine gender and which do not show gender distinction in their plural form. The following are examples (taken from Hayward 1981:127)

(21) tuumat (M) tuumaɗa (PL) 'garlic'
k'ililayt (M) k'ililayya (PL) 'vervet monkey'
ɗaant (F) ɗaantaɗa (PL) 'calabash'
siret (F) sirawwa (PL) 'bed'

The second pattern comprises those masculine and feminine nouns which do not have plural counterparts, as exemplified below (taken from Hayward 1981:127).

(22) ʔoyhat (M) 'grass'
ʔaymot 'kraal (for cattle)'
kapat (M) 'mouth, language'
rifant (F) 'hair'
ʔurraššet(F) 'cloud'
murrat(F.) 'bowl made from a calabash'
rohot(F) 'uterus'

His third pattern subsumes those plural nouns which do not have a plural suffix and which do not have a corresponding singular form. He cited the following examples (taken from Hayward 1981: 128).

(23) soha (PL) ‘meat’
č’ook’a (PL) ‘mud’
hopa (PL) ‘sandals’
k’olta (PL) ‘goat (general)
paač’a (PL) ‘sickle’
sitta (PL) ‘tail’
tappa (PL) ‘week’

According to my data, the second pattern that was identified by Hayward, as singular forms without corresponding plural counterparts, are said by my informants to have plural counterparts. Besides, all the noun forms that are listed under pattern two are in the non-focalized subject cases and they are not in their citation forms. The citation forms of such nouns along with their plural forms are listed below.

(24) citation form	plural form	non-focalized subject case
k’oyra / k’orya	k’oyrayya / k’oryayya	k’oyrat / k’oryat
ʔayma	ʔaymaɗa	ʔaymot
kap	kapaɗa	kapat
rifant	rifantaɗa/awwa	rifanti
ʔurraššet	ʔurraššetawwa	ʔurraššeti
murra	murraɗa	murrat
roha	rohaɗa	rohot

The singular nouns in (22) which were considered to have no plural forms and which were put under pattern two of Hayward’s classification, are here justified to have a plural counterpart. This will in turn reduce the patterns of Hayward from three to two. As a result we have now two patterns, namely, singular nouns with a corresponding plural counterpart and plural nouns which do not have singular form at all.

Now we pay our attention to the nouns that form their plural by affixing plural morphemes. The plural forms are usually derived by suffixing plural markers. The language uses the following five ways to encode plural.

- by suffixing the morpheme *-aɗa* or *-awwa* .
- by geminating the final consonant of a singular noun.
- by suffixing the vowel *-a* .
- by suffixing the morpheme *-(y)ya*.
- by suffixing the morpheme *-alla*

In what follows we shall take up each of the above forms

3.2.3.1 Plural markers *-aɗa /-awwa*

The majority of plural nouns are formed by attaching the suffixes *-aɗa* or *-awwa.* The following are examples.

(25) a.

Singular	Gloss	Plural	Gloss
ʔalawt (F)	'sister '	ʔalawtaɗa ~ -awwa	'sisters'
hinč'illa (F)	'ankle'	hinč'illaɗa ~ -awwa	'ankles'
kaapa (M)	'wheat (SG)'	kaapaɗa ~ -awwa	'wheat (PL)'
poorra (M)	'barley (SG)'	poorraɗa ~ -awwa	'barley (PL)'
ʔokkoot (F)	'pot'	ʔokkootaɗa ~ -awwa	'pots'

b.

Singular	Gloss	Plural	Gloss
k'urťummet (F)	'fish'	k'urťummaɗa ~ -awwa	'fishes'
koʔannat(F)	'frog'	koʔannaɗa ~ -awwa	'frogs'
koroontet(F)	'heifer'	koroontaɗa ~ -awwa	'heifers'

c.

Singular	Gloss	Plural	Gloss
k'uɗɗet (F)	'thorn'	k'uɗɗetaɗa / k'uɗɗawwa	'thorns'
ʔahhot(F)	'grand mother'	ʔahhotaɗa / ahhawwa	'grand mothers'
ʔuwwat(F)	'cloth'	ʔ uwwataɗa /uwwawwa	'cloths'
sak'k'et(F)	'belt'	sak'k'etaɗa / sak'k'awwa	'belts'
harret (F)	'donkey'	harretaɗa / harrawwa	'donkeys'

The examples in (25) are divided into three groups according to what happens when the plural morphemes *-aɗa* and *–awwa* are suffixed to a singular form of a noun. In (25a), for example, both plural morphemes are suffixed to a singular noun by deleting the final vowel of the singular noun only, provided if the singular noun ends in a vowel, otherwise they are suffixed to the singular noun form without causing changes.

On the other hand, in (25b) when the plural morphemes *-aɗa* and *–awwa* are suffixed to a singular noun the final vowel along with the consonant is deleted. That is to say, if we want to make the singular noun k'urt'ummet 'fish' plural the final vowel consonant sequence of the singular form is truncated when the plural suffixes are attached to it (i.e. k'urt'ummet + -aɗa / -awwa = k'urt'ummaɗa / -awwa).

In (25c) when the plural marking morphemes *–awwa* is attached to a singular noun, the final vowel consonant sequence is truncated whereas when *-aɗa* is attached nothing is truncated from the singular form. This clearly distinguishes (25c) from the examples in (25a,b).

Moreover, the pluralizing morpheme *-aɗa* but not *–awwa* can be suffixed to the following singular nouns to derive their corresponding plural forms.

(26)	Singular	Gloss	Plural	Gloss
	pillaw (M)	'knife'	pillawaɗa	'knives'
	par (M)	'year'	paraɗa	'years'
	maaka (M)	'snake'	maakaɗa	'snakes'
	leeha (M)	'month'	leehaɗa	'months'
	keltayt (M)	'baboon'	keltaytaɗa	'baboons'

From a close examination of the examples in (25) and (26) one would generalize the following points in connection to the distribution of the two plural marking suffixes *-aɗa* and *-aww*a. The plural morpheme *-aɗa* seems to have much wider distribution as compared to *-awwa*. This is because, the morpheme *-aɗa* can be suffixed to both masculine and feminine singular nouns to derive the corresponding plural forms whereas the morpheme *-awwa* is restricted to only feminine singular nouns. However, there are a few exceptions to this generalization. Singular masculine nouns such as *poorra* 'barely' and *kaapa* 'wheat' in (25a) above can also take the plural marking morpheme *-awwa* in addition to *-aɗa*.

3.2.3.2 Stem final consonant gemination

Geminating the last consonant of a singular form is another strategy of marking plural nouns. This can be illustrated in the examples below:

(27)	Singular	Gloss	Plural	Gloss
	lukkala	‘fowl’	lukkalla	‘fowls’
	mura	‘forest’	murra	‘forests’
	sura	‘rope’	surra	‘ropes’
	hittina	‘root’	hittinna	‘roots’

3.2.3.3 Plural marker *-a*

Another strategy of forming a plural is by suffixing the vowel *-a* as shown in (28) below.

(28)	Singular	Gloss	Plural	Gloss
	ʔikkiret	‘louse’	ʔikkira	‘lice’
	lukket	’leg, foot’	lukka	’legs, feet’
	hampiritt	’bird’	hampira	’birds’
	hirriɓitt	’eyelash’	hirriɓa	‘eyelashes’
	karpinitt	‘rib’	karpina	‘ribs’

Here when the plural marker morpheme *-a* is suffixed to a singular form, the word final vowel-consonant sequences (i.e. *-Vt* or *-itt*) of the singular forms are truncated. Additionally, there are a few nouns in this group which in addition to truncating their final stem part also lengthen their stem vowel to form their plural, as in *lappitt* ‘ear’ becoming *laappa* ‘ears’ in the plural.

3.2.3.4 Plural marker *-(y)ya*

Still another strategy of plural forming in Diraytata is by attaching the morpheme *-(y)ya* to a singular form as illustrated in the following examples.

(29)	Singular	Gloss	Plural	Gloss
	k’ililayt	‘monkey’	k’ililayya	‘monkeys’
	k’oč’č’ayt	‘finger’	k’oč’č’ayya	‘fingers’
	haššitt	‘shoulder’	haššiyya	‘shoulders’
	halitt	‘stick’	haliyya	’sticks’

In (29) above, all the singular nouns terminate either *-yt* or *-tt*. Such singular nouns drop their *-t* or *-tt* sequence and add the morpheme *-(y)ya* to form their respective plural as shown above. Besides the above mentioned strategy some of the singular nouns in this group such as *k’oč’č’ayt* ‘finger’ and *haššitt* ‘shoulder’, form their plural forms by suffixing the plural morpheme *-aɗa* in addition to *-(y)ya* as in *k’oč’č’aytaɗa* ‘fingers’ and *haššittaɗa* ‘shoulders’. Another interesting point is that these singular nouns

can also allow both the plural morphemes *-aɗa* and *-(y)ya* to appear in the same construction. That is to say, such nouns allow double plural marking as in *k'oč'č'ayyaɗa* 'fingers' and *haššiyyaɗa* 'shoulders'.

3.2.3.5 Plural marker *–alla*

Some singular nouns can form their respective plural forms by affixing the morpheme *-alla*. The following are illustrative examples.

(30)	Singular	Gloss	Plural	Gloss
	silf	'iron'	silfalla	'irons'
	ɗaka	'stone'	ɗakalla	'stones'
	laaha	'ram'	laahalla	'rams'

As seen from these examples when the plural marking morpheme *–alla* is suffixed to a singular noun that ends in a vowel, the final vowel of the singular noun is deleted otherwise it can simply attach to a singular noun.

3.2.4 Gender

The language has a two-gender system, namely masculine and feminine. However, there is no overt morpheme that can mark gender on nouns. The following is the list of some of the masculine and feminine nouns.

(31) a.	Masculine	Gloss
	keltayt	'baboon'
	harharayt	'warthog'
	haant	'bee'
	ʔayhitt	'grass'
	paat	'village'

b.	Feminine	Gloss
	ʔuwwat	'cloth'
	koʔannat	'frog'
	soyyo	'lowland'
	ɗaant	'gourd'
	laft	'bone'

The examples in (31a) are masculine nouns and those in (31b) are feminine nouns. A close inspection of these examples shows that in Diraytata there is no gender-marking affix, which can be attached to the base from to derive

either the masculine or feminine gender. In a very few nouns the feminine form is derived by attaching the suffix *-et* as shown in (32).

(32)	Masculine	Gloss	Feminine	Gloss
	hayyitt	'male guest'	hayyittet	'female guest'
	lukkalitt	'cock'	lukkalittet	'hen'

There are a few animate nouns, which can purely mark their gender by using different lexical items for masculine and feminine. The following are examples.

(33)	Masculine	Gloss	Feminine	Gloss
	ʔappa	'father'	ʔinkot	'mother'
	ʔirišš	'husband'	haypaat/ʔaat	'wife'
	ʔimm	'boy'	ʔinant	'girl'
	laaha	'ram'	hellammat	'ewe'
	ʔorket	'he-goat'	taltet	'she-goat'

In the above examples, different lexical items are used to refer to masculine and feminine genders[3]. And hence in such cases gender is lexical and not morphological.

[3] Still another method of marking gender in animate nouns is by means of using gender-distinguishing attributes. In this case different modifiers are used to specify the gender of a noun. For example, *ɗ'irt* 'male' for masculine animate nouns and *ʔiskatet* 'female' for feminine animate nouns as shown in (1).

(1) a. oraytet 'hyena'
orytet ɗ'irt 'male hyena'
orytet ʔiskatet `female hyena´

b. herra 'dog'
herra ɗ'irt `male dog´
herra ʔiskatet 'bitch'

c. karma 'lion'
karma ɗ'irt `male lion´
karma ʔiskatet `lioness´

d. fart 'horse'
fart ɗ'irt `male horse´
fart ʔiskatet 'female horse'

Diraytata has grammatical gender, in the sense that nouns whose referents display overt sexual difference male or female may correlate with masculine or feminine gender irrespective of their biological (natural) sex. For example, the noun *mirkot* 'bull' has a male sex however despite it is being a male biologically it has a feminine gender. By the same token, the noun *kaman* 'cow' has a female sex but it has a masculine gender.

3.2.5 The interaction between case and focus

Let us turn our attention back to the interaction between case and focalization. In order to do so, let us consider the following examples.

(34) a. ʔan-tot ʔaanna he-ŋ-uk-i
I – NFS milk.ABS FOC-1-drink-PRF
'I DRANK milk.'

b. ʔan-tot ʔaanna ŋ-uk-i
I –NFS milk.ABS 1-drink-PRF
'I drank MILK.'

c. ʔan ʔaanna ʔuk
I .ABS milk.ABS drink.PRF
'I drank milk'

d.* ʔan-tot ʔaanna ʔuk
I – NFS milk.ABS drink.PRF

e.* ʔan ʔaanna he-ŋ-uk-i
I.ABS milk.ABS FOC-1-drink-PRF

f.* ʔan ʔaanna ŋ-uk-i
I.ABS milk.ABS 1-drink-PRF

In the above examples, (34a-c) are well-formed and (34d-f) are ill-formed structures. First let us examine the examples (34a-c) by paying particular attention to the case of the subject NPs vis-à-vis the verb forms. In (34a), the subject NP, *ʔantot* 'I' is in the non-focalized subject case and the verb is in its full form. In (34b), the subject NP is in the non-focalized subject case

As can be seen from the above examples, the gender of animate nouns have been distinguished by using the attributes *ɗirt* 'male' for masculine and *ʔiskatet* 'female' for feminine

and the verb is in its reduced form. In (34c), the subject NP, *ʔan* 'I' is in the absolutive case and the verb is in its neutral form. This can be summarized as the following:

(35) When the full form is used (as in 34a):
   a. The focus marker *he-* occurs on a predicate.
   b. A verb has all the agreement markers.
   c. The subject NP is in the non-focalized subject case
   d. The verb is focalized

(36) When the reduced form is used (as in 34b):
   a. The focus marker *he-* does not occur on a verb.
   b. The verb has all the agreement markers.
   c. The subject NP is in the non-focalized subject case
   d. A constituent other than a subject NP and a verb is focalized

(37) When the neutral form is used (as in 34c):
   a. The focus marker *he-* does not occur on a verb.
   b. The verb lacks all the agreement markers.
   c. The subject NP is in the absolutive case
   d. The subject NP is focalized

The f-structures of the examples in (34a-c) are as in (38a-c) below

(38) a. When the verb is focalized.

$$\begin{bmatrix} \text{PRED} & \text{'ʔuk– < (}SUBJ\text{)(}OBJ\text{) > '} \\ ASP & \text{PRF} \\ \text{VFOC} & + \\ \text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'PRO'} \\ \text{CASE} & \text{NFS} \\ \text{NUM} & \text{SG} \\ \text{PERS} & 1 \end{bmatrix} \\ OBJ & \begin{bmatrix} \text{PRED} & \text{'ʔaanna'} \\ \text{CASE} & \text{ABS} \\ \text{FOC} & - \end{bmatrix} \end{bmatrix}$$

b. When an object is focalized.

$$\begin{bmatrix} PRED & \text{' ʔuk- < (SUBJ) (OBJ) >'} \\ \text{ASP} & \text{PRF} \\ \text{VFOC} & - \\ \text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'PRO'} \\ \text{CASE} & \text{NFS} \\ \text{NUM} & \text{SG} \\ \text{PERS} & 1 \end{bmatrix} \\ OBJ & \begin{bmatrix} \text{PRED} & \text{'ʔaanna'} \\ \text{CASE} & \text{ABS} \\ \text{FOC} & + \end{bmatrix} \end{bmatrix}$$

c. When a subject is focalized

$$\begin{bmatrix} \textit{PRED} & \text{'ʔuk- < (SUBJ) (OBJ) >'} \\ \text{ASP} & \text{PRF} \\ \text{VFOC} & - \\ \text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'PRO'} \\ \text{CASE} & \text{ABS} \\ \text{FOC} & + \end{bmatrix} \\ \textit{OBJ} & \begin{bmatrix} \text{PRED} & \text{'ʔaanna'} \\ \text{CASE} & \text{ABS} \\ \text{FOC} & - \end{bmatrix} \end{bmatrix}$$

As mentioned above the examples in (34d-f) are ill-formed. In (34d), for example, the subject NP is in the non-focalized subject case whereas the verb is in the neutral form. In (34e), the subject NP is in the absolutive case form and the verb is in the full form. In (34f) the subject is in the absolutive case form and the verb is in the reduced form. The question is, is it possible to account for the ungrammaticality of (34d-f) in some principled way? In order to answer this question the f-structures of the sentences in (34d-f) are given as in (39a-c).

(39) a ill-formed f-structure

$$\begin{bmatrix} \text{PRED} & \text{'ʔuk}-<(SUBJ)(OBJ)>\text{'} \\ ASP & \text{PRF} \\ \text{VFOC} & - \\ \text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'PRO'} \\ \text{CASE} & \text{NFS, ABS} \\ \text{NUM} & \text{SG} \\ \text{PERS} & 1 \end{bmatrix} \\ OBJ & \begin{bmatrix} \text{PRED} & \text{'ʔaanna'} \\ \text{CASE} & \text{ABS} \\ \text{FOC} & - \end{bmatrix} \end{bmatrix}$$

b. ill-formed f-structure

$$\begin{bmatrix} \text{PRED} & \text{'ʔuk}-<(SUBJ)(OBJ)>\text{'} \\ ASP & \text{PRF} \\ \text{VFOC} & + \\ \text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'PRO'} \\ \text{NUM} & \text{SG} \\ \text{PERS} & 1 \\ \text{CASE} & \text{NFS, ABS} \end{bmatrix} \\ OBJ & \begin{bmatrix} \text{PRED} & \text{'ʔaanna'} \\ \text{CASE} & \text{ABS} \\ \text{FOC} & - \end{bmatrix} \end{bmatrix}$$

c. ill-formed f-structure

$$\begin{bmatrix} \text{PRED} & \text{'ʔuk}-<(SUBJ)(OBJ)>\text{'} \\ ASP & \text{PRF} \\ \text{VFOC} & - \\ \text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'PRO'} \\ \text{CASE} & \text{ABS, NFS} \\ \text{NUM} & \text{SG} \\ \text{PERS} & 1 \end{bmatrix} \\ OBJ & \begin{bmatrix} \text{PRED} & \text{'ʔaanna'} \\ \text{CASE} & \text{ABS} \\ \text{FOC} & + \end{bmatrix} \end{bmatrix}$$

All the f-structures in (39a-c) are ill-formed. If we consider the SUBJ f-structure, we can learn that in such f-structure the feature CASE has two different values. That is to say that, in the SUBJ f-structure (39a), for example, the functional feature CASE has two values: NFS and ABS. The same can be said for the subsidiary SUBJ f-structure in the f-structures (39b,c). This situation violates the Consistency Condition (discussed in chapter 2). This is because Consistency Condition does not allow a functional feature to have two different values. The ill-formedness of the structures in (39a-c) can, therefore, be accounted for in terms of violation of the Consistency Condition as this condition prohibits a functional feature from being assigned two different values.

It is apparent from the foregoing that when a non-subject constituent is focalized a subject NP occurs in the non-focalized subject case. However, when a subject NP is focalized it occurs in the absolutive case form. The close interaction between the focused constituent and the case of the subject NP may lead us to question the appropriateness of the use of the term nominative case as it is used in accusative languages (Lapointe, 1985) for a subject NP in Diraytata. This is because as mentioned above, the subject NP in Diraytata occurs in two case forms. It occurs in the nominative case when non-subject constituents are focalized. It occurs in the absolutive case form only when a subject NP is focalized. This clearly shows that the term nominative case in the sense it applies in accusative languages does not apply to Diraytata. In accusative languages the term nominative refers to the

case form used to the subject of both intransitive and transitive verbs. But in Diraytata the subject of both intransitive and transitive verbs can be either in the nominative or the absolutive case form depending on the focused constituent. This situation forces us to reject the nominative case, as inappropriate to designate the interaction between case and focus, and substituted by a more general term that conflate both features. We, therefore, adopt Hayward's (1980, 1981) proposal and replace the nominative case by a Non-focalized Subject (NFS) case. This has been adopted in this study.

3.3 Derivation

Noun derivation is a productive process in Diraytata. It derives nouns from nouns, category neutral stems and verbs.

3.3.1 Nouns derived from nouns

In Diraytata, nouns can be derived from noun bases by suffixation of the morpheme *–uma* to the base form. This process is very productive in the language. The nouns that are derived by this process are semantically characterized as abstract nouns. The following are examples.

(40)	Noun (base)	Gloss	Derived Noun	Gloss
	nam	'man'	namuma	'manhood'
	ʔinkot	'mother'	ʔinkotuma	'motherhood'
	ʔappa	'father'	ʔappuma	'fatherhood'
	ʔinant	'girl'	ʔinantuma	'girlhood'

As can be observed in theses examples, the suffix *–uma* is attached to the noun base to derive the corresponding abstract noun.

3.3.2 Nouns derived from category neutral stems.

In Diraytata, abstract nouns can be derived from a category neutral stems (see chapter 4, section 4.3) by suffusing the morpheme *–uma* as shown in (41).

(41)	Neutral stem	Gloss	Derived Noun	Gloss
	rom-	'red'	romuma	'redness'
	ɗikk-	'fine'	ɗikkuma	`fineness´
	ɗer-	'tall'	ɗeruma	`tallness'
	k'im-	'strong'	k'imuma	`strength'

As can be observed in the above examples, the suffix *–uma* is attached to the category neutral stems to derive the corresponding abstract nouns.

3.3.3 Deverbal Nominalization

Deverbal nominalization is a process by which the verb loses its verbal behaviour and functions as a noun. The process is very productive in Diraytata. In what follows we shall briefly discuss them.

3.3.3.1 Agentive/Experiencer Nouns

The agentive nouns in Diraytata are derived from action verbs. The derived nouns have a meaning such as doer or experiencer of the action specified by the verb. Consider the examples below.

(42) Verb	Gloss	Agent Nouns	Gloss
ʔuk	'drink'	ʔukambayt	'drinker'
kola	`teach'	kollampayt	`teacher'
ɗam	'eat '	ɗamampayt	'eater'
ɗaw	'hit'	ɗawampayt	'one who hit'
luš	'keep'	lušampayt	'keeper'

As can be observed from the above examples, the agentive nouns are derived from verbal bases by attaching the nominalizer morpheme *–ampayt*.

3.3.3.2 Action Nouns

In Diraytata, action nouns are derived from verbal bases by suffixing different nominalizer suffixes such as *-ant, -ayt*, etc. as shown in (43).

(43) Verb (base)	Gloss	Action Noun	Gloss
feel	'run'	feelant	'running'
sunk	'fall down'	sunkant	'falling down'
tooy	'see'	tooyant	'seeing'
ɗih	'build'	ɗihayt	'building'
k'as	'beg'	k'asayt	'begging'
kaš	`sell'	kašayt	`selling'

As shown above the morphemes *-ant* and *-ayt* are used to derive the action nouns from the corresponding verbal bases. Regarding the distribution of

the two nominaliser morphemes, it is not possible to predict their distribution neither from phonological nor from morphological grounds.

3.3.3.3 Result Nouns

Result nouns are derived from verbal bases by suffixing the morpheme *-a* or *-Vt* or *-itta*. Consider the following examples.

(44)	Verb (base)	Gloss	Result Noun	Gloss
	k'ur	'decide'	k'ura	'decision'
	kak	'swear'	kaka	'oath'
	ʔum	'create'	ʔumat	'creation'
	ʔufn	'know'	ʔufnat	'knowledge'
	taš	'exhaust'	tašot	'exhaustion'
	ʔot	'insult (v)'	ʔotitta	'insult (n)'
	tuf	'be sad'	tufitta	'sadness'

In the above examples the result nouns are derived from verbal bases by suffixing the above mentioned nominaliser morphemes.

3.3.3.4 Manner Nouns

The manner nouns indicate or tell the way or means of doing something. Such nouns are formed from the verbal bases by suffixing the nominalizer morpheme *–iššet* as shown below.

(45)	Verb (base)	Gloss	Manner Nouns	Gloss
	soh-	'stand'	sohiššet	'manner of standing'
	laɗɗ-	'sit'	laɗɗiššet	'manner of sitting'
	ʔuk-	'drink'	ʔukiššet	'manner of drinking'
	ɗam-	'eat'	ɗamiššet	'manner of eating'
	ʔišam-	'speak'	ʔišamiššet	'manner of speaking'

The examples above show the suffixation of *-iššet* derives manner nouns.

3.3.3.5 Gerundive Nouns

Gerundive nouns are derived from verbal roots by suffixation of a morpheme *-(t)o*t as in (46).

(46)

Verb (base)	Gloss	Gerundive noun	Gloss
piɗɗ	'buy'	piɗɗot	'buying/to buy'
ɗam	'eat'	ɗamot	'eating/ to eat'
ʔan	'go'	ʔantot	'going/to go'
ʔerkam	'work'	ʔerkattot	'working/ to work'
kallat	'live'	kallattot	'living/ to live'

As can be observed from the above examples, the gerundive is formed by suffixing the morpheme *–(t)ot*. One important point to be raised here is that both the gerundive and the infinitive have the same form in Diraytata and that is why we give both interpretations in the above gloss.

Besides the affixation strategy we have seen so far, nouns, in Diraytata, could be formed by compounding. Two nouns can be combined to form compound nouns.

(47) ʔappa putten 'stepfather'
father food

ʔinkot man 'wife'
mother house

ʔinkot kirsinnaa 'godmother'
mother Christian

In addition to the above noun –noun compounding, nouns can combine with verbs to form a compound noun.

(48) ʔerkama peʔann-iyyu `proletarian'
work live-his

3.4 Summary

In this chapter we have discussed the noun morphology of Diraytata in three sections. In the first section we showed the inflectional behaviour of nouns. That is to say, that noun in Diraytata inflects for case, definiteness, number and gender.

Regarding case we identified four cases: non-focalized subject, absolutive, dative and instrumental cases. The non-focalized subject case is gender

sensitive in the sense that the masculine nouns attach the suffix *-(a)t* whereas the feminine nouns attach the suffix *-i* except for proper nouns in which case they take the suffix *-(a)t* regardless of their gender. In pronouns, the non-focalized subject case is marked by different suffixes. First person singular is marked by the suffix *-tot* or *-tu* and first person plural is marked by *-ot*. By the same token, second person singular is marked by *-i(t)* and third person feminine singular by *-i*. Third person masculine singular and second person plural are marked by the morpheme *-at*. Third person plural is, however, not marked for non-focalized subject case.

The absolutive case has no marker and it is identical to the citation form of a noun. We have mentioned that in Diraytata, the absolutive case refers to the subject of transitive and intransitive verbs when the subject is focused and also the object of transitive verbs. The dative case is encoded by the morpheme *-(a)s* whereas the instrumental is encoded by the morpheme *-an*.

Definiteness interacts with case and number marking. That is to say that the type of definite marker that is attached to a given noun is determined if whether the noun is non-focalized subject case marked or not and also whether the noun is singular or plural. The great majority of nouns form their plural by suffixing plural morphemes. There are, however, nouns which are inherently plural and which do not attach plural affixes. We argued that such a few words should be specified as plural in the lexicon or dictionary.

The language has a two-gender system: masculine and feminine. There is, however, no overt morpheme that can mark gender of a noun. In a few nouns the feminine gender is derived by suffixing the morpheme *-et*. Still there are a few animate nouns that use lexical gender to distinguish masculine from feminine. Diraytata has grammatical gender, as nouns whose referents reflect overt sexual differences may correlate with masculine or feminine gender irrespective of their biological sex.

We have also discussed the interaction between case and focalization. We said that the case system in Diraytata is inextricably linked with the focus system and hence it is hardly possible to understand the case system without a prior exposure to the focus system of the language.

In the second section we have discussed the derivational processes in the language. We have shown that different nouns can be derived from different sources: nouns, category neutral stems and verbs. Besides, compound nouns are formed from two existing nouns or a combination of noun and other categories.

Chapter 4

Adjectives

4.1 Introduction

In this chapter, we will discuss adjectives. Adjectives are one of the major lexical categories in Diraytata (for the details see chapter 1, section 1.8). Adjectives may function as an attributive or a predicative. When they function as an attributive, they occur following the head noun they modify in a noun phrase, and when they function as a predicative they occur in sentence final position.

The chapter is organized as follows. In section 4.2 we will present the attributive adjectives together with their inflections. In section 4.3 we will examine the predicative adjectives and their properties. In section 4.4 we will discuss derived adjectives. In section 4.5 we shall briefly summarize the findings of the chapter.

4.2 Attributive adjectives

Attributive adjectives agree with the head nouns they modify in number and gender. The following is a list of some of the attributive adjectives.

(1) Attributive adjectives

ikkaan	'big'
ič'č'if	'long'
iɗɗer	'tall'
innayk'	`ugly /bad'
issomm	'beautiful'
immerɗ	'fat'
ik'k'im	'wise /strong'
irrom	'red'
ippor	'black'
iɗɗikk	'good /well'
hiyyeyt	'poor'
šorokitt	'rich'
k'imayt	'old'

As can be seen from the list in (1), most of the attributive adjectives begin in the front high vowel *i*. The function of this vowel is one of epenthesis and it is not part of the adjectival stem. Since the syllable structure of the language does not allow onset cluster, as a result the vowel *i* is inserted to break the impermissible cluster (as discussed in chapter 1, section 1.7). This vowel is followed by a consonant, which is always geminate. However, there are very few exceptions to this generalization; attributive adjectives like *hiyyeyt* 'poor', *šorokitt* 'rich' and *k'imayt* 'old' begin in single consonant[1]. The question is why the majority of the attributive adjectives in Diraytata begin by geminate consonants. This question shall be addressed later.

4.2.1 Inflections

In Diraytata attributive adjectives inflect for number and gender but not for definiteness and case. In other words, attributive adjectives agree with the head noun they modify in number and gender. In what follows we shall take up each.

4.2.1.1 Gender

Attributive adjectives inflect for feminine gender by attaching the feminine marker morpheme *–at* on the attributive adjectives. Adjectives are not morphologically marked for masculine gender (as discussed in chapter 1, section 1.8). This does not mean that attributive adjectives do not agree with masculine head nouns in a noun phrase, only that such agreement is not morphologically expressed. Examples are given in (2):

[1] The attributive adjectives *hiyyeyt* 'poor', *šorokitt* 'rich' and *k'imayt* 'old' behave in a different way from the majority of the attributive adjectives in that they form their plural by attaching plural affixes rather than by reduplicating some parts of their stem as in (1).

(1) hiyyeyt + -ya = hiyyeyya, šorokitt + -ala = šorokittala, k'imayt + -ya = k'imayya

Besides, their predicative forms do not affix the focus marker morpheme *he-* as in (2).

(2) ʔiyy-at hiyyeyt
he-NFS poor
'He is poor.'

As will be discussed in section 4.3 the majority of attributive adjectives form their predicative forms by affixing the focus marker morpheme *he-*. The fact that the attributive adjectives in question are few in number, the fact that they form their plural by affixing plural markers, together with the absence of the focus marker *he-* in their predicative forms, forces us to treat such attributive adjectives as exceptions.

(2) a. kirot-i-n(ett) ippor-at he-toy-t-i
cat-NFS-DEF black-F FOC-die-3FSG-PRF
'The black cat DIED.'

b. ʔiskattet-i-n(ett) immerɗ-at he-toy-t-i
woman-NFS-DEF fat-F FOC-die-3FSG-PRF
'The fat woman DIED.'

c. nam-at-in(ett) immerɗ he-toy-i
man-NFS-DEF fat FOC-die-PRF
'The fat man DIED.'

d. karm-ot-in(ett) ippor he-toy-i
lion-NFS-DEF black FOC-die-PRF
'The black lion DIED.'

The head nouns in (2a,b) are feminine and those in (2c,d) are masculine. In (2a,b) the attributive adjectives *ippor* and *immerɗ* add the feminine marker morpheme *–at* so as to agree with the feminine head nouns in gender. By the same token, in (2c,d) the modifying attributive adjectives *ippor* and *immerɗ* are without the suffix *–at*.

4.2.1.2 Number

Attributive adjectives mark number by reduplicating the initial *CCV* part of their stems as shown in (3).

(3) Gloss	Singular Form	Plural Form
'good'	ɗɗikk	**ɗɗi**ɗɗikk
'beautiful'	ssomm	**sso**ssomm
'tall'	ɗɗer	**ɗɗe**ɗɗer
'fat'	mmerɗ	**mme**mmerɗ
'bad /ugly'	nnayk'	**nna**nnayk'
'black'	ppor	**ppo**ppor
'red'	rrom	**rro**rrom

As can be observed from these examples, reduplicating the initial CCV part of their stems marks plural in attributive adjectives. As mentioned above attributive adjectives in Diraytata agree in number with the head noun they modify. The following are illustrative examples.

4 a) ʔinant-aɗ-an isso-ssomm he-ʔan-en-i
girl-PL-DEF RDU-beautiful FOC-go-PL-PRF
'The beautiful girls WENT.'

b) herr-aɗ-an ikka-kkaan he-ɗey-en-i
dog-PL-DEF RDU-big FOC-come-PL-PRF
'The big dogs CAME.'

c)* ʔinant-aɗ-an issomm he-ʔan-en-i
girl-PL-DEF beautiful FOC-go-PL-PRF

d) * herr-aɗ-an ikkaan he-ɗey-en-i
dog-PL-DEF big FOC-come-PL-PRF

In the above examples, (4a,b) are well-formed and (4c,d) are ill-formed sentences. If we pay particular attention to the examples in (4a,b), in such sentences the head nouns *ʔinantaɗan* 'the girls' and *herraɗan* 'the dogs' are in plural forms and the modifying attributive adjectives in both cases are in plural forms so as to agree with the plural head nouns. By the same token, in (4c,d) the head nouns *ʔinantaɗan* 'the girls' and *herraɗan* 'the dogs' are plural in form whereas the modifying attributive adjectives *issomm* 'beautiful' and *ikkaan* 'big' are in their singular forms, which means that the attributive adjectives do not match in number with the corresponding head nouns, which is why the sentences in (4c,d) are ill-formed.

Before we close this subsection let us see definiteness and case in attributive adjectives. As we have said earlier, there are no overt definite and case marking affixes on attributive adjectives. To be more concrete observe the examples below.

(5) a. nam-at ippor he-toy-i
man-NFS black FOC-die-PRF
'(A) black man DIED.'

b. nam-at-in ippor he-toy-i
man-NFS-DEF black FOC-die-PRF
'The black man DIED.'

In (5a) the head noun *namat* '(a) man' is in non-focalized subject case, having the case marker affix *–at* is attached to it, whereas the corresponding attributive adjective *ippor* 'black' does not as such have the case affix attached to it. By the same token, in (5b) the head noun *namatin* 'the man' is

both case and definite marked, whereas the modifying attributive adjective is without both case and definite markers. This situation leads to the conclusion that the attributive adjectives in Diraytata show overt agreement with the head noun in number and gender but not in case and definiteness.

4.3- Predicative Adjectives

In Diraytata, adjectives that function as a predicative usually attract the focus marker morpheme *he-*, which appears on a verb. This is a typical feature of predicate adjectives. To be more concrete consider the examples in (6).

6 a) ʔiyy-at he-merɗ
he-NFS FOC-fat
'He IS FAT.'

b) ʔit-i he-ɗer-at
she-NFS FOC-tall-F
'She IS TALL.'

There is no copula in Diraytata[2] (cf. Hayward, 1980:279). As a result the predicative adjectives occur as a final element in (6a,b). The structures *hemerɗ* and *heɗerat* are predicative adjectives. As we have said earlier, both the predicative adjectives begin with the prefix *he-* just as perfective verbs do (see chapter 3, section 3.2). If we compare the above predicative adjectives with the attributive adjectives in (1) above we can learn that the two have different forms in the sense that the predicative forms *heɗer* and *hemerɗ* have the corresponding attribute forms *iɗɗer* and *immerɗ*. The question is then why predicative adjectives have different forms from attributive adjectives. This question may instigate us to examine the nature of predictive adjectives in Diraytata. A close examination of the predicative adjectives seems to show that predicative adjectives behave more like verbs than adjectives (Wondwosen 2005). The evidence for this comes from the consideration of focus, reduplication and predicative nominals.

We shall start our discussion from the focus structure assuming that consideration of the focus structure will give us some clue about the nature of predicative adjectives. The prefix *he-* is a focus marker in Diraytata,

[2] Contrary to this Wondwosen (1993) argued for the existence of copula in Diraytata. However, this claim was found to be wrong in the present research. This study, therefore, favour Hayward's claim that there is no copula.

which is usually attached to verbs (as discussed in chapter 3, section 3.2). As shown in examples (6a,b) above the same focus marker morpheme *he-* that appears on a verb can also occur with a predicative adjective. As we shall see below a predicative adjective in Diraytata appears in two paradigmatic forms, namely, the full and neutral forms. This is exemplified in the following paradigms.

(7)	full form	neutral form
'I am tall'	ʔantot heɗer	ʔan ɗer
'You (sg) are tall'	ʔattit heɗer	heɗ ɗer
'He is tall'	ʔiyyat heɗer	ʔiyy ɗer
'She is tall'	ʔiti heɗerat	ʔit ɗer
'We are tall'	ʔinnot heɗeɗer	ʔinnu ɗer
'You (pl) are tall'	ʔinnat heɗeɗer	ʔinn ɗer
'They are tall'	ʔiyyaa heɗeɗer	ʔiyyaa ɗer

Just as we saw in verbs (chapter 3, section 3.2) it is focalization that determines which one of the above two forms to use. That is to say when the full form is used it is the predicative adjective which is focused this can be observed from example (8).

(8) ʔant-ot he-ɗer
I-NFS FOC-tall
'I AM TALL.'

If we pay attention to example (8), we can learn that the pronoun *ʔantot* is non-focalized subject case marked in the sense that there is a morphologically overt non-focalized subject case marker morpheme attached to it and following that, the predicative adjective prefix the focus morpheme *he-*. As argued in chapter 3, section 3.2, there is a close interaction between case and focus markers.

When the neutral form is used it is the subject noun phrase, which is focused. Consider the following example.

(9) ʔan ɗer
I-ABS tall
'I am tall.'

Let us examine the sentence in (9). In this sentence the predicative adjective is in the neutral form. Such form requires an absolutive case marked subject noun phrase. This can be learned from the form of the subject noun phrase *ʔan* as it occurs in the absolutive case form. In other words, the non-focalized subject case marker is missing from such a noun phrase. Besides, unlike the full predicative adjective form, the focus marker morpheme *he-* is missing from the neutral predicative adjective form.

Predicative adjectives display number by reduplicating part of their stem as shown in the following examples.

(10)	gloss	singular	plural
	'is tall'	he- ɗer	he-ɗe-ɗer
	'is black'	he-por	he-po-por
	'is fat'	he-merɗ	he-me-merɗ

The predicative adjectives mark plural by reduplicating their stem initial CV. Similar kinds of reduplication can be observed in verbs. Verbs in this language reduplicate their stem-initial CV to express intensity/iterative actions. This is shown in (11) below by taking the verb piɗɗ- 'buy'.

(11)

SG				
1	he- m-piɗɗ-i	'I bought.'	he-m-**pi**-piɗɗ-i	'I bought again and again.'
2.	he-p-piɗɗi-t-i	'you bought.'	he-p-**pi**-piɗɗi-t-i	'you bought again and again.'
3M.	he- piɗɗ-i	'he bought.'	he-**pi**-piɗɗ-i	'he bought again and again.'
3F.	he-piɗɗi-t-i	'she bought.'	he-**pi**-piɗɗi-t-i	'she bought again and again.'

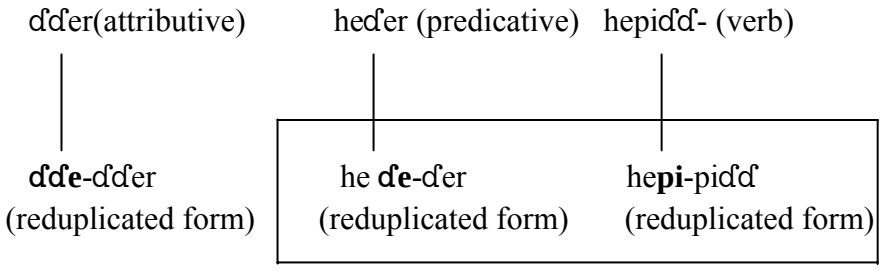
PL

1. he-m-piɗɗi-n-i 'we bought.' he-m-**pi**-piɗɗi-n-i 'we bought again and again.'
2. he-p-piɗɗi-t-en-i 'you bought.' he-p-**pi**-piɗɗi-t-en-i 'you bought again and again'
3.he- piɗɗ-en-i 'they bought.' he-**pi**-piɗɗ-en-i 'they bought again and again.'

The paradigm in (11) shows how verbs copy their stem-initial CV in order to express intensity/iterative actions. When we compare the examples in (10) with (11) we can see that both the predicative adjectives and verbs reduplicate their stem initial CV, on the other hand, the attributive adjectives as we have seen in (3) above reduplicate their stem-initial CCV to form plural. From this we can observe that although both the predicative and attributive adjectives use the strategy of reduplication to show plural, the way they reduplicate their stem is not identical in the sense that the former,

the predicative adjective, has verb-like reduplication as it reduplicates its stem-initial CV, whereas the latter, attributive adjective, reduplicate its stem-initial CCV. This is also another evidence that shows predicative adjectives are verb-like. We can summarize this as follows:

(12)



Still more evidence comes from the consideration of predicate nominals. The predicative nominals have different structure from that of predicative adjectives. To be more concrete, consider the following paradigms.

(13)	full form		neutral form
'I am a farmer.'	pehampayt	pa	pehampayt
'You (sg) are a farmer.'	pehampayt	pa	pehampayt
'He is a farmer.'	pehampayt	pa	pehampayt
'She is a farmer.'	pehampaytet	pa	pehampayt
'We are farmers.'	pehampayya	pa	pehampayt
'You (pl) are farmers.'	pehampayya	pa	pehampayt
'They are farmers.'	pehampayya	pa	pehampayt

Here too, it is focalization that determines which of these two paradigms to choose. When the full form is used it is the predicative noun, which is focused as in (14).

(14) ʔant-ot pehampayt pa
I-NFS farmer FOC
'I AM (A) FARMER.'

Now let us examine example (14) in some detail in order to characterize predicative nouns. If we draw our attention to this example, we can learn that unlike predicative adjectives, which mark focus by prefixing the morpheme *he-*, predicative nouns use an independent morpheme *pa*[3] to

[3] This morpheme is identified as a focus marker in relative clauses in Diraytata (cf. Hayward and Saeed, 1984)

mark focus. The subject pronoun of the full form is always non-focalized subject case marked.

When the neutral form is used it is the subject noun phrase that is focused. Consider the example in (15).

(15) ʔan pehampayt
I-ABS farmer
'I am (a) farmer.'

When we draw attention to the neutral form of the predicative noun above we can observe that the neutral form of the predicative noun requires a subject noun phrase in the absolutive case form *ʔan*. Unlike the full form of the predicative noun, the focus marker morpheme *pa* is missing from the neutral form of predicative noun.

If we compare the predicative adjectives in (7) with the predicative nouns in (13), we can observe the following difference between the two. If we take the full form into consideration, the full form of the predicative adjectives seem different from the full form of the predicative nouns in that the former prefix the focus marker morpheme *he-*, whereas the latter use an independent focus marker morpheme *pa*. Moreover, predicative adjectives reduplicate part of their stem to agree with head nouns in number, whereas predicative nouns attach suffixes to agree with the head nouns in number. Such differences between predicative nouns and predicative adjectives clearly demonstrate that the former has nominal feature. The fact that they lack the prefix focus morpheme *he-* and also lack the reduplicating strategy to agree in number with the subject noun phrase, which is a typical characteristic of verbs in Diraytata may lead us to associate predicative nouns as noun-like.

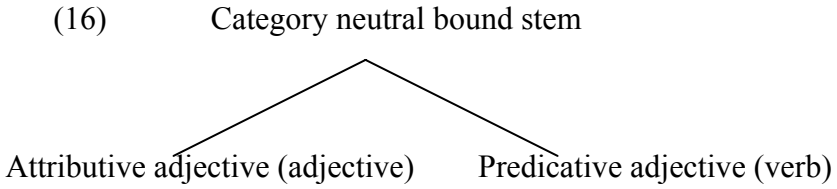
Thus far, we have seen that predicative adjectives, in Diraytata, show a great affinity towards verbs and therefore it seems that they are verb-like. If this is the case, now we shall turn our attention to the relationship that exists between the attributive adjectives and predicative adjectives. By so doing we will try to answer the question posed earlier in connection to why the attributive adjectives uniformly begin by geminate consonants. As to the relationship between attributive adjectives and predicative adjectives it is implausible to argue that the attributive form is derived from the predicative form or vice versa because the two are different. The attributive adjective *ɗɗer,* for example, has the predicative form *heɗer*. If we examine these two forms we can learn that the attributive form *ɗɗer* is composed of the bound

stem *-ɗer* plus the prefix *ɗ-* and the predicative form *heɗer* is also composed of the bound stem - *ɗer* plus the prefix *he-*. This shows that the two forms share the bound stem *-ɗer* in common. Their difference lies in the prefixed elements. That is the attributive form has a prefix *ɗ-* and the predicative has a prefix *he-*. If this is the case then, it is possible to say that both the attributive and the predicative forms are derived from a common bound stem *-ɗer*.

The next question is what is the category of the bound stem *-ɗer*? There are two options. The first option is to consider the bound stem *-ɗer* as verbal and the attributive and the predicative forms are derivatives. In light of this option we cannot treat *-ɗer* as verbal because it does not show verbal features. That is to say, a typical verb among others inflects for person and aspect (as will be discussed in chapter 5). If we take the verb *ɗam-* 'eat', for example, it inflects for person and aspect as *nɗami* where the prefix *n-* is first person marker and the suffix *–i* is perfective aspect marker. However, the bound form *-ɗer* cannot inflect for person and aspect as **nɗeri* is ill-formed. This clearly shows the bound form *-ɗer* is not verbal.

The second option is to consider the bound stem *-ɗer* as category neutral, that the attributive form is an adjective and that the predicative form is a verb. The treatment of predicate adjective as a verb seems well supported from the discussion we have made on focus, reduplication and predicate nominals. In light of this it seems reasonable to argue that the bound stem *-ɗer* is categorially neutral and both the attributive and the predicative forms are derived from this common source. If this line of argument is plausible, then, we also say that what we have in Diraytata is a bound stem, which is categorially unspecified both for attributive and predicative functions. It is from this unspecified bound stem that both the attributive and the predicative forms are derived by attaching affixes. This relation can be represented as follows:

(16)



The rule that derives attributive adjective from the base can be stated as, double the initial consonant of the bound stem in order to get the corresponding attributive form. By the same token, the predicative adjective is derived from the same stem by attaching the prefix *he-*. What does this tells us? It tells us that in Diraytata what we have is a derived attributive adjective that is derived from categorially unspecified bound stem.

From the foregoing discussion it is plausible to argue that there is a category adjective in Diraytata that can be derived from a categorially unspecified bound stem. This argument, however, goes contrary to what has been claimed by Banti (1986) about adjectives in East Cushitic. In this article he argues that there is no adjective in East Cushitic group in general. According to him what we have in these languages is 'adjectival' words, which belong either to the category of nouns or verbs. The study was mainly based on the two best-known languages, Somali and Oromo and he extends his claim to the languages belonging to East Cushitic group in general including Diraytata. However, from the facts we have seen so far about adjectives in Diraytata, Banti's claim seems too strong and hence cannot be applicable to Diraytata. We, therefore, claim that the category adjective exists in Diraytata and this category subsumes derived attributive adjectives.

4.4- Derivation

In Diraytata, adjectives can be derived from nouns by attaching the derivational affix morpheme either *–alayt* or *-olayt*. Consider the following examples.

(17) Noun	Gloss	Adjective	Gloss
ʔutet	'mountain'	ʔutetolayt	'mountainous'
karɗa	'stomach'	karɗalayt	'voracious'
kap	'mouth'	kapalayt	'talkative'
ɗaaka	'stone'	ɗaakolayt	'stony/rocky'
č'ok'k'a	'mud'	č'ok'k'olayt	'muddy'
hak'a	'water'	hak'olayt	'watery'
k'unɗa	'fruit'	k'unɗolayt	'fruitful'

As shown in (17) a few adjectives in Diraytata can be derived from nouns by suffixation of the adjectivizer morpheme either *–olayt* or *–alayt*. The alternation of the vowels in *-olayt* and *–alayt* is inexplicable because the environment in which they occur is not phonologically conditioned. Besides, combining two different lexical elements can also form adjectives. This process is, however, not productive. Consider the following examples.

18 a) ʔinkot / ʔappa sayɗaa ‘crying’
mother / father crying

b) pissa innayk’ ‘ugly’
colour useless

c) kap + palɗ → kappalɗ ‘wide mouth’
mouth wide

The examples in (18) are compound adjectives. As mentioned above compounding is not a productive process in Diraytata.

4.5 Summary

In this chapter we have dealt with the behaviour of adjectives in Diraytata. In section 4.2, we have discussed attributive adjectives and their inflections. We have said that attributive adjectives inflect for gender and number but not for case and definiteness. Attributive adjectives show feminine gender by suffixing the morpheme *–at*. Reduplicating the initial *CCV* part of their stems indicates number on attributive adjectives.

In section 4.3, we have dealt with predicative adjectives. The predicative adjectives in Diraytata occur in clause final position. Such adjectives are verb-like in the sense that they behave more like verbs than adjectives. The evidence for this comes from the consideration of focus, reduplication and predicate nominals. Comparison of predicative adjectives with attributive adjectives shows that the two forms are derived from a common source, which is a bound stem. From this stem attributive adjectives are derived by doubling the initial consonant of the stem and the predicative adjectives by prefixing the morpheme *he-*. The attributive adjectives are adjectives whereas the predicative adjectives are verbs. The presence of derived attributive adjectives shows that the category adjective exists in Diraytata.

In section 4.4, we have seen adjectives derived from nouns. We have also seen that there are a few compound adjectives that are derived by combining two words. This process is, however, not productive in Diraytata.

Chapter 5

Verb Morphology

5.1 Introduction

In this chapter the verb morphology of Diraytata will be discussed. We will describe the various affixes that co-occur with verbs in the language under investigation.

The chapter is divided into two main sections. The first section describes inflections whereas the second section describes derivations. In what follows we will take up each in turn.

5.2 Inflections

In Diraytata, a verb can inflect for different grammatical categories such as for agreement (i.e. for person, number and gender), aspect and mood.

5.2.1 Agreement

Agreement is a collection of nominal features such as for gender, number and person. Such features in Diraytata identify a subject NP, and appear on a verb. In Diraytata a verb shows agreement with a subject NP only in the sense that it does not show agreement with object NPs.

5.2.1.1 Person

In Diraytata, a verb distinguishes two types of person. They are, namely, first person, and second person. The first person is marked by the suffix morpheme *–h* in the imperfective and by the prefix morpheme *n-* in the perfective paradigm. The second person is marked by the discontinuous suffix morpheme *-h…t* in the imperfective and by the circumfix morpheme *C*[1]*…t* in the perfective paradigm. On the other hand, third person is morphologically marked neither in the perfective nor in the imperfective paradigms. The following table may show the person markers both in the imperfective and perfective paradigms.

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[1] C refers to geminate of a stem initial consonant.

Person	Imperfective	Perfective
1	-h	n-
2	-h…t	C…t
3	-	-

Table 4 Person markers

5.2.1.2 Number

Number is another feature of agreement, which can be indicated by suffixing a plural marker morpheme on a verb. The plural marker is always a suffix attached to a verb. Thus, attaching the morpheme *–n* to a verb, marks first person plural both in the imperfective and perfective paradigms. Affixing the plural morpheme *–an* to a verb, marks both second and third person plurals in the imperfective paradigm and suffixing *–en* marks both second and third person plurals in the perfective. This is shown in Table 5 below.

Number	Imperfective	Perfecive
1 PL	-n	-n
2 PL	-an	-en
3 PL	-an	-en

Table 5 Number markers

The paradigms in (1) below illustrate how the person and number markers co-occur in sentences.

5.2.1.3 Gender

In Diraytata, the verb morphology marks gender on the third person feminine singular form, by attaching the feminine gender marker morpheme *–t* both in the imperfective and perfective paradigms. The third person masculine pronoun is unmarked in both verb conjugations.

As we have said earlier, agreement is a collection of nominal features for person, number and gender markers. In order to see the interaction of these features both in the imperfective and perfective paradigms, we shall illustrate by taking the verb piɗɗ- ‘buy’ as shown below.

(1) a. Person	Imperfective	Gloss
SG 1	piɗɗi[2]-h-in buy-1-IPFV	'I (will)[3] buy'
2	piɗɗi-h-in-t buy-2-IPFV-2	'You (SG) (will) buy'
3 M	piɗɗ-in buy-IPFV	'He buys /will buy.'
3 F	piɗɗ-in-t buy-IPFV-3FSG	'She buys/ will buy.'
PL 1	piɗɗi-h-in-n buy-1-IPFV-PL	'We (will) buy'
2	piɗɗi-h-in-t-an buy-2-IPFV-2-PL	'You (PL) (will) buy.'
3	piɗɗ-in-an buy-IPFV-PL	'They (will) buy.'

b. Person	Perfective	Gloss
SG 1	he-m-piɗɗ-i FOC-1-buy-PRF	'I bought.'
2	he-p-piɗɗi-t-i FOC-2-buy-2-PRF	'You (SG) bought.'
3 M	he-piɗɗ-i FOC-buy-PRF	'He bought.'
3 F	he-piɗɗi-t-i FOC-buy-3FSG-PRF	'She bought.'
PL 1	he-m-piɗɗi-n-i FOC-1-buy-PL-PRF	'We bought.'
2	he-p-piɗɗi-t-en-i FOC-2-buy-2-PL-PRF	'You (PL) bought.'
3	he-piɗɗ-en-i FOC-buy-PL-PRF	'They bought.'

[2] Readers are reminded of note 2 of chapter 2 in reading the data.
[3] Diraytata does not distinguish between present and future imperfectives (for the details see section 5.2.2 of this chapter).

As is apparent from the imperfective paradigm (1a) above, all the person markers are suffixes in the sense that they occur following the verb stem *piɗɗ-* 'buy'. If, however, we draw attention to the perfective paradigm (1b) above, the person markers occur preceding the verb stem. For example, the first person marker morpheme *n-* is a prefix morpheme, which occurs preceding the verb stem *piɗɗ-* 'buy'. By the same token, the second person marker is a discontinuous morpheme with the pattern *p…t*, where *p* is a prefix and *–t* is a suffix. The presence of a prefixed person markers on a verb is, however, not unique to Diraytata. Similar phenomena have been observed in some Cushitic languages closely related to Diraytata such as Konso (Black, 1973b and Sim, 1977) and Gawwada (Geberew, 2003). The following tables summarize the agreement markers in the paradigms (1) above.

	Imperfective				
Person	Verb stem	Person marker	Imperfectve marker	Gender marker	Number marker
SG 1	piɗɗ-	-h	-in	-	-
2	piɗɗ-	-h…t	-in	-	-
3M	piɗɗ-	-	-in	-	-
F	piɗɗ-	-	-in	-t	-
PL 1	piɗɗ-	-h	- in	-	-n
2	piɗɗ-	-h…t	-in	-	-an
3	piɗɗ-	-	-in	-	-an

Table 6 Summary of the agreement markers in the imperfective paradigm.

	Perfective						
Person	Focus marker	Person marker	Verb stem	Person marker	Number marker	Gender marker	Perfect -ive marker
SG 1	he-	n-	piɗɗ-	-	-	-	-i
2	he-	p-	piɗɗ-	-t	-	-	-i
3M	he-	-	piɗɗ-	-	-	-	-i
3F	he-	-	piɗɗ-	-	-	-t	-i
PL 1	he-	n-	piɗɗ-	-	-n	-	-i
2	he-	p-	piɗɗ-	-t	-en	-	-i
3	he-	-	piɗɗ-	-	-en	-	-i

Table 7 Summary of the agreement markers in the perfective paradigm

Before we close this section, it seems necessary to discuss in some detail the status of agreement in Diraytata. For the sake of exposition let us first consider the examples in (2) below.

(2) a. ʔan-tot he-ŋ[4]-an-i
I-NFS FOC-1-go-PRF
'I WENT.'

b.* ʔan-tot ʔan
I-NFS go

c. he-ŋ-an-i
FOC-1-go-PRF
'(I) WENT.'

As is apparent from the examples in (2), Diraytata seems to have obligatory subject-verb agreement[5] in the sense that in a sentence a verb must agree with its corresponding subject NP in number, person and gender, and this is indicated by bound affixes attached to a verb. In (2a) the verb has all the bound affixes which are necessary to agree with the corresponding subject NP, whereas in (2b) the verb lacks such bound affixes to agree with its corresponding subject NP. That is why example (2a) is well-formed and (2b) is ill-formed. Thus, the nominal bound affixes on a verb behave like a grammatical agreement marker. If, however, we consider the example in (2c), we can learn that in such a structure there is no overt syntactic subject NP as such. In spite of that (2c) is well-formed and it has the same interpretation as the sentence in (2a). This state of affairs is referred to in the

[4] In Diraytata when the sequence of **nʔ** occur together they coalesce in to ŋ (see chapter 1).

[5] Except that when the subject is focalized. In such cases the verb occurs in its neutral form without attaching any bound nominal affixes as shown below.

i a. ʔan ʔan
I:ABS go
'I went'
b. * ʔan
go

As shown in (ia) both the subject noun phrase and the verb have the same form. This is because in Diraytata when the subject is focalized it always occurs in the absolutive case form but not in the non-focalized subject case. The verb also occurs in the neutral form without agreement, focus and aspect markers. In such cases it is not possible to omit the subject noun phrase. This can be learned from the ungrammaticality of example (ib).

linguistic literature as pro-drop[6] or null-subject. Languages that exhibit such features are known as pro-drop languages or null-subject languages. Diraytata is, therefore, one of the pro-drop languages because as shown in (2c) the verb can be used as a complete sentence without the subject pronoun.

In LFG (cf. Bresnan, 2001) a null-subject or pro-drop is not represented at the level of constituent structure (c-structure) but on functional structure (f-structure). As a result the theory does not accept empty categories such as *pro* (or small pro). LFG identifies two types of bound affixes, namely, grammatical agreement and pronominal inflection (or pronoun incorporation). The crucial difference between the two lies in the fact that the former constrain what the feature of a subject NP can be and hence, as we shall see shortly, it does not contribute to build a subject f-structure. On the other hand, the latter, pronoun incorporation, completely specifies the pronominal f-structure and therefore, it pre-empts the occurrence of any

[6] Pro-drop in LFG refers to a situation in which a pronominal argument is functionally specified by a predicate (or head). This brings about the absence of a syntactic pronominal NP or DP from the structure. In transformational grammar, particularly in Government and Binding Theory, (cf. Chomsky, 1982) the null-subject or pro-drop is treated by positing an empty element called *pro* (read as small *pro*) as in examples (i).

(i) a ʔan-tot he-ŋ-an-i
I-NFS FOC-1-go-PRF
'I WENT.'

b. (e) he-ŋ-an-i
FOC-1-go-PRF
'(I) WENT.'

The empty element (e) in (ib) is treated as *pro*. This *pro* can be replaced by an overt pronoun *ʔantot* 'I', as in example (ia). It was further assumed that this *pro* has the features of [+ pronominal –anaphoric]. Accordingly, *pro* refers to either a definite pronoun or a pleonastic element. From the foregoing discussion, one can ask questions such as: why after all do we need to posit *pro* and how the content of *pro* is interpreted? The introduction of *pro* in Government and Binding was said to be dictated by two independent principles: the Extended Projection principle and the Θ- Criterion, which are assumed to be part of the Universal Grammar (i.e. which are said to be shared by all natural languages).

Regarding the content of *pro*, Chomsky (1982) proposes that the agreement elements on verbs determine the content of *pro*. As agreement is a collection of features such as for gender, person and number, such features identify a subject NP and appear on verbs in surface structure. Thus, the bound affix *-ŋ-* '1' recovers the content of pro in (ib).

overt subject pronoun in a constituent structure (cf. Bresnan 2001) as in (2c) above.

Now let us consider grammatical agreement. To make our discussion more concrete example (2a) above is here repeated as (3) below.

(3) ʔan-tot he-ŋ-an-i
I-NFS FOC-1-go-PRF
'I WENT.'

In (3), *ʔantot* is the subject pronoun and *heŋani* is the predicate. If we draw our attention to the subject pronoun *ʔantot* we can see that its functional specification subsumes its semantic feature (or PRED value) along with the binding features, which restricts the range of possible antecedents, the agreement features (i.e. person and number markers) and case marker. The following (4) is the functional equation for the syntactic subject pronoun, *ʔantot* 'I' in (3).

(4) ʔantot : N (↑ PRED) = 'PROi'
(↑ PERS) = 1
(↑NUM) = SG
(↑CASE) = NFS

By the same token the predicate like *heŋani* in (3) above would have the functional equation in (5).

(5) heŋani: V (↑PRED) = 'ʔan <(↑SUBJ)>'
(↑ASP) = PRF
(↑VFOC) = +
((↑SUBJ PRED) = 'PRO')
(↑SUBJ PERS) $=_c$ 1
(↑SUBJ NUM) $=_c$ SG
(↑SUBJ CASE) $=_c$ NFS

In (5), all the equations are not identical in the sense that some of the equations are *defining* equations and some are *constraining* equations. A constraining equation, in LFG, differs from a defining equation in that the former has a subscript *c* after the equal sign (i.e. $=_c$) but the latter does not.

The important difference between defining and constraining equations is the fact that the former build f-structure whereas the latter, constraining

equation, constrain what the feature of an element can be, in this particular case it requires the subject pronoun to be first person singular. Put differently, constraining equations do not build the subject f-structure but they just check it (cf. Bresnan 2001).

Thus, in (5) above the last three equations are constraining equations as they have the subscript *c* after the equal sign. Hence, the values for the attributes (SUBJ PERS), (SUBJ NUM) and (SUBJ CASE) add nothing to the f-structure, they just check whether or not the subject pronoun has those features. Besides in (5) the agreement inflection bound to a verb cannot specify the semantic feature (i.e. PRED value) for its syntactic subject pronoun because such specification is already made by the f-structure of the overt subject pronoun in (4) and if it is repeated again on the f-structure of the predicate in (5), the functional structure will be ruled out as it violates the Consistency Condition (see chapter 2).

When the subject pronoun *ʔantot* in (4) combines, with the verb *heŋani* in (5) we will get the f-structure in (6) below.

(6)
$$\begin{bmatrix} \textit{PRED} & \text{'ʔan <(SUBJ)>'} \\ \text{ASP} & \text{PRF} \\ \textit{VFOC} & + \\ \text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'PRO'} \\ \text{PERS} & 1 \\ \text{NUM} & \text{SG} \\ \text{CASE} & \text{NFS} \end{bmatrix} \end{bmatrix}$$

The f-structure in (6) above fulfils all the well-formedness requirements, as it is Coherent, Complete and Consistent.

So far we have been looking at grammatical agreement, now let us turn our attention to the second type of agreement, which is most commonly referred to as pronoun incorporation (or pronominal inflection). For ease of exposition we shall repeat example (2c) above as (7) below.

(7) he-ŋ-an-i
FOC-1-go-PRF
'(I) WENT.'

In (7) the predicate *heŋani* is used as a complete sentence without an overt syntactic subject pronoun and hence the description of such verb must be different from the one in (5) in that the bound affixes on the verb build the subject f-structure and don't merely check it as discussed in connection to (5) above. In other words, the predicate in (7) has the pronoun built in, which can be a mere case of pronoun incorporation. Bresnan (2001: 144) remarks, "The functional specification of a pronoun is incorporated with the functional specifications of the stem to which the morpheme is bound." Thus, the predicate in (7) has the functional equation in (8) below.

(8) heŋani: V (↑PRED) = 'ʔan <(↑SUBJ)>'
(↑ASP) = PRF
(↑VFOC) = +
(↑SUBJ PRED) = 'PROi'
(↑SUBJ PERS) = 1
(↑SUBJ NUM) = SG
(↑SUBJ CASE) = NFS

As can be observed from the functional equations in (8), all the equations are defining equations and there is no constraining equation. This situation implies that the agreement features build the subject pronominal f-structure and hence it prevents the occurrence of an overt syntactic subject pronoun at c-structure so as not to violate the Consistency Condition which states that each instantiation of a semantic feature (PRED value) must be unique. In connection to this point Bresnan (2001: 145) says: "the PRED attribute, as a semantic feature, is uniquely individuated with each instantiation, as represented by the subscripted 'PRO_i'."

From the foregoing discussion on grammatical agreement vs. pronoun incorporation, one can identify the following two major differences. The first difference has to do with the functional equations. That is to say that all the equations in pronoun incorporation are defining equations in the sense that they can build the subject f-structure. On the other hand, in grammatical agreement all the equations are constraining equations in that they do not build the subject f-structure but they check whether or not the subject has those agreement features.

The second difference between the two relates to the fact that in pronoun incorporation the bound affix on a verb specifies the PRED value for the subject pronoun. In other words, the bound affix on a verb supplies the PRED value of a pronoun whereas in grammatical agreement the verb cannot supply the PRED value for the subject pronoun. This situation may lead us to represent the PRED attribute as in (9) below:

(9) a. (↑ PRED) = 'PROi'
b. ((↑ PRED) = 'PROi')

The representations in (9) state that in Diraytata the subject pronoun PRED value may or may not be supplied by the bound affix of a predicate. The PRED value of the subject pronoun is supplied by the bound affix on a predicate insofar as there is no overt subject pronoun as in example (2c). In such cases the predicate introduces the equation (↑ PRED) = 'PROi' as in (9a). In contrast, when there is overt subject pronoun, the PRED value of the subject pronoun cannot be supplied by the bound affix on a predicate as in example (2a). The predicate optionally introduces the equation ((↑ PRED) = 'PROi') as shown in (9b), which means that the PRED value for the overt subject pronoun comes from the pronoun itself.

So far we have discussed the two types of bound affixes in Diraytata: grammatical agreement and pronominal inflection (or pronoun incorporation). If, however, we consider both the imperfective and the perfective paradigms in example (1) above, we can see that there is no bound affix for the third person masculine singular. This is further illustrated in (10).

(10) a. ʔiyy-at he-ʔan-i
he-NFS FOC-go-PRF
'He WENT.'

b. he-ʔan-i
FOC-go-PRF
'(He) WENT.'

c.* ʔan-tot he-ʔan-i
I-NFS FOC-go-PRF

The sentence (10a) has an overt subject pronoun *ʔiyyat* 'he' and (10b) the subject pronoun *ʔiyyat* is missing. Both sentences (10a) and (10b) would

have the same interpretation. If we consider the internal structure of the predicate *heʔani* in (10b), we see this predicate has no overt bound pronominal affix. The question is from where the PRED value for the subject pronoun can be supplied. It cannot be from the predicate *heʔani* as this predicate has no overt bound pronominal affix. Completeness rules out (10b) because the predicate *heʔani* does not have neither overt subject pronoun nor bound pronominal affixes. However, example (10b) is not ungrammatical as predicted by Completeness. The question is how to explain such facts of Diraytata.

The solution to this problem is to posit a phonetically null third person masculine singular bound affix on the predicate *heʔani*. Thus the phonetically null bound affix supplies the PRED value for the subject pronoun in (10b) the case of pronoun incorporation. Similarly, the null bound affix in (10a) and in (10c) check the feature of the subject pronoun, as the case of grammatical agreement.

The supporting evidence for positing a null bound affix comes from the consideration of example (10c). In (10c) the sentence has an overt first person singular subject *ʔantot* 'I' and the predicate *heʔani*. In this sentence the PRED value for the subject pronoun comes from the overt first person singular subject pronoun *ʔantot* by so doing it satisfies the Completeness Condition. The sentence in (10c) is ungrammatical. The ungrammaticality of (10c) can be accounted for in terms of violation of the Consistency Condition. This is because in (10c) the subject has a first person singular agreement feature and the null bound affix on the predicate *heʔani* has a third person masculine singular agreement feature. The subject agreement features do not match with the null bound agreement features on the predicate *heʔani* and hence Consistency rules out (10c). In light of this claim the sentences in (10) will have the c-structure representations in (11).

(11) a. ʔiyy-at he-ʔan-ø-i
he-NFS FOC-go-3MSG-PRF
'He WENT.'

b. he-ʔan-ø-i
FOC-go-3MSG-PRF
'(He) WENT.'

c.* ʔan-tot he-ʔan-ø-i
I-NFS FOC-go-3MSG-PRF

5.2.2 Aspect

The verb morphology of Diraytata makes a distinction between perfective and imperfective aspects. Diraytata does not seem to have an elaborated tense system, in the sense that it can only distinguish between past and non-past. The past tense directly coincides with the perfective aspect and refers to completed actions only. By the same token, the non-past coincides with the imperfective aspect and refers to actions in present or future context.

The fact that the language does not have a tense marker and the matching up of the past with the perfective aspect, and the non-past with imperfective aspect, may lead us to conclude that Diraytata has an aspect marking system. This is, however, not unique to Diraytata, similar cases have been reported in some Cushitic languages closely related to Diraytata such as Desenech (Sasse, 1976), Afar (Bliese, 1976 and Zaborski 1978), Burji and Sidama (Abebe, 1985), and Oromo (Baye, 1986).

The aspect markers are suffixed to a verb. In what follows we shall take up each of the types along with their negative forms.

5.2.2.1 Perfective

The perfective aspect, in Diraytata, expresses complete actions or events. It is mainly marked by the morpheme *–i* as illustrated in (12).

(12) a. ʔan-tot he-n-ɗam-i
I-NFS FOC-1-eat-PRF
'I ATE.'

b. ʔit-i he-ɗan-t-i
she-NFS FOC-eat-3FSG-PRF
'She ATE.'

Both examples here express completed actions in the sense that the action of eating has been completed but it does not say anything about the time when the eating was performed. In both cases the perfective marker morpheme *–i* occurs as a final element in the predicate. This is, however, not the whole story about the perfective aspect in Diraytata. The perfective

verb in Diraytata comes into three paradigmatic sets: the neutral, reduced and full paradigm (for the details see chapter 3, section 3.2).

5.2.2.2 Imperfective

The imperfective aspect, in Diraytata, is marked by the morpheme *–in*. As Diraytata does not distinguish between present and future imperfectives, the same morpheme *–in* is used for both. This can be observed from the following examples.

(13) a. ʔan-tot ɗam-h-in
I-NFS eat-1-IPFV
'I (will) EAT.'

b. ʔit-i ɗam-in-t
she-NFS eat-IPFV-3FSG
'She EATS/ will EAT.'

In (13), the sentences have both present and future interpretations. In (13a), for example, *ʔantot ɗamhin* means 'I EAT' or 'I will EAT'. By the same token, in (13b) *ʔiti ɗamint* has the interpretation 'She EATS' or 'She will EAT'. For further information about the imperfective paradigm see example (1a) above and (15) below.

Unlike the perfective paradigm, which appears in three paradigmatic sets, the imperfective paradigm in Diraytata appears in two paradigmatic sets. They are, namely, the reduced and full paradigms. This can be illustrated by taking the verb ɗam- 'eat' in (14).

(14)	Reduced	Full
SG		
1	ɗamin	ɗamhin
2	«	ɗamhint
3m.	«	ɗamin
		ɗamint
PL		
1	«	ɗamhinn
2	«	ɗamhintan
3	«	ɗaminan

As is apparent from (14) above, the reduced form of the imperfective paradigm is invariable across all the persons, just as in the neutral form of the perfective paradigm (as discussed in chapter 3, section 3.2). The reduced form of the imperfective paradigm takes aspect markers whereas the latter, the neutral form does not. The reduced form of the imperfective paradigm is used only when the subject noun phrase is focalized. In such a sentence the presence of the subject noun phrase is obligatory and hence its absence in the sentence would result in ungrammaticality as the following examples illustrate.

(15) a. ʔan ɗam-in
I.ABS eat-IPFV
'I (will) eat.'

b.* ɗam-in
eat-IPFV

c.* ʔan-tot ɗam-in
I-NFS eat-IPFV

In the above examples, the sentence in (15a) is well-formed whereas those in (15b,c) are ill-formed. The ill-formedness of (15b) can be accounted for in terms of the absence of the subject noun phrase from the structure. As mentioned above, in such a structure the subject noun phrase is obligatory as it is the focused constituent in the sentence. By the same token, the ungrammaticality of (15c) can be accounted for in terms of the presence of non-focalized subject case marker on the noun phrase. This is because the non-focalized subject case marked noun phrases in Diraytata occur either when the complement phrase is focalized or when the predicate (verb) is focused. In both cases the subject noun phrase is optional as its content is recoverable from the bound agreement markers on a verb. However, when the subject is focalized it is always in the absolutive case but not in the non-focalized subject case and hence dropping the subject noun phrase is impossible without leading the sentence into ungrammaticality.

On the other hand, when the full form is used it is either the predicate or the complement phrase, which is focalized. Consider the following examples.

(16) a. Question- ɗam-h-in-t-ammo?
eat-2-IPFV-2-Q
'Will you EAT?'

Answer- heyye ɗam-h-in
Yes eat-1-IPFV
'Yes, I will EAT.'

b. Question- maana ɗam-h-in-t
what eat-2-IPFV-2
'WHAT will you eat?'

Answer- ʔukukka ɗam-h-in
egg.ABS eat-1-IPFV
'I will eat EGG.'

In (16a), it is the verb, which is focused and such forms occur as a reply to a polar interrogative ('Yes/No') question. By the same token, in (16b) it is the complement phrase, which is focalized. In (16a,b), in both cases the subject noun phrase *ʔantot* is optional. This is partly because it is not the focused constituent and partly because its content can be supplied from the bound agreement elements on the predicate. As a result, it cannot overtly appear in the sentences.

If we compare the focus structure of the perfective paradigm with that of the imperfective, we realize that there is asymmetry between the two. That is to say, as discussed in chapter 3, section 3.2, in the perfective paradigm a predicate has three different forms (i.e., neutral, reduced and full) depending on the constituent focused. Accordingly, the neutral form is used when the subject noun phrase is focused, the reduced form is used when the complement phrase is focused, and the full form is used when the verb is focused. However, in the imperfective a verb has only two forms (i.e., reduced and full): the reduced form is used when the subject noun phrase is focused whereas the full form is used either when the complement phrase or the verb is focused. This situation clearly shows the asymmetry between the two paradigms.

5.2.2.3 Negation

In Diraytata, negation is encoded by an independent morpheme *ammi* together with a bound affix *–em* on a verb. The morpheme *ammi* always occurs preceding a verb and the suffix *–em* is suffixed to a verb. The perfective negative conjugations of the verb *ʔuk-* 'drink' are given as illustrative examples in (17).

(17)	Person	Neg. of Perfective	Gloss
SG	1	ammi heŋukem	'I did not drink.'
	2	ammi heʔʔukitem	'You did not drink.'
	3m	ammi heʔukem	'He did not drink.'
	3f	ammi heʔukitem	'She did not drink.'
PL	1	ammi heŋukinem	'We did not drink.'
	2	ammi heʔʔukitenem	'You did not drink.'
	3	ammi heʔukenem	'They did not drink.'

From (17), we observe that the negative form *ammi* and *–em* invariably occur in all persons, regardless of their number. Besides, a close observation of the examples above reveals that when the suffix *–em* is attached to a predicate, the perfective marker *-i* is not realized.

The imperfective negative is also formed by using the negative form *ammi* together with the suffix *–em* on a verb.

5.2.3 Mood

In Diraytata, imperative and optative (jussive) moods are expressed morphologically. In what follows we shall address each of the mood types in turn.

5.2.3.1 Imperative

The imperative, in Diraytata, is encoded by the morphemes *–i* and *–a* for second person singular and plural forms respectively. This is illustrated in the following examples.

(18)	2SG -IMP	2PL-IMP	Gloss
	ʔan-i	ʔan-a	'go!'
	ɗam -i	ɗam -a	'eat!'

In (18), the imperative markers are suffixed to the verb stem.

The negative form of the imperatives in Diraytata is marked by the morpheme *-aɗiy*. This morpheme occurs immediately following the verb stem and preceding the imperative marker. This is observable from the following examples.

(19)	2SG-NEG-IMP	2PL-NEG-IMP	Gloss
	ʔan-aɗiy-i	ʔan-aɗiy-a	'Do not go!'
	ɗam-aɗiy-i	ɗam -aɗiy-a	'Do not eat!'

5.2.3.2 Optative (Jussive)

The optative mood is encoded by the morpheme *–u* for first and third persons both in the singular and plural forms. Consider the examples below.

(20) a.	ʔan-on-u	'let me go'	ɗam-on-u	'let me eat'
	ʔan-on-n-u	'let us go'	ɗam-on-n-u	'let us eat'
b.	ʔan-u	'let him go'	ɗam-u	'let him eat'
	ʔan-t-u	'let her go'	ɗan-t-u	'let her eat'
	ʔan-en-u	'let them go'	ɗam-en-u	'let them eat'

In these examples, the optative marker morpheme *–u* occurs at the final position of the verb following the agreement markers. As can be seen from these examples the optative form is only for first person and third person singular and plural forms. There is no second person optative form, neither in singular nor in plural forms. The imperative and the optative are in complementary distribution with respect to person.

The negative of the optative is formed by attaching the morpheme *-aɗiy* to a predicate just as in the case of negative imperative discussed above. The following are examples.

(21) a.	ʔan-aɗiy-on-u	'let me not go'	ɗam-aɗiy-on-u	'let me not eat'
	ʔan-aɗiy-on-n-u	'let us not go'	ɗam-aɗiy-on-n-u	'let us not eat'
b.	ʔan-aɗiy -u	'let him not go'	ɗam-aɗiy-u	'let him not eat'
	ʔan-aɗit-t-u	'let her not go'	ɗan-aɗit -t-u	'let her not eat'
	ʔan-aɗiy-en-u	'let them not go'	ɗam-aɗiy-en-u	'let them not eat'

When *-aɗiy* is suffixed to a verb with a third person feminine singular form the final consonant of the negative marker *–y* assimilates to the following consonant and it becomes *-t* as shown in (21b) above.

5.3 Derivations

In the preceding section, we have looked at verb inflections. In this section we will consider verb derivations, which include passives, middles and causatives.

5.3.1 Passives

In Diraytata passives are formed from transitive (or ditransitive) verbs by attaching the affix *-am* to the base or active form. This is demonstrated in the following examples.

(22)

Active		Passive	
heɗaw-	'hit'	heɗawam-	'be hit'
heɗam-	'eat'	heɗamam-	'be eaten'
hek'uur-	'cut'	hek'uuram-	'be cut'
heʔikay-	'kill'	heʔikawsam-	'be killed'
heɗih-	'build'	heɗiham-	' be built'

As is apparent from the above examples, Diraytata has a purely morphological passive in the sense that passive is marked only by adding the affix *-am* to the verb, as opposed to English which has a periphrastic passive[7].

Let us consider the passive sentences below.

(23) a i. kussiyy-at ʔit he-ɗaw-i
Kussiyy-NFS she.ABS FOC-hit-PRF
'Kussiyy HIT her.'

ii. kussiyy-at k'oyr he-k'uur-i
Kussiyy- NFS tree.ABS FOC-cut-PRF
'Kussiyy CUT (a) tree.'

b i. ʔit –i (kussiyy-an) he-ɗaw-an-t-i
she- NFS (Kussiyy- by) FOC-hit-PASS-3FSG-PRF
'She WAS HIT (by Kussiyy).'

[7]In English passive requires a special participial form of the main verb and a special auxiliary (be) as shown in (ib):

(i) a. John kissed Mary
b. Mary was kissed by John.

ii) k'oyr-at (kussiyy-an) he-k'uur-am-i
tree- NFS (Kussiyy- by) FOC-cut-PASS-PRF
'(A) tree WAS CUT (by Kussiyy).'

The sentences in (23a) are active sentences and those in (23b) are passive sentences. In comparing (23a) with (23b) we can observe two changes in the assignment of grammatical relations. That is to say, the patient is promoted from direct object in (23a) to subject in (23b), and the agent is demoted from subject in (23a) to optional oblique in (23b).

Passivization does not change the number of semantic arguments (even though passive agents may or may not be overtly expressed in the syntax). Hence one would say that, passivization is basically a re-alignment of grammatical relations that demotes the active agent from subject into passive oblique and promotes the active patient from direct object into passive subject. This can be summarized in (24) below:

(24) a. ɗaw-< agent, patient > Active
'hit' | |
SUBJ OBJ

b. ɗawam- < agent, patient > Passive
| |
(OBL_{ag}) SUBJ

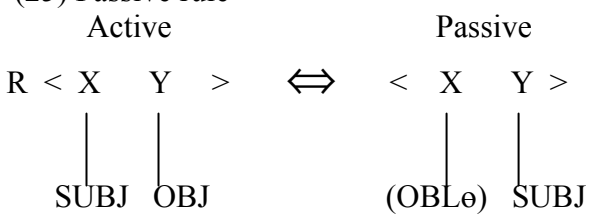
The question is then, how to formalize passive constructions in Diraytata. LFG assumes that passive sentences are special simply because they contain passive verbs. Thus LFG treats passivization as a process that derives passive verbs.

A passive verb, in Diraytata, is different from its corresponding active verb in the following two ways: (1) in its morphological shape. For example, the passive verb *ɗawam-* 'be hit' is different from its corresponding active form *heɗaw-* 'hit' in that the former contains the affix *-am* in addition to the active form *ɗaw-* 'hit'. (2) In its subcategorization in the sense that the active form of the above mentioned verb, *ɗaw-* 'hit' requires agent subject and patient object whereas its corresponding passive form, *ɗawam-* 'be hit' requires patient subject and an optional oblique agent. In other words, the active and the passive form of the verb differ in the way they assign

grammatical relations. We, therefore, do not need special phrase structure rules to derive the active-passive alternation. The point is if passive verbs are available in the lexicon, then the corresponding passive sentences will be generated from them.

It is true that there is a close relationship between active and corresponding passive sentences. This relationship can be reduced to the relationship between active and passive verbs. By taking the active form as a base form one can derive the corresponding passive verb morphologically by applying the following lexical rule (adopted form Bresnan 2001):

(25) Passive rule



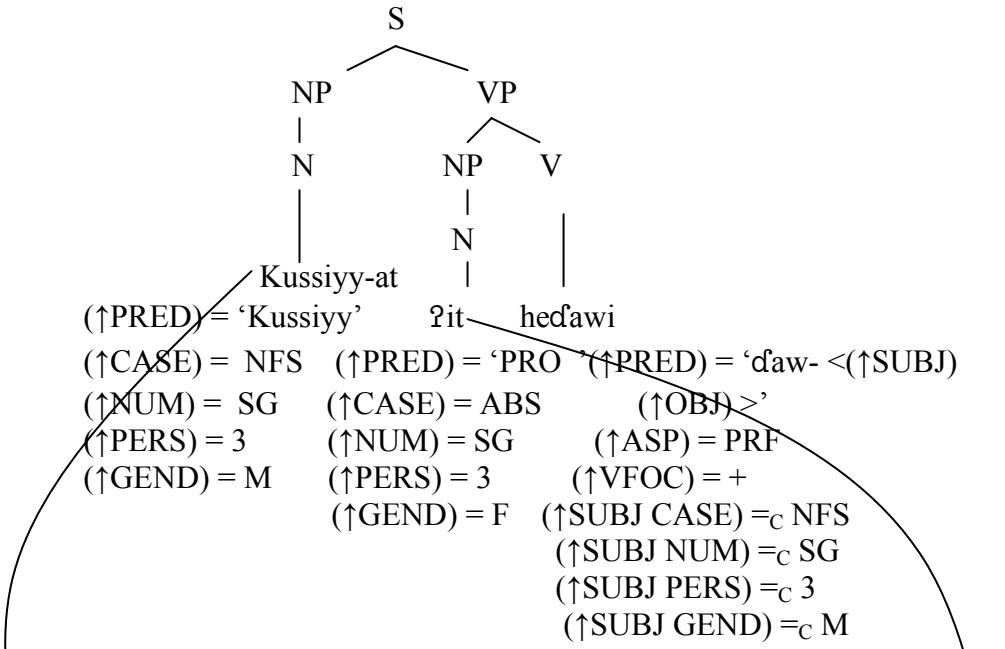
The above lexical rule can be interpreted as follows; the SUBJ of the original lexical entry is to be substituted by an optional (OBLɵ) in the derived lexical entry. By the same token, the OBJ of the original lexical entry is to be substituted by SUBJ in the derived lexical entry. Thus, lexical rules are interpreted as rules, which derive one lexical entry from another. Such rules can also express a regular pattern of relationship between the original lexical entry and the derived lexical entry. According to this analysis both the active verb and its corresponding passive verb are listed separately in the lexicon. And their systematic relationship will be expressed by the passive rule. As a result, the active verb *ɗaw-* 'hit' and its passive counter part *ɗawam-* 'be hit' in Diraytata have two different lexical entries as in (26).

(26) a. ɗaw- V (↑PRED) = 'ɗaw- < (↑SUBJ) (↑OBJ) >'
b. ɗawam- V (↑PRED) = 'ɗawam- < ((↑OBLɵ)) (↑SUBJ) >'

In the environment where (26a) is selected, the Completeness Condition demands the presence of both SUBJ and OBJ and the Coherence Condition exclude an OBLɵ. By the same token, in the syntactic environment where (26b) is selected, the Completeness Condition demands the presence of SUBJ and the Coherence Condition avoids OBJ. We, therefore, have two different c-structures for the above alternation of semantic forms. This is shown in example (27).

(27) a. kussiyy-at ʔit he-ɗaw-i
kussiyy- NFS she. ABS FOC-hit-PRF
'Kussiyy HIT her.'

c-structure

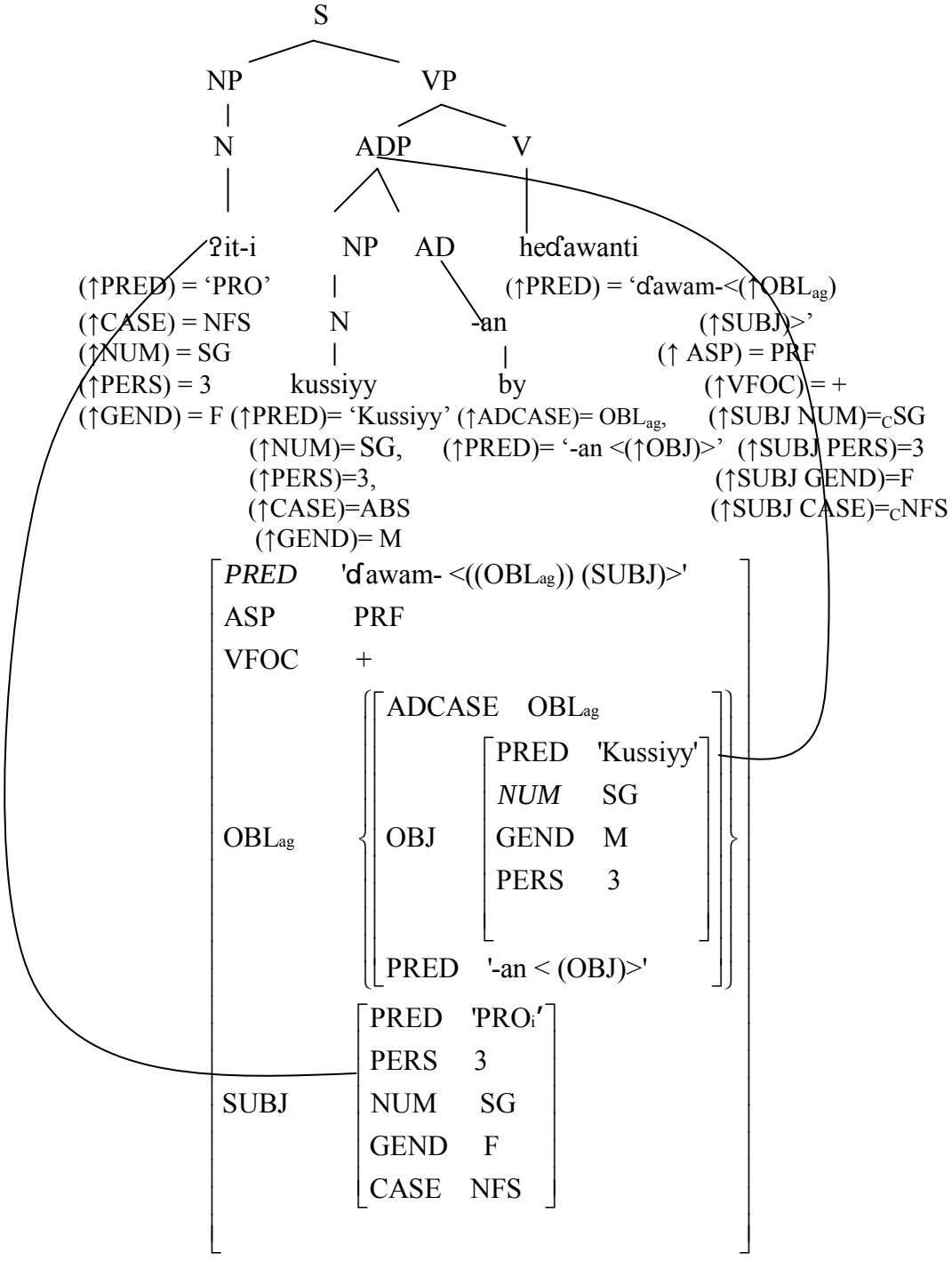


f-structure

$$\begin{bmatrix} PRED & \text{'heɗawi <(SUBJ) (OBJ) >'} \\ ASP & PRF \\ VFOC & + \\ SUBJ & \begin{bmatrix} PRED & \text{'Kussiyy'} \\ CASE & NFS \\ NUM & SG \\ PERS & 3 \\ GEND & M \end{bmatrix} \\ OBJ & \begin{bmatrix} PRED & \text{'PRO}_i\text{'} \\ PERS & 3 \\ NUM & SG \\ GEND & F \\ FOC & - \end{bmatrix} \end{bmatrix}$$

b. ʔit-i kussiyy- an he-ɗaw-an-t-i
she- NFS kussiyy-by FOC-hit-PASS-3FSG-PRF
'She WAS HIT by Kussiyy.

c-structure



In the above examples, (27a) is the c- and the f-structures of the active sentence, whereas (27b) is the c- and the f-structures of the corresponding passive sentence. If we closely observe these structures we can see that in (27a) *Kussiyy* is the subject and *ʔit* 'she' is the object of the active verb *heɗaw-* 'hit', but in (27b) the subject *Kussiyy* became an optional oblique and the object ʔit 'she' became a subject and the transitive verb *heɗawi* 'hit' became the passive verb *heɗawam-* 'was hit'. Since the passive verb *heɗawam-* 'be hit' is available in the lexicon, the passive sentence will be automatically generated from it as exemplified in (27b) above.

From the preceding discussion we, therefore, conclude that passivization in Diraytata is purely a lexical process. The active verb and the passive verb have two different lexical entries in the lexicon. As long as a passive verb is available in the lexicon, a passive sentence will be automatically generated from it. Moreover, the passive lexical rule can take care of the relationship between the two lexical entries. Handling relation changes (such as passive) by lexical redundancy rules was the early design of LFG (cf. Bresnan 1982b). It was found that such a rule-based theory are explanatory weak and replaced by a new, more general monotonic theory of relation changes called Lexical Mapping Theory (for the details see chapter 9, section 9.3).

Before we close our discussion on passives, it seems worth mentioning about the passives of ditransitive verbs as they behave a little bit differently from monotransitive verbs. Consider the following examples.

(28) a. kussiyy-at kittonnayyu-s mat'af he-ɗaay-i
kussiyy- NFS kittonnayyu-DAT book.ABS FOC-give-PRF
'Kussiyy GAVE a book to Kittonnayyu.'

b. kittonnayyu-t kussiyy-an mat'af he-ɗaas-an-t-i
kittonnayyu-NFS kussiyy-by book.ABS FOC-give-PASS-3FSG-PRF
' Kittonnayyu WAS GIVEN a book by Kussiyy.'

c. mat'af-at kittonnayyu-s kussiyy-an he-ɗaas-am-i
book- NFS kittonnayyu- DAT kussiyy-by FOC-give-PASS-PRF
'(A) book WAS GIVEN to Kittonnayyu by Kussiyy.'

In the above examples, (28a) is the active sentence whereas (28b,c) are its passive counterparts. If we pay particular attention to the example in (28a) we can see that, *Kussiyy* is the subject, *Kittonnayyu* is the object recipient,

mat'af is the object theme and *ɗ'aay-* 'give' is the verb. The verb *ɗ'aay-* is a ditransitve verb as it subcategorises three arguments. When this verb is passivized it has two forms as shown in examples (28b,c). If we consider example (28b) we can learn that in such sentence the recipient object *Kittonnayyu* is promoted from object in (28a) to subject in (28b), the agent *Kussiyy* is demoted from subject in (28a) to oblique in (28b), whereas the theme *mat'af* remains as an object in both sentences. By the same token, in (28c) the theme *mat'af* is promoted from object in (28a) to subject in (28c), the agent *Kussiyy* is demoted from subject in (28a) to oblique in (28c), whereas the object recipient *Kittonnayyu* remains the same in both sentences. This can be summarized in (29).

(29) a. ɗ'aay- < agent, recipient , theme, > Active

SUBJ OBJ OBJθ

b. ɗ'aasam- < agent, recipient, theme, > Passive

(OBL_{ag}) SUBJ OBJ

c. ɗ'aasam- < agent, recipient, theme, > Passive

(OBL_{ag}) OBJ SUBJ

It is apparent from the above summary that ditransitive verbs in Diraytata have two passive forms with respect to subcategorization. If we compare the passive verb in (29b) with (29c) we can observe that though the two verbs have identical morphological shape, they differ in their subcategorization. That is, in (29b) the passive verb *ɗ'aasam-* subcategorizes recipient subject, theme object and optional oblique agent. In the same way, in (29c) the passive verb *ɗ'aasam-* subcategorizes: theme subject, recipient object and optional oblique agent. This situation seems to suggest that the passives of ditransitive verbs have the following disjunct subcategorization frame.

(30) ɗ'aasam- V $\left\{ \begin{array}{l} \text{' ɗ'aasam- <((} \uparrow OBL_{ag}\text{))(}\uparrow SUBJ\text{) (} \uparrow \text{OBJ)>' |} \\ \text{' ɗ'aasam- <((} \uparrow OBL_{ag}\text{))(}\uparrow OBJ\text{) (} \uparrow \text{SUBJ)>'} \end{array} \right\}$

From the foregoing discussion on passives of ditransitive verbs we, therefore, conclude that in Diraytata ditransitive verbs have the potential to passivize either of the object NPs. In the LFG literature languages such as Diraytata that can passivize either of the object NPs in double object constructions are referred to by the name *symmetrical object languages* (cf. Bresnan and Moshi 1990). We will discuss the mapping relations in ditransitive passive constructions in chapter 9.

5.3.2 Middles

Middle verbs are formed by attaching the morpheme *-aɗ*, to the base form. Middle constructions, in Diraytata, are difficult to precisely characterize. This is because, as we will see below middles behave in different ways.

When the affix *-aɗ* is attached to intransitive verbs, it shows that the subject is the experiencer of the state of being specified by the verb. This can be inferred from the following examples.

(31) a. kussiyy-at he-ɗer-aɗ-i
Kussiyy-NFS FOC-tall-MID-PRF
'Kussiyy GOT TALL.'

b. kussiyy-at he-por-aɗ-i
Kussiyy-NFS FOC-black-MID-PRF
'Kussiyy GOT BLACK.'

It is apparent from the above examples that both in (31a) and (31b) *Kussiyy* is the experiencer or undergoer of the state of being "tall" and "black".

Besides, when the affix *-aɗ* is suffixed to transitive verbs, it shows that something is done for the benefit of the agent subject. Consider the examples in (32).

(32) a. kussiyy-at kaman he-piɗɗ-i
Kussiyy-NFS cow.ABS FOC-buy-PRF
'Kussiyy BOUGHT (a) cow.'

b. kussiyy-at kaman he-piɗɗ-aɗ-i
Kussiyy - NFS cow.ABS FOC-buy-MID-PRF
'Kussiyy BOUGHT (a) cow for himself.'

c.* kussiyy-at kittonnayyu-s kaman he-piɗɗ-aɗ-i
Kussiyy - NFS kittonnayy-DAT cow.ABS FOC-buy-MID-PRF

d. kussiyy-at kittonnayyu-s kaman he-piɗɗ-i
Kussiyy-NFS kittonnayy-DAT cow.ABS FOC-buy-PRF
'Kussiyy BOUGHT (a) cow for Kittonnayyu.'

e. kussiyy-at iss-as kaman he-piɗɗ-aɗ-i
Kussiyy-NFS self-DAT cow.ABS FOC-buy-MID-PRF
'Kussiyy BOUGHT (a) cow for himself.'

A close inspection of the above examples reveals that both middles and transitive verbs can be characterized by having benefactive object (OBJ) in addition to the object theme (OBJθ) complement. Though middles and transitive verbs subcategorize object complements, the two are different with respect to the type of benefactive object complements they select. That is to say, transitive verbs can select any object benefactive complement whereas middles do not. This can be inferred from the ungrammaticality of (32c). If we pay attention to (32a) from such a sentence we can learn that '*Kussiyy* bought (a) cow' but such a sentence does not tell us that for whom *Kussiyy* bought (a) cow. Whereas in (32b) it is clear that *Kussiyy* bought (a) cow for himself. This means that the subject is the beneficiary. Such interpretation is, however, possible only if the morpheme *-aɗ* is suffixed on a verb. This can be taken as the main reason for the ungrammaticality of the sentence in (32c). By the same token, (32e) is well-formed as the agent (subject) *Kussiyy* and the object argument showing the beneficiary, match in reference. From this we can generalize that whenever middle verbs such as *piɗɗaɗ-* 'buy for oneself' occur in a sentence the benefactive object argument must be co-referential with the agent (subject) in order for the sentence to be grammatical. This implies that middles have no effect on subcategorization as compared to their non-middle counterparts. This can be summarized in (33) below.

(33) a. piɗɗ- < agent, benefactive, theme, > transitive
| | |
SUBJ OBJ OBJθ

b. piɗɗaɗ- < agent, benefactive, theme, > middle
| | |
SUBJ OBJ OBJθ

As is apparent from the above summary, middles and transitives have the same form with respect to subcategorization. Their difference lies in the type of the benefative objects. In (33a) the benefactive object may or may not be co-referential with the agent (subject), whereas in (33b) the object benefactive must be co-referential with the agent (subject).

Furthermore, middles do not have the interpretation of pronominal anaphors. This can be learned from the examples in (34) and (35).

(34) a. kussiyy-at hellemmat he-piɗɗ-aɗ-i
Kussiyy -NFS ewe.ABS FOC-buy-MID-PRF
'Kussiyy BOUGHT (an) ewe for himself.'

b. kussiyy-at iss-as hellemmat he-piɗɗ-aɗ-i
Kussiyy -NFS self-DAT ewe.ABS FOC-buy-MID-PRF
'Kussiyy BOUGHT (an) ewe for himself.'

(35) a. kussiyy-at iss he-k'uur-i
Kussiyy-NFS self FOC-cut-PRF
'Kussiyy CUT himself.'

b. kussiyy-at iss he-miiɗ-i
Kussiyy-NFS self FOC-hurt-PRF
'Kussiyy HURT himself.'

The verbs in (34) are middles whereas those in (35) are not. This can be inferred from the presence of the middle marker morpheme *-aɗ* in (34) and its absence in (35). Thus, the examples in (34) have the interpretation that *Kussiyy* did the action specified by the verb for his own benefit. However, such interpretation is impossible with pronominal anaphors as in (35) above. In other words, when the verb occurs with a pronominal anaphor object the affix *-aɗ* can not occur in the structure implying that such middle affix is restricted to verbs of the type in sentences (34).

5.3.3 Causatives

Morphological causatives, in Diraytata, are derived by attaching a causative affix to a base. In general there are two types of causative affixes: *-i* and *–osi* (Wondwosen 2003). The former derives causative from intransitive verbs only whereas the latter derives causative both from intransitive and transitive verbs. In what follows we shall take up each in turn.

5.3.3.1 Causative *-i*

As mentioned above the causative affix *–i* derives a causative from an intransitive base (verb). The following are illustrative examples.

(36) a i. ʔusaak-at-in(ett) he-ʔurk'-i
butter-NFS-DEF FOC-melt-PRF
'The butter MELTED.'

ii. kittonnayyu-t ʔusaak-se(t) he-ʔurk'-i-t-i
Kittonnayyu- NFS butter.ASB-DEF FOC-melt-CAUS-3FSG-PRF
'Kittonnayyu MELTED the butter.'

b i. kittonnayyu-t he-kaal-t-i
Kittonnayyu- NFS FOC-enter-3FSG-PRF
'Kittonnayyu ENTERED.'

ii. kussiyy-at kittonnayyu he-kaal-iy[8]-i
Kussiyy- NFS Kittonnayyu.ABS FOC-enter-CAUS-PRF
'Kussiyy TOOK Kittonnayyu in (as inside the house).'

The examples in (36i) are intransitives in the sense that the verbs *ʔurk'-* 'melt' and *kaal-* 'enter' subcategorize one argument only, *ʔusaakatin(ett)* 'the butter' and *Kittonnayyu*. The causative *–i* attaches to such verbs to derive the corresponding causative forms which are transitive as shown in (36ii). In (36aii), for example, there are two arguments, *Kittonnayyu* and *ʔusaakse(t)* 'the butter' with the grammatical relations SUBJ and OBJ respectively. Likewise in (36bii) there are also two arguments, *Kussiyy* and *Kittonnayyu*, which are SUBJ and OBJ respectively. Thus, when the causative *–i* is suffixed to an intransitive base the valence of the base increases by one making an intransitive verb transitive. Hence such a morpheme may be considered as a transitivizer.

Kittonnayyu in (36aii) and *Kussiyy* in (36bii) are the causers of the events. They are directly involved to bring about the events specified by their respective predicates.

[8] The consonant y is inserted to break the sequences of two vowel morphemes (for the details see chapter 1, section 1.7).

In the preceding discussion it has been said that the causative *–i* attaches only to intransitive verbs. However, there are few exceptions to this generalization. The verbs of "ingestive" type (cf. Masica, 1976) such as *ɗam-* 'eat' can take the causative *–i* as in (37) below.

(37) a. kussiyy-at tappot he-ɗam-i
Kussiyy- NFS bread.ABS FOC-eat-PRF
'Kussiyy ATE bread.'

b. kittampo-t kussiyy tappot he-ɗam-iy-i
Kittampo- NFS Kussiyy.ABS bread.ABS FOC-eat-CAUS-PRF
'Kittampo FED Kussiyy some bread'

As is apparent from example (37b) above, when the causative *–i* attaches to two place predicate such as *ɗam-* 'eat' it becomes three place predicate. The logical subject of *ɗam-* 'eat' is realized as the grammatical subject in (37a), but it is realized as the causative object in (37b). Moreover, in (37b) there are two object NPs, the causee (kussiyy) and *tappot* '(a) bread', both holds absolutive case.

5.3.3.2 Causative *–osi*

In contrast to the causative *–i* which has a restricted distribution, the causative *–osi* has a wider distribution. That is to say it attaches both to intransitive and transitive verbs. When it attaches to intransitive verbs consider the examples in (38) below.

(38) a. kussiyy-at he-ʔell-i
Kussiyy- NFS FOC-stand-PRF
'Kussiyy STOOD.'

b. kittampo-t kussiyy he-ʔell-osiy[9]-i
Kittampo- NFS Kussiyy.ABS FOC-stand-CAUS-PRF
'Kittampo MADE kussiyy STAND.'

The logical subject, *kussiyy*, of the verb *ʔell-* 'stand' is realized as a grammatical subject in (38a), but it is realized as an object causee of the causative predicate *ʔellosi-* in (38b). This is because the newly introduced

[9] Here too, the consonant y is inserted to break the causative from the perfective markers.

argument or the causer is realized as a grammatical subject of the causative predicate in (38b) whereas the causee, *kussiyy*, is realized as an object argument of the causative in (38b). The examples in (39) illustrate when this causative morpheme is suffixed to monotransitive verbs.

(39) a. kussiyy-at k'oyr he-k'uur-i
Kussiyy- NFS tree.ABS FOC-cut-PRF
'Kussiyy CUT (a) tree.'

b. kittonnayyu-t kussiyy k'oyr he-k'uur-osi-t-i
Kittonnayyu- NFS Kussiyy.ABS tree.ABS FOC-cut-CAUS-3FSG-PRF
'Kittonnayyu MADE Kussiyy CUT(a) tree.'

When the causativizer morpheme *–osi* suffixed to monotransitive verbs like *k'uur-* 'cut' the logical subject or the causee becomes an object and the newly added argument or the causer becomes the grammatical subject as shown in (39b). In (39b) there are two object NPs, Kussiyy and *k'oyr* 'tree', both hold absolutive case.

Regarding the distinction between the causative morphemes *–i* and *–osi* we see that in the causative *-i* the causer directly involves in the event whereas as in the causative *–osi* the causer indirectly involves in the event. This seems the main distinction between the two causative morphemes.

Now we shall consider the causative of ditransitive verbs. The following are examples.

(40) a. kussiyy-at kittonnayyu-s mat'af he-piɗɗ-i
Kussiyy- NFS Kittonnayyu-DAT book.ABS FOC-buy-PRF
'Kussiyy BOUGHT a book for Kittonnayyu.

b. kittampo-t kussiyy kittonnayyu-s mat'af he-piɗɗ-osiy-i
Kittampo- NFS Kussiyy-ABS Kittonnayyu-DAT book.ABS FOC-buy-CAUS-PRF
'Kittampo MADE Kussiyy BUY a book for Kittonnayyu.'

As is apparent from the examples in (40) when a causativizer morpheme *–osi* is suffixed to a three-place predicate it becomes a four- place predicate. The logical subject, *kussiyy*, of the verb *piɗɗ-* in (40a) becomes an object causee of the causative verb *piɗɗosi-* in (40b). By the same token the causer *kittampo* becomes the grammatical subject of the causative verb in (40b). Moreover, in such sentence there are three object NPs, the causee object,

Kussiyy, the recipient object, *Kittonnayyu* and theme object, *mat'af* '(a) book'. The recipient object, *Kittonnayyu* receives the grammatical function OBJ (for the details see chapter 9). We are left with two object NPs: the causee object, Kussiyy and the theme object, *mat'af* 'book'. The cause object Kussiyy receives OBJ and the theme object receives OBJθ. This situation may lead us to argue that what we have in (40b) is double objects, which cannot be distinguished as primary and secondary objects. This situation violates the Function-Argument Bi-uniqueness Condition (Bresnan 1982c), as the Condition forbids an f-structure having two different semantic forms for a single attribute. In other words, the attribute OBJ in (40b), for example, has two different PRED values, *Kussiyy* and *kittonnayyu* which is not allowed by the above mentioned Condition. The question is then, how to account for such facts of Diraytata? We shall address this issue later.

Another point that deserves mention is that all the causative objects, in Diraytata, do not passivize. This can be learned from the examples in (41).

(41) a.* kussiyy-at kittonnayyu-s mat'af he-piɗɗ-osiy-am-i
Kussiyy-NFS Kittonnayyu-DAT book.ABS FOC-buy-CAUS-PASS-PRF

b.* kittonnayyu-t kussiyy mat'af he-piɗɗ-osi-t-am-i
Kittonnayyu-NFS Kussiyy.ABS book-ABS FOC-buy-CAUS-3FSG-PASS-PRF

c. * mat'af-at kussiyy kittonnayyu-s he-piɗɗ-osiy-am-i
book-NFS Kussiyy.ABS Kittonnayyu-DAT FOC-buy-CAUS-PASS-PRF

In (41a) the causee object, *kussiyy*, is passivized, in (41b) the recipient object, *Kittonnayyu* is passivized and in (41c) the theme object *mat'af* 'book' is passivized. However, all the sentences are ungrammatical. The ill-formedness of these sentences tells us that it is not possible to passivize causative objects in Diraytata.

As is apparent from the foregoing discussion causativization affects the argument structure of the base verb in the sense that the derived causative verb will always have one additional argument from its underived counterpart. This is because a new argument or the causer is introduced in a causative construction. Hence, causative construction could be taken as valence- increasing derivation as the causative verb always exceeds by one argument from its corresponding underived verb.

Thus far we have seen that causative constructions, in Diraytata, induce change both in the argument structure and grammatical relations. This is illustrated by taking example (40).

(42) a. piɗɗ- < agent, recipient, theme >
| | |
SUBJ OBJ OBJθ

b. piɗɗosi - < agent, agent-patient, recipient, theme >
| | | |
SUBJ OBJ OBJ OBJθ

In (42a) the base verb *piɗɗ-* 'buy' subcategorizes three arguments agent, recipient and theme roles with the grammatical functions SUBJ, OBJ and OBJθ respectively. By the same token, in (42b) the causative verb *piɗɗosi-* 'made (caused) to buy' subcategorizes four arguments, namely, agent, agent-patient, recipient and theme roles with the grammatical functions SUBJ, OBJ, OBJ, and OBJθ respectively. If this is the case then, the next question is how does the grammar produce such changes? This question will take us to the theoretical explanation of causative formation.

In the remainder of this subpart we shall present the LFG account of causative constructions[10]. We do not address the entire body of literature on causative constructions but instead we shall restrict ourselves to the following two influential works on causative constructions.

Butt (1995), in chapter 7, extends her theory of complex predicates proposed for Urdu to account for Romance and Japanese complex predicates. Her analysis of Romance complex predicate focuses on the restructuring light verbs like *volere* 'want' and causatives whereas her Japanese analysis focuses on the light verb *suru* 'do'. As causatives, in Diraytata, are purely morphological, we do not adopt Butt's approach of complex predicates[11] in this thesis.

[10] Baker's (1988) theory of "Incorporation" treats causativization as a process, which is formed syntactically by applying transformational rules. The theory assumes that a causative morpheme involves two-place predicate expressing a relation between a causer and a caused event that takes a clausal complement and the complement clause predicate adjoins the matrix affixal predicate by head-to-head movement operation.

[11] A predicate having more than one predicate elements combined together forming monoclausal predicate (for the details see Butt 1995).

Alsina (1992, 1993, 1996, and 1997) asserts that the complexity of morphological causative constructions come from their argument structure (a-structure). That is to say that causative construction has a composite argument structure, which is associated to a predicate at f-structure. He further states that morphological causative predicates have a three-place predicate in argument structure. Put differently, such predicates semantically subcategorize the causer who is an agent, the person or individual acted upon, the patient, in order to bring about an event and the caused event. The patient of the causative predicate fuses with the logical subject of the base verb. The fusion is illustrated in example (43) below (as in Alsina, 1992 without using his formalism).

(43) CAUSE <agent, patient, EVENT < ô…(patient)… >>

SUBJ OBJ OBJ

In morphological causative constructions, the combination of the causative affixal predicate with the base predicate creates a new argument that can be shared both by the affixal predicate (or cause predicate) and the base predicate. Such fusion of thematic roles is indicated by the line connecting the two thematic roles involved as in (43).

Coming to a case in point, the causative constructions in Diraytata can be represented as the following. For the sake of convenience example (40b) is repeated here as (44) below.

(44) kittampo-t kussiyy kittonnayyu-s mat'af he-piɗɗ-osiy-i
Kittampo-NFS Kussiyy-ABS Kittonnayyu-DAT book.ABS FOC-buy-CAUS-PRF
'Kittampo MADE Kussiyy BUY a book for Kittonnayyu.'

This sentence will have the following a-structure and f-structures.

(45) CAUSE < agent, patient, EVENT <agent, recipient, theme >>

SUBJ OBJ OBJ OBJθ

The argument structure in (45) shows that the causee has two thematic roles, patient role by being acted upon by the causer and agent role by being the

logical subject[12] of the embedded clause. As mentioned above these thematic roles are fused together and hence the fused argument has the thematic identity of both the original arguments. Thus, the original arguments jointly determine the syntactic properties of the fused argument. As is apparent from (45), there are three object NPs. The same question posed earlier can be raised here. That is how to account for these object NPs. According to Alsina (1992, 1993 and 1996) the correspondence between arguments and syntactic functions is made by the theory called Function Mapping Theory (abbreviated as FMT and will be discussed in chapter 9). This theory rejects the Argument-Function Bi-uniqueness Condition and instead accepts that the correspondence between grammatical function and argument structure must be one-to-many in both directions. As a result it is possible to have multiple instance of the same grammatical function. In such cases we need to use index as part of the f-structure values of each of the grammatical function. If, for example, we consider example (44) above in light of this Mapping Theory, the causer or external argument, *Kittampo*, is assigned with the grammatical function SUBJ, the object causee, *Kussiyy*, with the grammatical function OBJ_1, the recipient object, *Kittonnayyu* with OBJ_2, and the theme object, *mat'af* 'book' with OBJ_3 as shown in (46).

(46) CAUSE <agent, patient, EVENT < agent, recipient, theme >>

SUBJ OBJ_1 OBJ_2 OBJ_3

Anticipating the discussion on the indexing processes and functional mapping relations in chapter 9 we close this section.

5.4 Summary

In this chapter we have been concerned with the verb morphology of Diraytata. The chapter has two major sections. In the first section we have dealt with inflectional affixes. We have said that verbs in this language inflect for different grammatical categories such as for agreement, aspect and mood. Agreement is a collection of nominal features such as for person, number and gender. The language has an obligatory subject-verb agreement in the sense that in a sentence a verb must agree with its corresponding subject NP in number, person and gender and this is indicated by bound

[12] The logical subject of a predicate is its most prominent argument in the Universal Hierarchy of Thematic Roles in Bresnan and Kanerva (1989,1992).

affixes attached on a verb. In the course of the discussion we have identified three types of bound affixes: grammatical agreement, pronominal inflection (or pronoun incorporation) and phonetically null (ø) affixes. Grammatical agreement constrains the feature of a subject NP and do not build a subject f-structure. The pronominal inflection defines the feature of a subject NP and builds a subject f-structure. The presence of such bound affixes on a verb can pre-empt the occurrence of any overt subject pronoun in a constituent structure. This phenomenon is referred to by the name pro-drop and the languages that exhibit such features are known as pro-drop languages. The third type of bound affix is a phonetically null third person masculine singular affix, which is proposed to fill the gap in the verb paradigms.

Regarding aspect the language makes a distinction between perfective and imperfective aspects. The perfective aspect is marked by the suffix morpheme *–i*. The imperfective is marked by *–in*. The language does not seem to have a tense marker in the sense that it can distinguish only between past and non-past. Reference to past is directly coincides with the perfective aspect and it refers to completed actions only. Likewise the non-past coincides with the imperfective aspect and it refers to actions either at the present or future moment. In this language imperative and optative (jussive) moods are expressed morphologically. The imperative mood is encoded by the morphemes *–i* and *–a,* for second person singular and plural respectively. Optative mood is encoded by the morpheme *–u* for first person and third person both in the singular and plural forms.

The second section discusses derivation, which includes passives, middles and causatives. A typical passive construction in Diraytata involves affixing the passivizer morpheme *–am* to a transitive verb. This process is purely morphological in the sense that it takes place in the lexicon.

In Diraytata middle verbs are derived by attaching the morpheme *-adʳ* to a base predicate. It has been pointed out that middles are difficult to characterize. This is because when such a morpheme is attached to intransitive verbs it shows the subject is the experiencer of the state of being specified by a verb and when it attached to transitive verbs it indicates that the agent subject is the beneficiary of the action specified by a verb.

In the final part of section 5.3 we have seen the causative constructions in Diraytata. We have said that there are two types of causative affixes: *-i* and *–osi*. The former derives causatives from intransitive verbs only whereas the latter derives causative both from intransitive and transitive verbs. We have

said that causativization affects both the argument structure and the assignment of grammatical relations. When the causative *–osi* is attached to a two-place predicate it becomes a three-place predicate. The three-place predicate has one subject, the causer and two object NPs. Similarly, when this morpheme is suffixed into a three-place predicate it becomes a four-place predicate. Such predicates have four arguments out of which the two arguments are object NPs.

PART II

SYNTAX

Chapter 6

Phrasal Arguments

6.1 Introduction

In the preceding chapters we have seen the lexical categories of Diraytata along with their inflectional and derivational behaviors. In the following two chapters we shall examine predicates and their subcategorized arguments. In LFG the term argument refers to the grammatical functions that are obligatorily selected by predicates. LFG states subcategorization in functional terms rather than in categorial terms. In relation to this Dalrymple (2001:168) remarks "LFG defines subcategorization requirements in functional terms: predicates subcategorize for a particular set of grammatical functions rather than phrasal categories or configurations." Predicates in Diraytata select: SUBJ, OBJ, OBJɵ, OBLɵ, XCOMP and COMP grammatical functions. The phrasal arguments include SUBJ, OBJ, OBJɵ, and OBLɵ grammatical functions whereas the clausal arguments include: XCOMP and COMP grammatical functions. Anticipating the discussion of clausal arguments into the next chapter, in the present chapter we shall confine ourselves to consider phrasal arguments.

On the basis of the types of phrasal arguments they select at f-structure, the predicates in Diraytata can be classified into three major types. In the remainder of this chapter we will take up each of these types in turn.

6.2 Type One

This type consists of predicates that select SUBJ function only. The following are examples with such predicates.

(1) a. kussiyy-at he-kokk-aɗ-i
Kussiyy-NFS FOC-strong-MID-PRF
'Kussiyy GOT STRONG.'

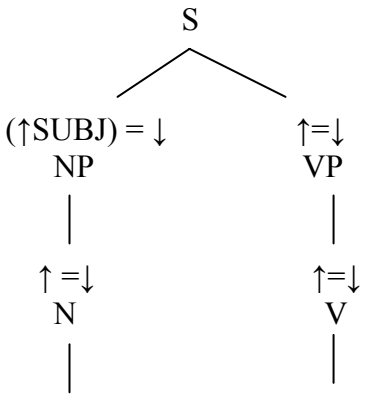
b. kussiyy-at he-ɗer-aɗ-i
Kussiyy-NFS FOC-tall-MID-PRF
'Kussiyy GOT TALL.'

In the above examples, the verbs *kokkaɗ-* 'got strong' and *ɗeraɗ-* 'got tall' show the state of being their subject, *Kussiyy* enters into. So in both (1a) and (1b) the subject *Kussiyy* is the theme of the state of being 'strong' and 'tall'. Such predicates will have the following subcategorization frames.

(2) a. kokkaɗ- V (↑PRED) = 'kokkaɗ- < (↑ SUBJ)>'
b. ɗeraɗ- V (↑PRED) = 'ɗeraɗ- < (↑ SUBJ)>'

The annotated c-structure and the f-structure of sentence (1a) are as in (3) below.

(3) a. c-structure



(↑PRED) = 'kussiyy'
(↑CASE) =NFS
(↑PERS) =3
(↑NUM) =SG
(↑GEND) =M

(↑PRED) = 'kokkaɗ-<(↑SUBJ)>'
(↑ASP) = PRF
(↑VFOC) = +
(↑SUBJ CASE) =c NFS
(↑SUBJ NUM) =c SG
(↑SUBJ GEND) =c M
(↑SUBJ PERS) =c 3

b. f-structure

$$\begin{bmatrix} \textit{PRED} & \text{'kokkaɗ-<(SUBJ)>'} \\ \text{ASP} & \text{PRF} \\ \text{VFOC} & + \\ \textit{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'Kussiyy'} \\ \text{CASE} & \text{NSF} \\ \text{NUM} & \text{SG} \\ \text{PERS} & 3 \\ \text{GEND} & \text{M} \end{bmatrix} \end{bmatrix}$$

The representations in (3) show that both the constituent and the functional structures of sentence (1a). The f-structure is well-formed in that it satisfies the Uniqueness, Completeness and Coherence Conditions.

The predicates in examples (4) below can be subsumed under the same type as the predicates in (1).

(4) a. karm-ot he-ɗaatt-i
lion-NFS FOC-roar-PRF
'(A) lion ROARED.'

b. pannolet-i-n he-pak'k'i-t-i
ball-NFS-DEF FOC-burst-3FSG-PRF
'(The) ball BRUST.'

As is apparent from these examples the predicates like *ɗaatt-* and *pak'k'-* subcategorize one argument with the grammatical function SUBJ. Hence, such predicates can be characterized by the subcategorization frames in (5).

(5) a. ɗaatt- V (↑PRED) = 'ɗaatt- < (↑ SUBJ)>'

b. pak'k' V (↑PRED) = 'pak'k'- < (↑ SUBJ)>'

Before we close this section, it seems reasonable to make a few points about the predicate *roop-* 'rain' in Diraytata. This predicate was mistakenly

treated as zero place predicate in Wondwosen (1993). In the present analysis however, it has been discovered that the predicate *roop*- selects a SUBJ grammatical function. This is illustrated in (6).

(6) a. roop-at he-roop-i
rain-NFS FOC-rain- PRF
'(A) rain RAINED.'

b. roop roop
rain.ABS rain
'(A) RAIN rained.'

c. he-roop-ø-i
FOC-rain-3MSG-PRF
Literally '(He) RAINED.'
'(It) RAINED.'

(6) show that the predicate *roop*- 'rain' selects an argument with the grammatical function SUBJ. In (6a) the SUBJ is in non-focalized subject case whereas in (6b) it is in the absolutive case. The former occurs when the predicate is focused and the latter when the SUBJ is focused (for the details see chapter 3, section 3.2). In (6c) there is neither overt SUBJ nor overt bound affix on the predicate *roop*. We posit a phonetically null bound affix 'ø' which has the interpretation of third person masculine singular (see chapter 5, section 5.2). We therefore argue that the predicate *roop*- selects a grammatical function SUBJ and hence it has the subcategorization frame in (7).

(7) roop- V (↑PRED) = 'roop- < (↑ SUBJ)>'

6.3 Type Two

Unlike type one predicates which select SUBJ grammatical function only, type two predicates are characterized by selecting SUBJ and OBLɵ grammatical functions. The following are examples of predicates with such grammatical functions.

(8) a. kussiyy-at man-se talla he-sohaɗ-i
Kussiyy-NFS house-DEF from FOC-leave-PRF
'Kussiyy WENT out from the house.'

b. kussiyy-at man-ap he-kal-i
Kussiyy-NFS house-to FOC-enter-PRF
'Kussiyy ENTERED into (a) house.'

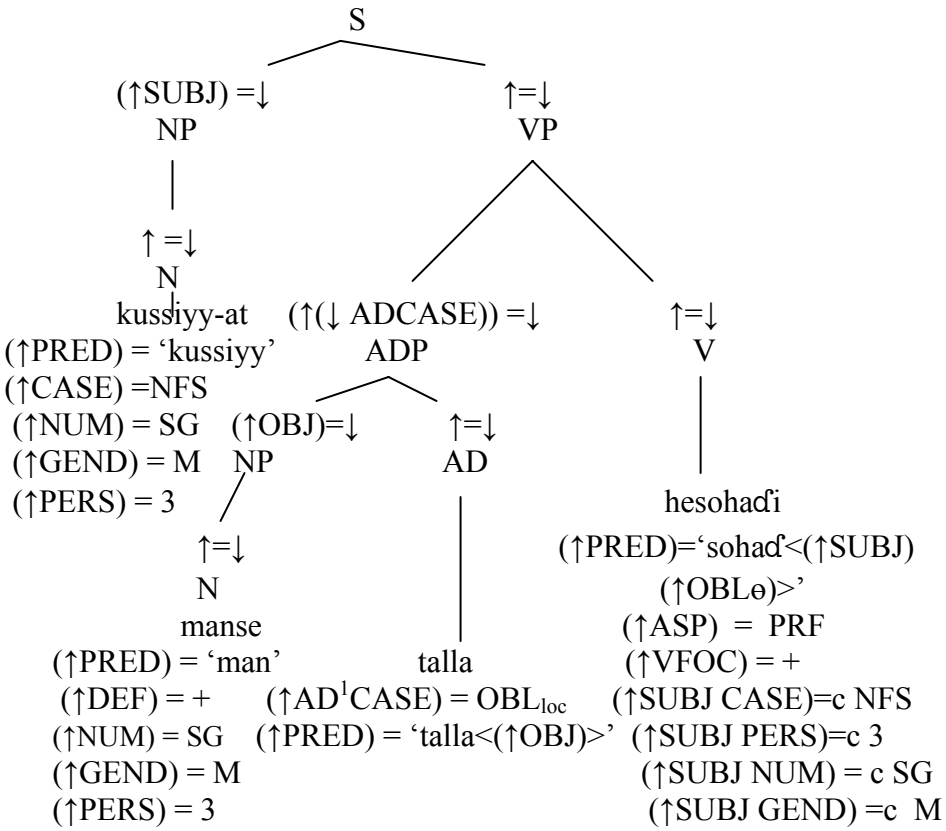
As can be observed from the examples in (8) the predicates *sohaɗ-* and *kal-* subcategorize SUBJ and OBLɵ (where ɵ = location role) grammatical functions. Their subcategorization frames are as shown in (9).

(9) a. sohaɗ- V (↑PRED) = 'sohaɗ-< (↑SUBJ) (↑OBLɵ)>'

b. kal- V (↑PRED) = 'kal-< (↑SUBJ) (↑OBLɵ)>'

The following shows the annotated c-structure and f-structure of the sentence in (8a).

(10) a. c-structure



[1] Since the word *talla* is a postposition but not a preposition, we use the general name adposition (abbreviated as AD). In place of (↓PCASE) we use (↓ADCASE). It read as 'the ADP's ADCASE value.

b. f-structure

$$\begin{bmatrix} \text{PRED} & \text{'sohaɗ< (SUBJ) (OBL}_\theta\text{)} \\ \text{ASP} & \text{PRF} \\ \text{VFOC} & + \\ \text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'Kussiyy'} \\ \text{CASE} & \text{NFS} \\ \text{NUM} & \text{SG} \\ \text{PERS} & 3 \\ \text{GEND} & \text{M} \end{bmatrix} \\ \text{OBL}_\theta & \begin{bmatrix} \text{ADCASE} & \text{OBL}_{\text{loc}} \\ \text{PRED} & \text{'talla <(OBJ)>'} \\ \text{FOC} & - \\ \text{OBJ} & \begin{bmatrix} \text{PRED} & \text{'man'} \\ \text{DEF} & + \\ \text{NUM} & \text{SG} \\ \text{PERS} & 3 \\ \text{GEND} & \text{M} \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

6.4 Type Three

This type subsumes the predicates, which are generally referred to as transitive. These predicates can be characterized by their potential to be passivized. They select simple phrases or clauses as their arguments. As mentioned above, the discussion of clausal arguments will be made in the next chapter and here we will consider phrasal arguments only. For ease of exposition we will divide them into two subtypes. The first subtype comprises monotransitive predicates and the second ditransitive predicates. In what follows we will take up each of the types in turn.

6.4.1 Monotransitive

Such predicates are characterized by subcategorizing arguments with the grammatical functions SUBJ and OBJ. The following are examples of predicates with such grammatical functions.

(11) a. kussiyy-at k'oyr he-k'uur-i
Kussiyy-NFS tree.ABS FOC-cut-PRF
'Kussiyy CUT (a) tree.'

b. kussiyy-at ʔit he-ɗaw-i
Kussiyy -NFS she .ABS FOC-hit-PRF
'Kussiyy HIT her.'

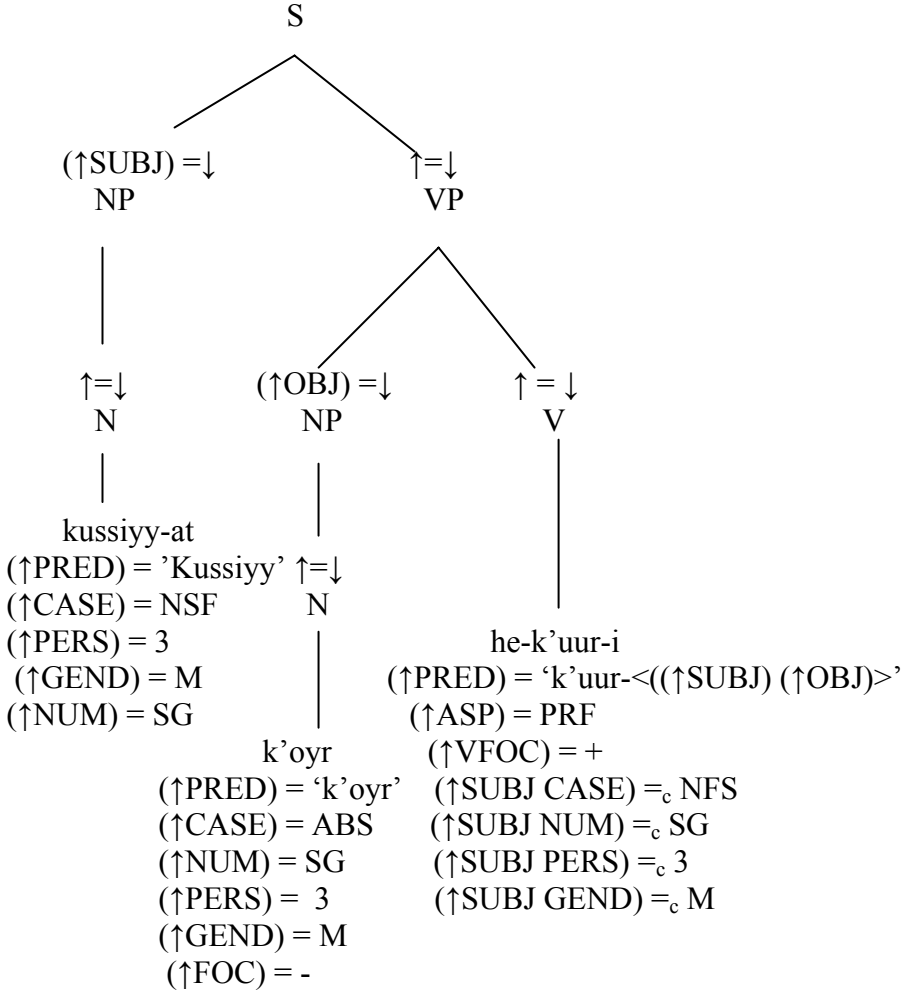
In (11a) the predicate *k'uur-* 'cut' subcategorizes two arguments: *Kussiyy* with the grammatical function SUBJ and *k'oyr* 'tree' with the grammatical function OBJ. By the same token in (11b) the predicate *ɗaw-* 'hit' subcategorizes two arguments: *Kussiyy* with the grammatical function SUBJ and *ʔit* with OBJ grammatical function. Such predicates will have the subcategorization frames in (12).

(12) a. k'uur- V (↑PRED) = ' k'uur- < (↑SUBJ) (↑OBJ) >'

b. ɗaw- V (↑PRED) = 'ɗaw- < (↑SUBJ) (↑OBJ)>'

The frame in (12a) states that the predicate *k'uur-* 'cut' subcategorizes two arguments; one with the grammatical function SUBJ and the other one with OBJ grammatical function. Similarly, (12b) is interpreted as the predicate ɗaw- 'hit' subcategorizes SUBJ and OBJ grammatical functions. The following is the annotated c-structure and f-structure of example (11a).

(13) a. c-structure



b. f-structure

$$\begin{bmatrix} \textit{PRED} & \text{'k'uur- < (SUBJ) (OBJ) >'} \\ \text{ASP} & \text{PRF} \\ \text{FOC} & + \\ \text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'Kussiyy'} \\ \text{CASE} & \text{NFS} \\ \text{NUM} & \text{SG} \\ \text{PERS} & 3 \\ \text{GEND} & \text{M} \end{bmatrix} \\ \textit{OBJ} & \begin{bmatrix} \text{PRED} & \text{'k'oyr'} \\ \text{CASE} & \text{ABS} \\ \text{NUM} & \text{SG} \\ \text{PERS} & 3 \\ \text{GEND} & \text{M} \\ \text{FOC} & - \end{bmatrix} \end{bmatrix}$$

6.4.2 Ditransitive

Such predicates select three arguments. Consider the following examples.

(14) a. kussiyy-at hašša kittonnayyu-s he-lel-i
Kussiyy-NFS secret.ABS Kittonnayyu-DAT FOC-tell-PRF
'Kussiyy TOLD a secret to Kittonnayyu.'

b. kittampo-t mat'af kussiyy-as he-piɗɗ-i
Kittampo-NFS book.ABS Kussiyy-DAT FOC-buy-PRF
'Kittampo BOUGHT a book to Kussiyy.'

The predicates *lel-* 'tell' and *piɗɗ-* 'buy' in (14) above are ditransitives in the sense that each of them subcategorizes three arguments. In (14a), for example, the predicate *lel-* selects the grammatical function SUBJ

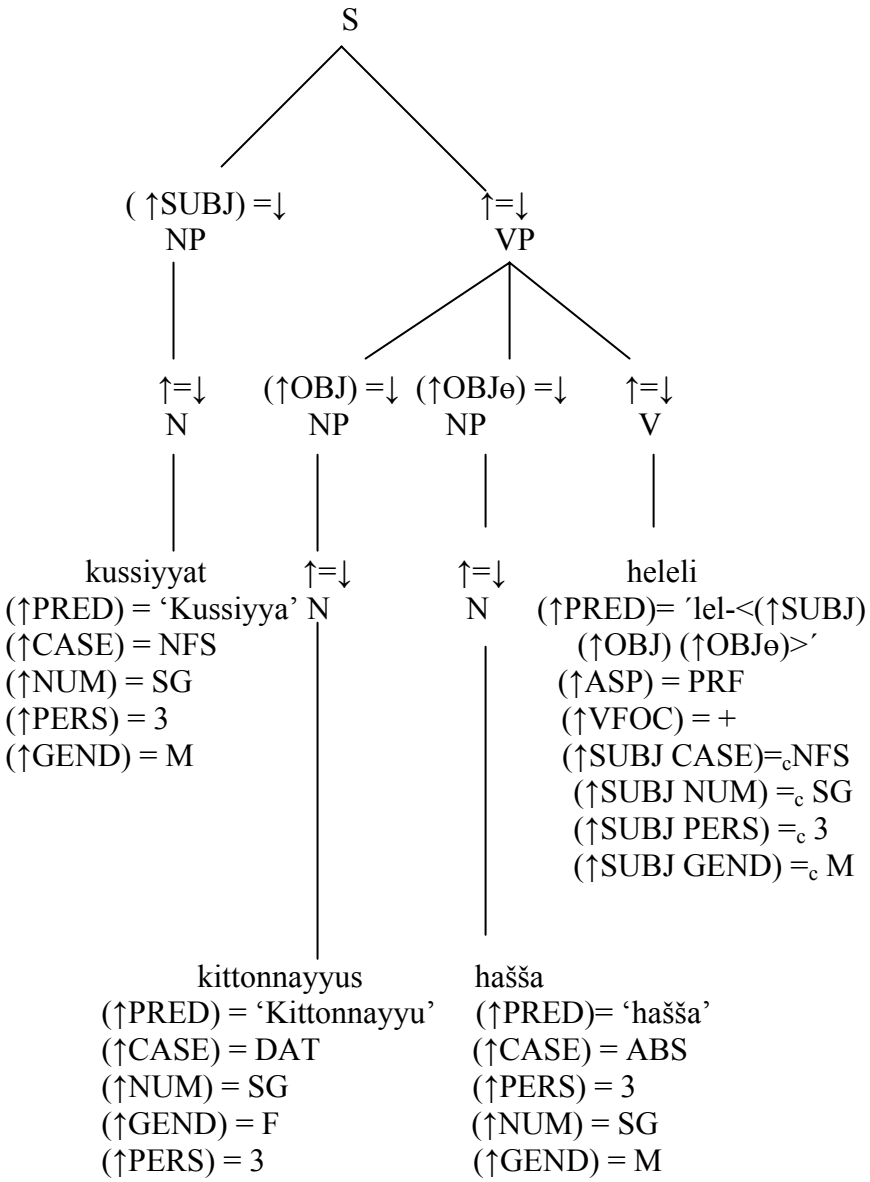
(Kussiyy), OBJ (Kuttannayyu) and OBJ_θ (hašša) (where $_\theta$ = theme). In the same way, in (14b) the predicate *piɗɗ-* subcategorizes the grammatical functions: SUBJ (Kittampo), OBJ (Kussiyy) and OBJ_θ (mat'af). Such predicates will have the subcategorization frames as shown below.

(15) a. lel- V (↑PRED) = 'lel- < (↑SUBJ) (↑OBJ) (↑OBJ_θ) >'

b. piɗɗ- V (↑PRED) = 'piɗɗ- < (↑SUBJ) (↑OBJ) (↑OBJ_θ) >'

The subcategorization frames in (15) state that the predicates *lel-* 'tell' and *piɗɗ-* select three arguments with the grammatical functions: SUBJ, OBJ, and OBJ_θ. The c-structure and f-structure of example (14a) is as shown in (16).

(16) a. c-structure



b. f-structure

$$\begin{bmatrix} \textit{PRED} & \text{'lel- <(SUBJ) (OBJ) (OBJ}_\theta\text{)>'} \\ \text{ASP} & \text{PRF} \\ \text{FOC} & + \\ \text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'Kussiyy'} \\ \text{CASE} & \text{NFS} \\ \text{NUM} & \text{SG} \\ \text{PERS} & 3 \\ \text{GEND} & \text{M} \end{bmatrix} \\ \textit{OBJ}_\theta & \begin{bmatrix} \text{PRED} & \text{'haššа'} \\ \text{CASE} & \text{ABS} \\ \text{NUM} & \text{SG} \\ \text{PERS} & 3 \\ \text{GEND} & \text{M} \end{bmatrix} \\ \textit{OBJ} & \begin{bmatrix} \text{PRED} & \text{'Kittonnayyu'} \\ \text{CASE} & \text{DAT} \\ \text{NUM} & \text{SG} \\ \text{PERS} & 3 \\ \text{GEND} & \text{F} \end{bmatrix} \end{bmatrix}$$

We will close this section with the following general remarks on the transitive predicates. Transitive predicates, in Diraytata, have active intransitive counterparts. This is illustrated as follows.

(17) a. kussiyy-at ʔit he-ʔikay-i
Kussiyy-NFS she.ABS FOC-kill-PRF
'Kussiyy KILLED her.'

b. kussiyy-at he-ʔikay-i
Kussiyy-NFS FOC-kill-PRF
'Kussiyy KILLED.'

(18) a. kussiyy-at mat'af kittonnayyu-s he-ɗaay-i
Kussiyy-NFS book.ABS Kittonnayyu-DAT FOC-give-PRF
'Kussiyy GAVE (a) book to Kittonnayyu.'

b. kussiyy-at mat'af he-ɗaay -i
Kussiyy-NFS book.ABS FOC-give-PRF
'Kussiyy GAVE (a) book.'

c. kussiyy-at kittonnayyu-s he-ɗaay -i
Kussiyy-NFS Kittonnayyu-DAT FOC-give-PRF
'Kussiyy GAVE to Kittonnayyu.'

d. kussiyy-at he-ɗaay -i
Kussiyy-NFS FOC-give-PRF
'Kussiyy GAVE.'

In (17) the monotransitive predicate *ʔikay-* 'kill' subcategorizes either SUBJ and OBJ or SUBJ grammatical function only as the subcategorization frame in (19) shows.

(19) ʔikay- V $\left\{ \begin{array}{l} (\uparrow \text{PRED}) = \text{'ʔikay-<}(\uparrow \text{SUBJ})\ (\uparrow \text{OBJ})\text{>'} \\ (\uparrow \text{PRED}) = \text{'ʔikay-<}(\uparrow \text{SUBJ})\text{>'} \end{array} \right\}$

The subcategorization fame in (19) says that the f-structure for the predicate *ʔikay-* should contain either the attribute-value pairs (↑PRED) = 'ʔikay-<(↑SUBJ) (↑OBJ)>' or the attribute-value pair (↑PRED) = ' ʔikay-<(↑SUBJ)>'.

The ditransitive predicates have much wider subcategorization potential as compared to the monotanstive predicates. In (18) the predicate *ɗaay-* 'give' requires a disjunction of four f-descriptions as shown in the subcategorization frame (20).

(20) ɗaay- V $\left\{\begin{array}{l}(\uparrow PRED) = \text{' ɗaay- <(}\uparrow \text{SUBJ) (}\uparrow \text{OBJ) (}\uparrow \text{OBJɵ) >' |}\\ (\uparrow \text{PRED}) = \text{' ɗaay- <(}\uparrow \text{SUBJ) (}\uparrow \text{OBJ)>' |}\\ (\uparrow \text{PRED}) = \text{' ɗaay- <(}\uparrow \text{SUBJ) (}\uparrow \text{OBJɵ)>' |}\\ (\uparrow \text{PRED}) = \text{' ɗaay- <(}\uparrow \text{SUBJ)>'}\end{array}\right\}$

The subcategorization frame in (20) contains four disjunct f-descriptions and in which case, the f-description holds insofar as one of the disjuncts satisfied. The mapping relations will be discussed in chapter 9.

6.5 Summary

In this chapter we have seen the phrasal arguments in Diraytata. We have divided the predicates into three types based on the argument types they select at f-structure. The predicates in type one select SUBJ function only, whereas those in type two select SUBJ and OBLɵ functions.

Type three subsumes transitive predicates. The predicates under this type are characterized by their potential to passivize. They are further subdivided into two subtypes: monotransitive and ditranstives. The monotransitives subcategorize SUBJ and OBJ functions. We have also seen that transitive predicates have active intransitive counterparts.

Chapter 7

Clausal Arguments

7.1 Introduction

In the preceding chapter we have seen the phrases in Diraytata that function as arguments of a predicate. Such arguments could be subject, object and oblique grammatical functions. In this chapter we will confine ourselves to examine the clausal arguments. Such clausal arguments are subordinate clauses that are functionally subcategorized by the predicate. They function as arguments of a predicate. In LFG, clausal complements are grammatical functions just as subject, object and oblique arguments, which are functionally subcategorized by the predicate. As mentioned in the previous chapter, LFG states subcategorization in functional terms rather than structural terms.

In terms of function, there are two different types of clausal functions: open and closed functions represented by the name XCOMP and COMP respectively. Regarding the distinction between these two clausal functions Butt et al, (1999:51) remarks "Within LFG two different types of clausal arguments are distinguished: XCOMP and COMP. An XCOMP is a complement whose subject is obligatorily functionally controlled from outside the clause… while a COMP is a closed complement with its own subject which is not functionally controlled …" Both types are instantiated in Diraytata.

The clausal complements in Diraytata can be characterized into two types, namely, non-controlled and controlled clauses. The former type, non-controlled clause, does not allow any external controller to control its clause internal argument. By the same token, the latter type of clause, controlled clause, allows a particular external controller to control its internal argument (particularly the subject) either anaphorically or functionally. The grammatical function for the non-controlled complement clause is COMP whereas for the controlled clause, it is either COMP or XCOMP depending on whether a complement subject is obligatorily controlled or not.

The chapter is organized into three sections. The first section discuses non-controlled clauses, the second section examines the controlled clauses and the final section gives a brief summary.

7.2 Non-controlled clauses

As mentioned above, the non-controlled clause is a clause whose subject is neither functionally nor anaphorically controlled by a particular argument in the matrix clause. Such a clause has the grammatical function COMP. In Diraytata predicates like *ɗakay-* 'hear', *ʔup-* 'know', *ʔakk-* 'see', and *hiin-* 'want' select non-controlled clausal complements. The following are examples.

(1) a. kussiyy-at [ʔakkum kittonnayyu-t ɗe-t-i] he-ɗakay-i
Kussiyy-NFS comp Kittonnayyu-NFS come-3FSG-PRF FOC-hear-PRF
(Literally), 'Kussiyy HEARD as Kittonnayyu came.'
'Kussiyy HEARD that Kittonnayyu came.'

b. kussiyy-at [ʔakkum kittampo-t ʔan-i] ʔup-in
Kussiyy-NFS comp Kittampo-NFS go-PRF know-IPFV
(Literally), 'Kussiyy KNOWS as Kittampo went.'
'Kussiyy KNOWS that Kittampo has left.'

c. kussiyy-at [ʔakkum kittonna-t ɗe-t-i] he-ʔakk-i
Kussiyy-NFS comp Kittonna-NFS come-3FSG-PRF FOC-see-PRF
(Literally), 'Kussiyy SAW as Kittonna came.'
'Kussiyy SAW that Kittonna came.'

d. kittonnayyu-t [ʔakkum kussiyy-at ɗey-in] hiin-in-t
Kittonnayyu-NFS comp Kussiyy-NFS come-IPFV want-IPFV-3FSG
(Literally), 'Kittonnayyu WANTS as Kussiyy come.'
'Kittonnayyu WANTS Kussiyy to come.'

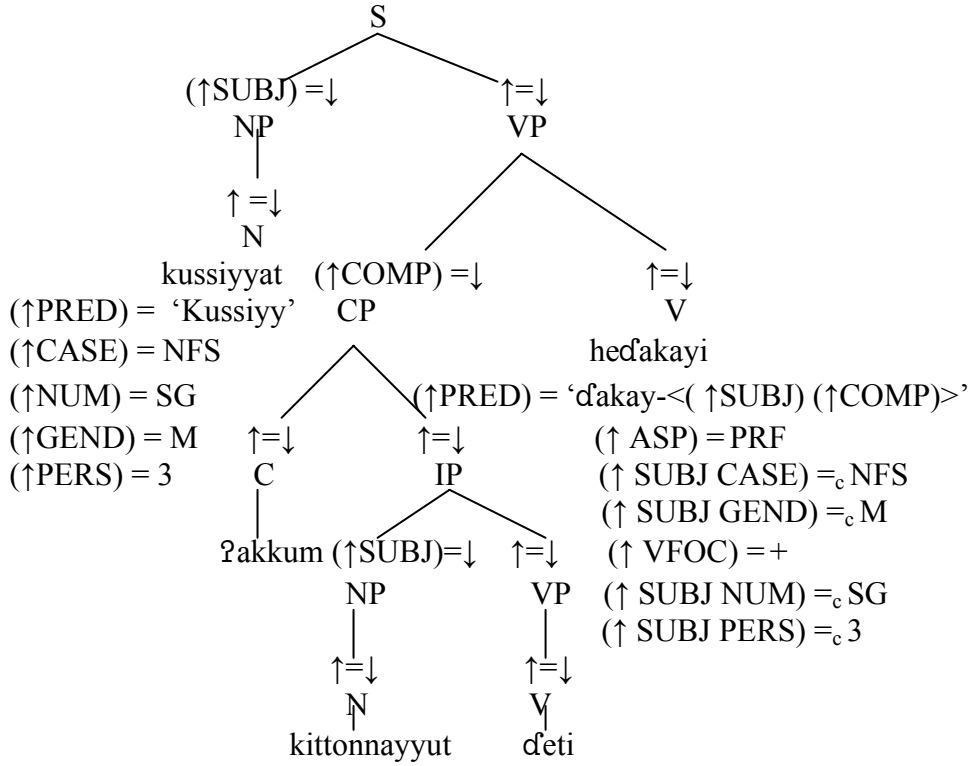
In (1) the constructions enclosed in square brackets are embedded clauses. They are all finite clauses as their predicates show both agreement and aspectual features. If, for example, we consider the embedded clause *ʔakkum kittonnayyut ɗeti* 'as Kittonnayyu came' in (1a) we can see that the predicate ɗe- 'come' requires one argument with a grammatical function SUBJ, as the predicate is intransitive. Completeness requires such a predicate to have a subject at f-structure. This requirement is satisfied by the presence of the argument *Kittonnayyu* which has a SUBJ grammatical

function and hence, the requirement of Completeness is satisfied at the minimal clause level. The predicates in (1) will have the following subcategorization frames.

(2) a. ɗakay- V (↑PRED) = 'ɗakay-<(↑SUBJ) (↑COMP)>'
b. ʔakk- V (↑PRED) = 'ʔakk -<(↑SUBJ) (↑COMP)>'
c. ʔup - V (↑PRED) = 'ʔup -<(↑SUBJ) (↑COMP)>'
d. hiin- V (↑PRED) = 'hiin-<(↑SUBJ) (↑COMP)>'

The subcategorization frame in (2) above could be interpreted, as the predicates *ɗakay-*, *ʔakk-*, *ʔup-* and *hiin-* require two arguments with the grammatical functions SUBJ and COMP. The c-structure and f-structure of example (1a) is as shown in (3) below.

(3) a. c-structure



b. f-structure

$$\begin{bmatrix} \textit{PRED} & \text{'ɗakay- <(SUBJ) (COMP)>'} \\ \text{ASP} & \text{PRF} \\ \text{VFOC} & + \\ \text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'Kussiyy'} \\ \text{CASE} & \text{NFS} \\ \text{NUM} & \text{SG} \\ \text{GEND} & \text{M} \\ \text{PERS} & 3 \end{bmatrix} \\ \textit{COMP} & \begin{bmatrix} \textit{PRED} & \text{'ɗe- (SUBJ)>'} \\ \text{ASP} & \text{PRF} \\ \text{VFOC} & - \\ \text{COMPFORM} & \text{ʔakkum} \\ \text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'Kittonnayyu'} \\ \text{CASE} & \text{NFS} \\ \text{NUM} & \text{SG} \\ \text{GEND} & \text{F} \\ \text{PERS} & 3 \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

The above f-structure satisfies the well-formedness condition in the sense that it is both Coherent and Complete. It is Coherent because it does not contain arguments beyond the subcategorization potential of the predicates. By the same token, it is Complete in that the arguments, which are, required both by the matrix and subordinate clause predicates are present. The complement clauses in (1) are introduced by a constituent *ʔakkum*. This constituent is a complementizer (for the details see Wondwosen 1993:59).

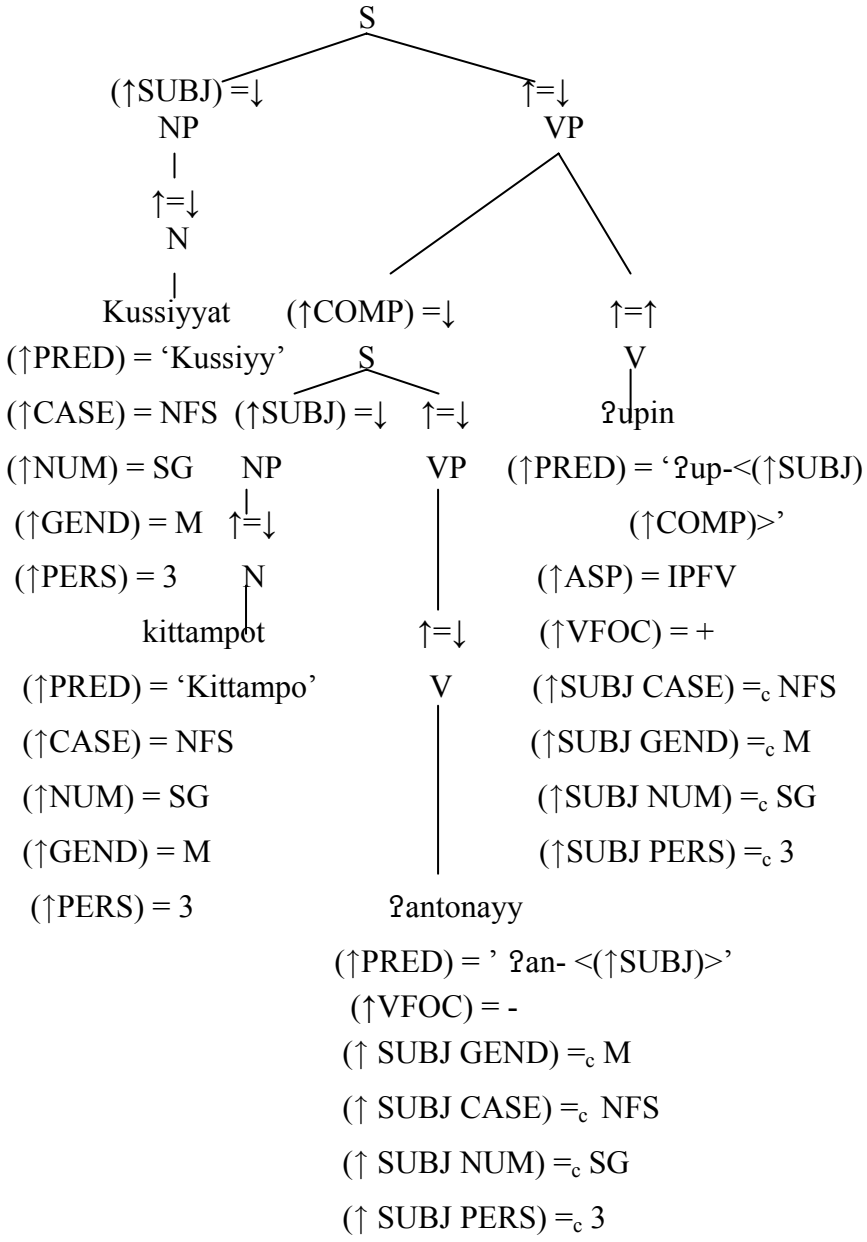
If we take the discussion a step further, except *hiin-* 'want' all the above predicates can also functionally subcategorize clauses whose predicate have pronominal suffix. Consider the following examples.

(4) a. kussiyy-at [kittonnayyu-t ɗe-ton-aɗɗ] he-ɗakay-i
Kussiyy-NFS Kittonnayyu-NFS come-to-her FOC-hear-PRF
'Kussiyy HEARD Kittonnayyu's coming.'

b. kussiyy-at [kittampo-t ʔan-ton-ayy] ʔup-in
Kussiyy-NFS Kittampo-NFS go-to-his know-IPFV
'Kussiyy KNOWS Kittampo's going.'

In (4), the predicates of the embedded clauses have agreement and they lack aspectual features. This can be learned from the pronominal suffixes *–ayy* 'his' and *-aɗɗ* 'her' attached to the embedded predicates. The matrix predicate of such clauses will have similar functional subcategorization frames as proposed for *ɗakay-* 'hear' in (2a) and *ʔup-* 'know' in (2c) above. Now let us consider the c-structure and f-structure of such clauses by taking (4b) as a representative example.

(5) a. c-structure



Note in the above c-structure the clausal complement is S but not CP. This is because in such clauses there is no overt complementizer that can fill in the head C of CP. The principle of Economy of Expression (Bresnan 2001: 91) does not allow an empty element to appear in c-structure. Thus, in (5) the complement clause begins in S rather than in CP. Now let us consider the corresponding f-structure.

b. f-structure

$$\begin{bmatrix} \textit{PERD} & \text{'ʔup-<(SUBJ) (COMP)>'} \\ \text{ASP} & \text{IPFV} \\ \text{VFOC} & + \\ \text{SUBJ} & \begin{bmatrix} \text{PERD} & \text{'Kussiyy'} \\ \text{CASE} & \text{NFS} \\ \text{NUM} & \text{SG} \\ \text{PERS} & 3 \\ \text{GEND} & \text{M} \end{bmatrix} \\ \textit{COMP} & \begin{bmatrix} \text{PRED} & \text{'ʔ}\textit{an}\text{-<(SUBJ)>'} \\ \text{VFOC} & - \\ \text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'Kittampo'} \\ \text{CASE} & \text{NFS} \\ \text{NUM} & \text{SG} \\ \text{PERS} & 3 \\ \text{GEND} & \text{M} \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

Note that the predicates of such complement clauses have only agreement features and they lack aspectual features. Sometimes such clausal complements are referred to as finite-infinitival (cf. Baye 1986: 240) simply because they resemble finite clauses as they have the feature agreement and also they resemble infinitival clauses as they lack aspectual features.

7.3 Controlled clauses

In the preceding section we have examined the non-controlled clauses of Diraytata. In this section we will examine controlled clauses. Controlled clauses are clauses whose subjects are controlled. Control can be defined as a construction, which involves an embedded clause without overt subject and the interpretation of the missing subject as being referring to a particular argument in the matrix clause (Bresnan 1982a, 2001). The missing

argument of the non-finite embedded clause is called the controllee and the main clause argument, which is used to interpret the missing subject in the embedded clause is called the controller (Kroeger 2004).

In LFG, the notion of control is used in a sense encompassing "Raising" and "Equivalent NP Deletion" (abbreviated as "equi") constructions. In GB tradition, control exclusively refers to "equi" and it does not subsume "raising" constructions. In LFG "equi" constructions are treated as *anaphoric control* and "raising" constructions as *functional control*. The relationship between anaphoric and functional control has been much discussed in the LFG literature, and people have reached different conclusions about the dividing line between the two constructions. Bresnan (1982a, 2001) and Dalrymple (2001), for example, analyze "equi" constructions in English as anaphoric control and "raising" constructions as functional control[1].

Some of the criteria that have been proposed to distinguish between the two types of constructions are: in anaphoric control constructions the controller is a thematic argument of the main predicate. Such constructions involve a co-reference relation between two arguments (i.e. between the controller and the controllee). On the other hand, in functional control constructions the controller is not a thematic argument of the main predicate. In such constructions a single argument is shared by two clauses (cf. Bresnan 1982a).

When we consider the control constructions in Diraytata in light of these criteria, we see that Diraytata distinguishes between the two types of control construction, namely anaphoric and functional control constructions. In the remainder of this chapter we shall take up each of these types in turn.

7.3.1 Anaphoric Control

In Diraytata anaphoric control constructions refers to "equi" constructions. The following are instances of such constructions.

(6) a. kussiyy-at [ʔuwwat č'ik'-a] he-ʔekkay-i
Kussiyy-NFS cloth.ABS wash-to FOC- try-PRF
'Kussiyy TRIED to wash (a) cloth.'

[1] Others such as Falk (2001) claim the illumination of the distinction between anaphoric and functional control and hence analyze "equi" constructions in English as functional control.

b. kittonnayyu-t [ʔan-ta] hiin-in-t
Kittonnayyu-NFS go-to want-IPFV-3FSG
'Kittonnayyu WANTS to go.'

In (6), the constructions enclosed in square brackets are subordinate clauses. A closer examination of such clauses reveals that their subjects are implicit in the sense that they are not morphologically realized. The missing subjects of such clauses are identified with the matrix clause subject. That is to say, in (6a), for example, the subject of the complement clause *ʔuwwat č'ik'a* 'to wash (a) cloth' is invisible and this invisible subject is functionally identified with the matrix clause subject, *Kussiyy*. By the same token, in (6b) the subject of the embedded clause *ʔanta* ' to go' is implicit and this implicit subject is functionally identified with the matrix clause subject, *Kittonnayyu*. In both (6a) and (6b) the invisible subjects are semantically selected by the predicates of the complement clauses. That is to say that, in (6a) the embedded clause predicate *č'ik'a* 'to wash' requires two arguments with the grammatical functions subject and object. As can be observed from (6a), the subject argument is implicit and the object argument is *ʔuwwat* '(a) cloth'. By the same token, in (6b) the predicate of the complement clause *ʔanta* 'to go' requires one argument with the grammatical function subject. This is simply to show that, the missing subjects of the embedded clauses in (6) are semantically selected arguments by the predicates of the complement clauses.

In LFG, subordinate clauses, which have semantically selected implicit or invisible subject arguments by their predicates, as those in (6) above, are commonly referred to by the name closed functions or COMP.

The question is how such implicit or invisible subjects are represented. In LFG, the invisible or missing subjects are represented by a functional anaphor 'PRO'. As far as its nature is concerned, PRO is a pronominal anaphor, which can be expressed in f-structure but not in c-structure. This is because the principle of Economy of Expression of LFG does not allow such empty elements to appear on c-structure, unless there is some solid evidence for its presence[2]. Thus, the c-structure of the embedded clauses in (6) is VP and cannot be CP or S, as PRO is prohibited from being expressed in c-structure in accord with the principle of Economy of Expression mentioned above.

[2] Empty category is allowed in LFG if it is motivated by the completeness, coherence or semantic expressivity.

Still another question that can be raised in connection to this is, if PRO, represents the missing subject, how is this PRO then, distinguished from the ordinary definite pronouns such as *ʔiyy* , *ʔit* , *ʔiyyaa* , etc., as pronouns in LFG, are functionally represented by PRO? Bresnan's (1982a: 330) reaction to this question is that PRO " … must be distinguished from the expressed definite pronouns, however, because it has special restrictions on its anaphoric relation … Let us therefore assume that there is some feature – call it U (for unexpressed morphologically) – which separates 'PRO' from other pronouns." This can be illustrated in (7) below by taking 'PRO' and the pronoun '*ʔiyy*'.

(7) a. PRO

$$\begin{bmatrix} PRED & 'PRO' \\ U & + \end{bmatrix}$$

b. ʔiyy

$$\begin{bmatrix} PRED & 'PRO' \\ U & - \\ GEND & M \\ NUM & SG \\ PERS & 3 \\ CASE & ABS \end{bmatrix}$$

The functional structure in (7a) shows the representation of the functional anaphor ('PRO') in f-structure whereas (7b) shows the functional representation of the definite pronoun ʔiyy. The functional anaphor PRO is induced by the functional equation ((↑G PRED) = 'PRO'). This equation must be related to some lexical entry, otherwise it cannot be the entry for an invisible subject argument, as the principle of Economy of Expression does not allow such empty elements to appear in c-structure. Thus, the equation ((↑G PRED) = 'PRO') must be introduced as parts of the lexical entry of the complement clause predicate. This can be stated in (8) below (adopted from Bresnan 1982a: 326).

(8) Rule of Functional Anaphora
For all lexical entries L, for all G $\in \Delta$, assign the optional pair of equations {((↑G PRED) = 'PRO'), (↑FIN) = $_c$ α} to L.

In the above rule, L stands for an embedded predicate or verb, G stands for the invisible grammatical function that the predicate subcategorizes, Δ stands for the list of subcategorizable grammatical functions. The above general functional anaphora rule says that add the optional equation ((↑G PRED) = 'PRO') to an embedded predicate or verb whose clause has a value feature ± FIN(ITE). This rule requires some modifications in order to be applicable to Diraytata. This is because, in Diraytata, it is only infinitival clauses that are legible for such rules. Thus, the value for Alpha must be minus (α = -) and also Delta must be restricted to Subject grammatical function (Δ = Subject). With such modifications on the general functional anaphora rule we can derive the rule of functional anaphora for Diraytata. As is apparent from the examples in (6), the functional anaphor 'PRO' occurs as a subject of infinitival clauses in Diraytata.

Accordingly, the lexical entry for the complement clause predicate č'ik'- 'wash' in (6a) is as given in (9) below.

(9) č'ik'- V (↑PRED) = 'č'ik'-<(↑SUBJ) (↑OBJ)>'
(↑ SUBJ PRED) = 'PRO'

The above lexical entry shows that the embeded predicate č'ik'- 'wash' functionally selects two arguments with the grammatical function SUBJ and OBJ. The second line of the entry, (↑ SUBJ PRED) = 'PRO', specifies that the subject of the complement clause is PRO.

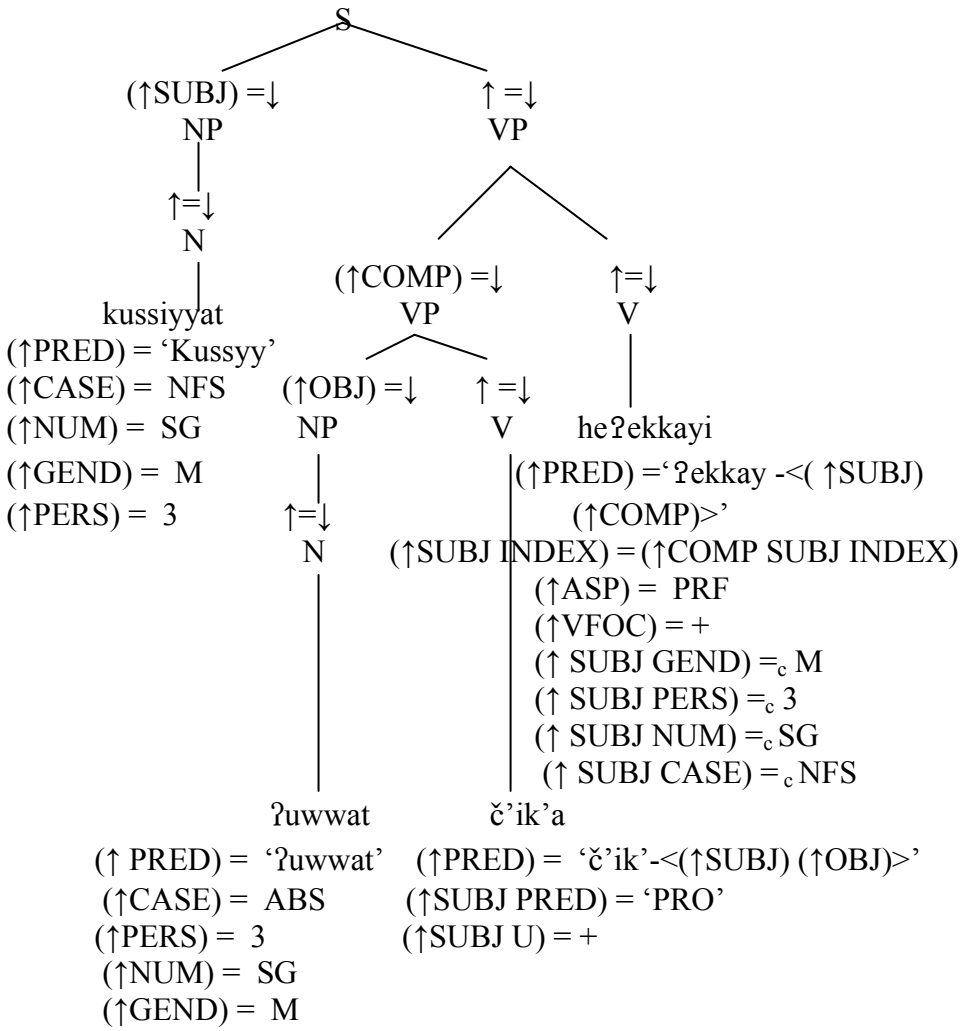
Next the referential relationship between the controller and the controllee in (6a) must be established. This is done by the matrix predicate as shown in (10) (adopted from Falk 2001).

(10) ʔekkay- V (↑PRED) = 'ʔekkay- -<(↑SUBJ) (↑COMP)>'
(↑ SUBJ INDEX) = (↑ COMP SUBJ INDEX)

The lexical entry in (10) shows that the matrix predicate ʔekkay- 'try' subcategorizes two arguments SUBJ and COMP. The second line of the entry specifies that the subject of the matrix predicate *Kussiyy*, is co-referential with the embedded subject PRO as they have the same index.

The c-structure and the f-structure of (6a) are as shown in (11) and (12) below.

(11) c-structure



In the c-structure above, the subordinate clause is represented by VP rather than S or CP at the level of c-structure, because the principle of Economy of Expression prohibits empty categories to appear on c-structure.

(12) f-structure

$$\begin{bmatrix} \textit{PRED} & \text{'ʔekkay-<(SUBJ) (COMP)>'} \\ \text{ASP} & \text{PRF} \\ \text{VFOC} & + \\ \text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'Kussiyy'} \\ \text{CASE} & \text{NFS} \\ \text{NUM} & \text{SG} \\ \text{PERS} & 3 \\ \text{GEND} & \text{M} \\ \text{INDEX} & \text{i} \end{bmatrix} \\ \text{COMP} & \begin{bmatrix} \text{PRED} & \text{'č'ik'-<(SUBJ) (OBJ)>'} \\ \text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'PRO'} \\ \text{U} & + \\ \text{INDEX} & \text{i} \end{bmatrix} \\ \textit{OBJ} & \begin{bmatrix} \text{PRED} & \text{'ʔuwwat'} \\ \text{CASE} & \text{ABS} \\ \text{PERS} & 3 \\ \text{NUM} & \text{SG} \\ \text{GEND} & \text{M} \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

In the f-structure above, the matrix clause subject is co-indexed with the embedded clause subject PRO. This means that in this structure the matrix clause subject, *Kussiyy*, is the controller and the embedded clause subject PRO is the controllee. Their functional relationship is one of co-reference. In other words, the embedded clause subject PRO is referentially identified with the matrix clause subject, *Kussiyy*.

Thus far, we have seen that the matrix clause subject controlling the complement clause subject argument. In Diraytata, it is also possible for the matrix clause object to control the subject argument of the complement clause. This can be observable from the examples below.

(13) a. kussiyy-at kittampo [koɗašet ɗaat-ot] he-koll-iy-i
Kussiyy-NFS Kittampo.ABS money.ABS give-to FOC-learn-CAUS-PRF
'Kussiyy TAUGHT Kittampo to give money.'

b. kussiyy-at kittonnayyu [hellemmat piɗɗ-ot] he-k'ark'ar-i
Kussiyy-NFS Kittonnayyu.ABS ewe.ABS buy-to FOC-help-PRF
'Kussiyy HELPED Kittonnayyu to buy (an) ewe.'

In (13), the matrix clause predicates *koll-* 'learn' and *k'ark'ar-* 'help' functionally subcategorize two complements in addition to the external argument, *kussiyy*. In (13a), for example, the predicate *koll-* 'learn' subcategorizes *Kittampo* with the object function and the clausal argument *koɗašet ɗaatot* 'to give money'. By the same token, in (13b) the matrix predicate *k'ark'ar-* 'help' has two complements, the object argument *Kittonnayyu* and the clausal argument *hellemmat piɗɗot* 'to buy (an) ewe'. Now, if we draw our attention to the matrix predicate object arguments *Kittampo* and *Kittonnayyu* in (13), these arguments are object arguments as they do not display the non-focalized subject case affix *-(a)t* and they occur in their citation form. This situation seems to suggest that they are object arguments in their respective clauses.

The complement clauses in (13) above are non-finite clauses in the sense that their predicates lack the features for agreement and aspect. Their subject argument in both cases is PRO, which is functionally controlled by the matrix clause object argument. In (13a), for example, the invisible subject argument of the complement clause *koɗašet ɗaatot* 'to give money' is anaphorically controlled by the matrix predicate object argument, *Kittampo*. In the same way, the implicit subject argument of the complement clause *hellemmat piɗɗot* 'to buy (an) ewe' in (13b) is anaphorically controlled by the matrix predicate object argument, *Kittonnayyu*.

The matrix clause of such predicates will have the following lexical entry as shown for *k'ark'ar-* 'help' below.

(14) k'ark'ar- V (↑PRED) = 'k'ark'ar-<(↑SUBJ) (↑OBJ) (↑COMP)>'
(↑OBJ INDEX) = (↑COMP SUBJ INDEX)

This lexical entry specifies that the predicate k'ark'ar- 'help' functionally select three arguments, namely, SUBJ, OBJ and COMP grammatical functions. It can also further specify that the object argument share the same

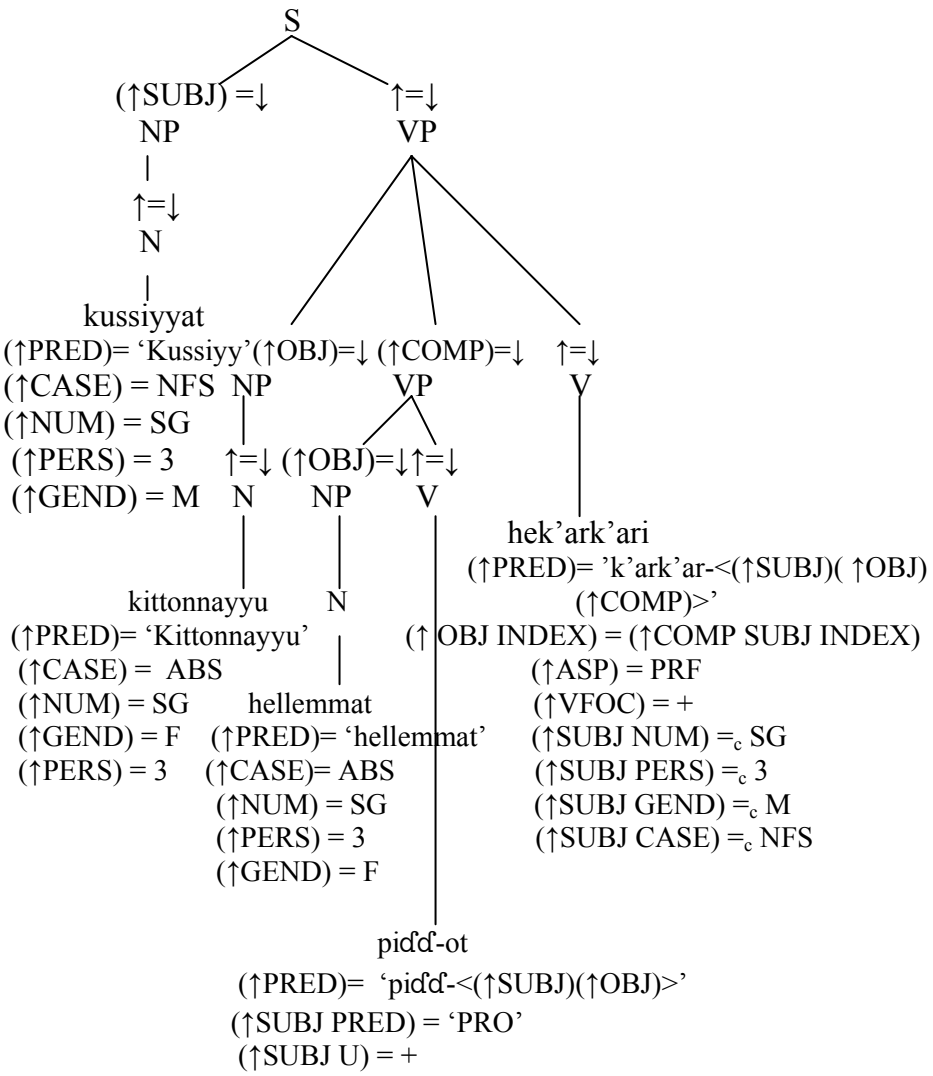
referential index with the complement clause subject. On the other hand, the embedded clause predicate will have the lexical entry as in (15) below.

(15) piɗɗ- V (↑PRED) = 'piɗɗ-<(↑SUBJ) (↑OBJ)>'
(↑ SUBJ PRED) = 'PRO'

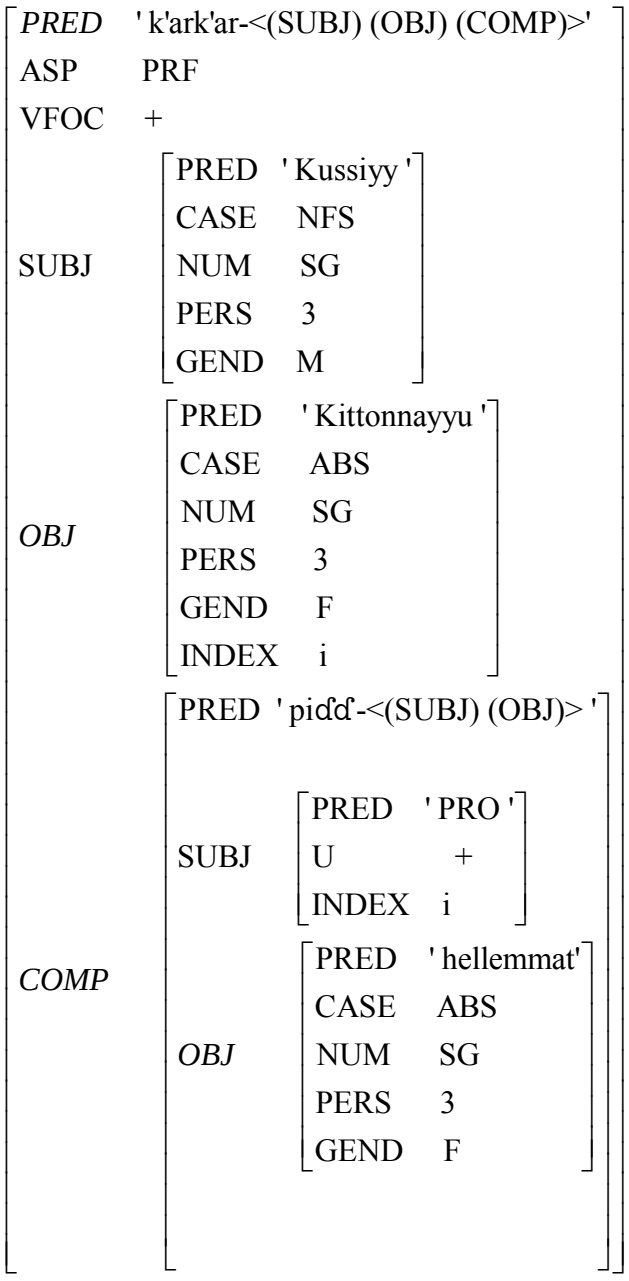
The lexical entry in (15) specifies that the embedded predicate piɗɗ- 'buy' selects two arguments SUBJ and OBJ. It further specifies that the SUBJ attribute has a PRED value PRO.

The c-structure and f-structure of (13b) is as shown in (16) below.

(16) a. c-structure



b. f-structure



In the above f-structure the matrix clause object argument co-refers with the complement clause subject argument PRO. It is, therefore, a sort of object

controlled PRO. The co-reference between the matrix object and PRO is expressed by the index "i" attached to both of them. The above f-structure is both complete and coherent in the sense that all the lexical requirements of both the matrix and the complement clause predicates are satisfied.

7.3.2 Functional Control

Unlike anaphoric control whose implicit subject is referentially identified with the matrix clause subject, in functional control the missing subject of the embedded clause is obligatorily identified with the subject of the matrix clause. The kind of identity that we find in functional control is not a type of referential identity that we find in anaphoric control, but rather it is a sort of an absolute identity in the sense that a single value is shared by grammatical function attributes of two different clauses. Such control constructions are traditionally known by the name "Raising" construction, more specifically 'Raising-to-subject' and 'Raising-to-object'. The predicates which subcategorize such complement clauses are called raising predicates.

7.3.2.1 Raising–to-subject

The raising verb *pah-* 'seem' in Diraytata takes an open clausal complement XCOMP. Consider the following examples.

(17) *a.[kittonnayyu-t ʔan-ta] pah-in
Kittonnayyu-NFS go- to seem. -IPFV
'It SEEMS Kittonnayyu to go.'

*b. kittonnayyu-t [ʔan-ta] pah-in-t
Kittonnayyu-NFS go- to seem-IPFV-3FSG
'Kittonnayyu SEEMS to go.'

In (17) above, the embedded clauses are non-finite in the sense that their predicates lack both agreement and aspect. In other words, the predicates of such complement clauses are devoid of the features such as for agreement and aspect. In (17a), for example, the embedded clause subject, *Kittonnayyu,* remains in situ and the matrix clause subject is phonetically empty. The subject argument of such predicate is understood to be third person masculine singular[3] (for the details see chapter 5, section 5.2). In (17b), the embedded clause subject *Kittonnayyu* functions as a syntactic

[3] In Diraytata there is no phonetically overt pleonastic element which is equivalent to the English 'it'. This can be expressed by a null bound affix on a predicate which has a third person masculine singular interpretation.

subject of the matrix predicate *pah-* ‘seem’. This can be learned from the agreement inflection –t ‘3FSG’ on the matrix verb. However, the sentences in (17) are ill-formed whether or not the embedded clause subject, *Kittonnayyu* remains in situ as in (17a) or moves to the higher clause as in (17b).

Now let us consider finite-infinitival clausal complements. The following are examples of sentences with such clauses.

(18) a. [kittonnayyu-t ʔan-ta-ɗɗ] pah-in
Kittonnayyu-NFS go-to-her seem.3MSG-IPFV
(Literally), ‘It SEEMS Kittonnayyu goes.’

*b. kittonnayyu-t [ʔan-ta-ɗɗ] pah-in-t
Kittonnayyu-NFS go-to-her seem-IPFV-3FSG
(Literally), ‘Kittonnayyu SEEMS she goes.’

The predicates in the above clausal complements have agreement features but devoid of aspectual features. Such clausal complements, as mentioned in section 7.2 of this chapter, are referred to by the name finite-infinitival. If we look at (18a) above, we see that the complement clause subject, *Kittonnayyu,* remains in situ and the subject of the matrix clause is phonetically empty as mentioned above. But in (18b) *Kittonnayyu* is raised to be the subject of the matrix clause. This can be learned from the agreement feature attached to the matrix verb, which is -t ‘3FSG’. However, example (18a) is well-formed and (18b) is ill-formed.

Finally we shall consider finite clauses. The following are examples.

(19) a. [kittonnayyu-t ʔakkum ʔan-t-i] pah-in
Kittonnayyu-NFS comp go-3FSG-PRF seem.3MSG-IPFV
‘It SEEMS that Kittonnayyu has gone.’

b. kittonnayyu-t [ʔakkum ʔan-t-i] pah-in-t
Kittonnayyu-NFS comp go-3FSG-PRF seem-IPFV-3FSG
(Literally), ‘Kittonnayyu SEEMS that she has gone.’

In (19) above, the constituents enclosed in square brackets are embedded clauses. The clauses are finite in the sense that the predicates of such clauses have both features for agreement and aspect. Besides, such clausal complements are introduced by the complementizer *ʔakkum*. If we closely consider example (19a), for instance, we can learn that in (19a) the

embedded clause subject is *Kittonnayyu*, whereas the matrix clause subject is phonetically empty as we mentioned earlier Diraytata does not have phonetically overt pleonastic element as such to appear in the subject position of the matrix clause.

From the facts presented so far, we may say that non-finite complement clauses are ill-formed whether or not their subjects are raised. Finite-infinitival clauses are well-formed insofar as their subjects are not raised. If their subjects are raised, they become ill-formed as can be inferred from (18b) above. Whereas finite clausal complements are well-formed both with and without the complement clause subjects are raised. If we take English, for example, we have complement clauses such as (20) below.

(20) a. John seems to go.

b. It seems that John has gone.

In (20a) the clausal complement is non-finite as its predicate lacks the features both for tense and agreement. In this example, the subject argument *John* is not a thematic argument of the predicate *seems* but rather it is the embedded clause predicate argument, which means that the subject *John* in (20a) is a raised subject. On the other hand, in (20b) the complement clause is finite insofar as its predicate has both tense and agreement features. As is apparent from this example, the thematic subject of the embedded clause *John* remains in situ and the subject position of the matrix clause is filled by a non-referential or non-thematic pleonastic element "it".

When we compare example (20a) with (20b), we can see that, unlike Diraytata which allows raising from finite clauses, in English raising is possible only out of non-finite clauses and it is impossible out of finite clauses.

Raising from finite complement clauses does not seem peculiar to Diraytata, one can find similar kinds of raising in languages related to Diraytata such as Oromo. Consider the examples from Oromo.

(21) *a.[margituu-n deem-uu] fakkaat-a
Margituu-NFS go-to seem.3MSG-IPFV

*b. margituu-n [deem-uu] fakkaat-t-i
Margituu-NFS go-to seem-3FSG-PRF

(22) a. [margituu-n kan deem-t-e] fakkaat-a
Margituu-NFS comp go-3FSG-PRF seem.3MSG-IPFV
'It seems that Margituu has gone.'

b. margituu-n [kan deem-t-e] fakkaat-t-i
Margituu-NFS comp go-3FSG-PRF seem-3FSG-IPFV
(Literally), 'Margituu seems that she has gone.'

The complement clauses in (21) are non-finite clauses as their predicates are devoid of the features both for agreement and aspect. By the same token, the complement clauses in (22) are finite clauses as their predicates have the features both for agreement and aspect. However, the examples in (21) are ill-formed whether or not the subject argument is raised. Whereas the examples in (22) are well-formed with or without the subject of the complement clause raised. This may tell us that in Oromo raising is possible only out of finite complement clauses just like Diraytata.

Now we shall consider how such raising is handled in LFG. In LFG, raising constructions are referred to by the name functional control. What is special about functional control constructions is that a single semantic argument enters into two syntactic argument relations. To be more concrete let us take example (19b) repeated here as (23).

(23) kittonnayyu-t [ʔakkum ʔan-t-i] pah-in-t
Kittonnayyu-NFS comp go-3FSG-PRF seem-IPFV-3FSG
(Literally), 'Kittonnayyu SEEMS that she has gone.'

In (23) above, the argument *Kittonnayyu* is not the logical (thematic) subject of the matrix clause predicate pah- 'seem'. This is because only the finite clausal complement *ʔakkum ʔanti* is semantically related with the predicate *pah-* 'seem'. In other words, the matrix predicate *pah-* 'seem' lexically subcategorizes the clausal argument *ʔakkum ʔanti* but not the argument *Kittonnayyu*. As mentioned above, the argument *Kittonnayyu* in (23) functions as the syntactic argument of both the matrix clause and the complement clause. Thus, the complement clause in (23) is an open complement (or XCOMP). The following is the functional control rule of such predicate (adopted from Falk 2001:137).

(24) Functional Control Rule
If (↑XCOMP) is present in a lexical form. Add the equation:
(↑CF) = (↑XCOMP SUBJ)

The above functional control rule specifies that if an open complement or XCOMP is present in the lexical entry of a predicate, then add the equation (↑CF[4]) = (↑XCOMP SUBJ).

The lexical entry for the rasing predicate *pah-* 'seem' in (23) is as in (25) below.

(25) pah- V (↑PRED) = 'pah- <(↑XCOMP)> (↑SUBJ)'
(↑SUBJ) = (↑XCOMP SUBJ)

Notice that in the above lexical entry the subject argument is outside the angled bracket. This is to show that the subject argument is not a subcategorized grammatical function of the predicate *pah-* 'seem'. The above lexical entry shows that the subject argument, which is functionally subcategorized by the XCOMP's predicate, is syntactically shared between the matrix clause and the XCOMP.

Following Falk (2001:145) we argue that the c-structure of the embedded clause (XCOMP) in functional control in Diraytata is CP but not VP. The reason for this is that such complement clauses are introduced by a complementizer *ʔakkum* as can be inferred from example (19) above and the place for such forms in a constituent structure is the head C of the CP. The following is the annotated phrase structure rule for the functional complement clauses. Here we shall show only the CP rule.

(26) CP → C , VP
↑=↓ ↑=↓

The above annotated rule indicates that CP dominates VP. This is possible because in LFG all c-structure nodes are optional and empty c-structure nodes are removed by the principle of Economy of Expression. Thus, we do not need CP to dominate an IP because both the nodes at the specifier of IP and the head of IP are empty, as a result such nodes are removed from c-structure by the above-mentioned principle.

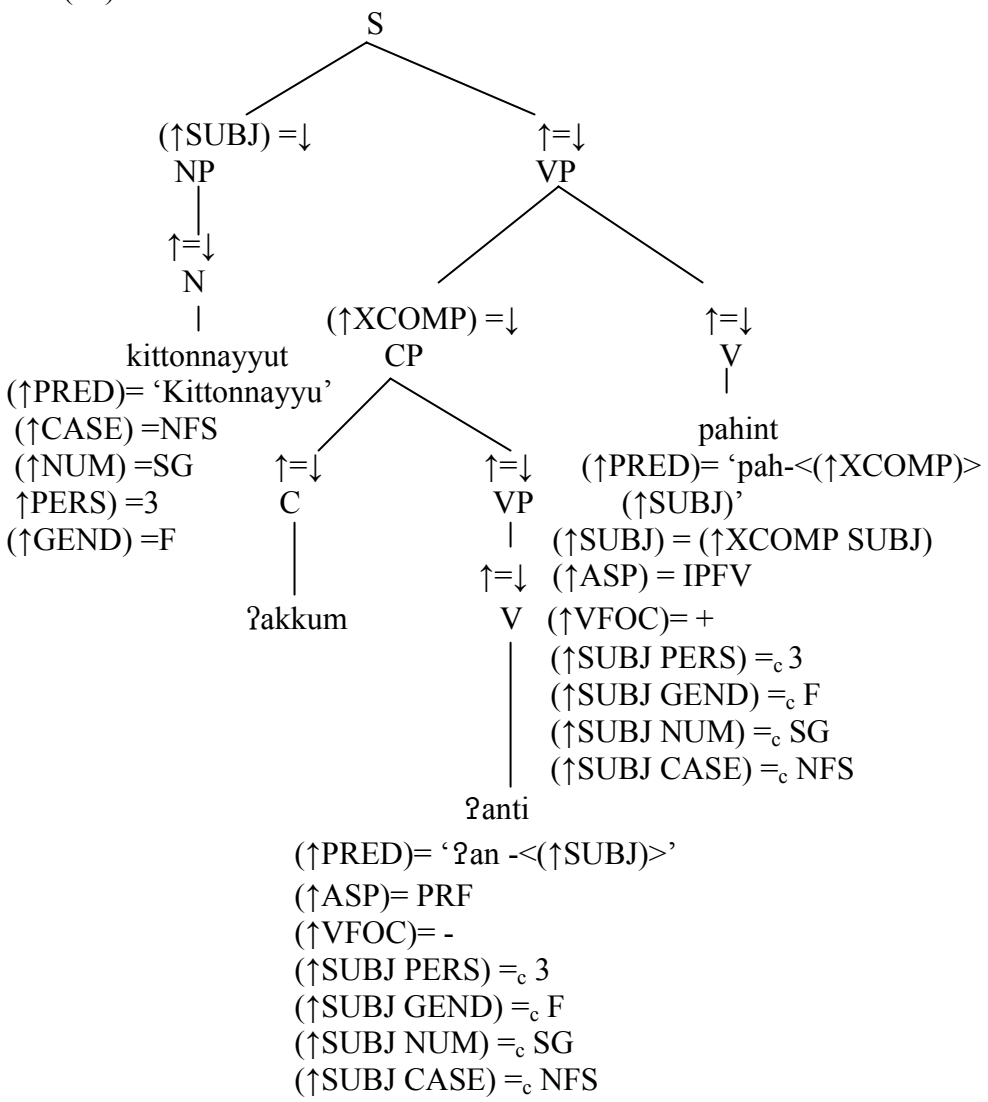
As is apparent from the example in (23) *ʔakkum* introduces finite embedded clauses and it does not occur with non-finite clauses and hence, it has the following lexical entry.

(27) *ʔakkum*: C (↑ASP) = PRF / IPFV

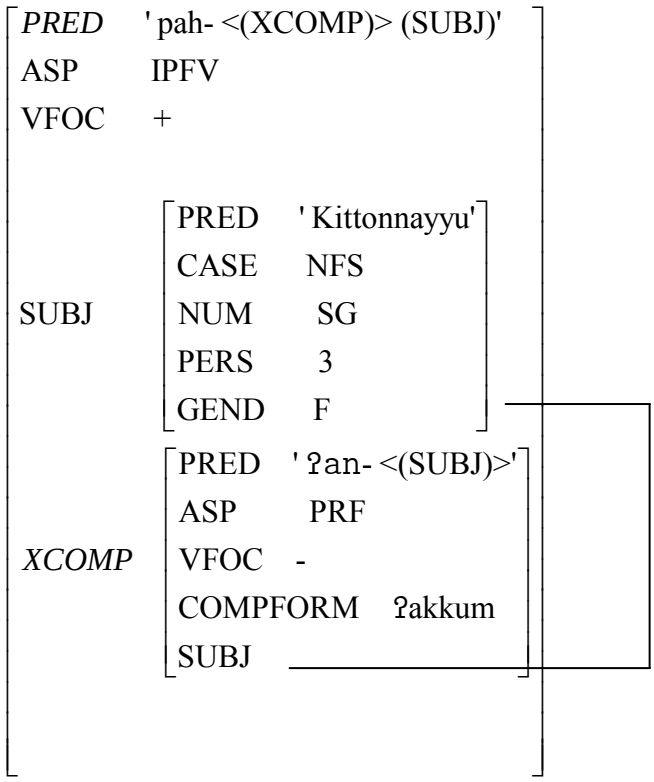
[4] CF stands for Core Function or terms. In LFG such function subsumes the grammatical functions SUBJ, OBJ and OBJθ.

The above lexical entry is interpreted as the complementizer *ʔakkum* occurs with finite clausal complement with the feature either perfective or imperfective aspect. The following is the c-structure for example (23) above

(28) a. c-structure



b. f-structure



(28a) is the c-structure whereas (28b) is the f-structure of example (23). If we draw our attention to the f-structure, we can see that the matrix clause subject grammatical function and the complement clause subject grammatical function have the same f-structure as their value. Put differently, the two subject functions have identical f-structure. This is usually indicated, in LFG, by drawing a line that connects the two functions as shown in (28b) above.

7.3.2.2 Raising-to-object

Postal (1974) proposes the notion of 'raising-to-object' in the generative literature. Consider the following example (adopted from Postal 1974: 40).

(29) Jack believed Joan to be famous.

According to Postal in (29) the post verbal argument, *Joan* functions both as a subject of the complement clause predicate and the object of the matrix predicate, *believe*. There has been another alternative proposal made by

Chomsky (1973) to account for raising predicates like *believe* above. The second alternative rejects Postal's proposal in considering the post verbal argument *Joan* as both object argument of the matrix predicate and subject argument of the embedded clause predicate. But rather it considers *Joan* only as the subject of the embedded clause predicate. The second alternative is known as Exceptional Case Marking (or ECM). The basic idea for Chomsky to reject Postal's, 'raising-to-object', analysis is because of the fact that such a proposal violates the projection principle of Chomsky (1981). Since object position is a thematic position, movement to such position is prohibited by this principle.

The predicates like *believe* in English also subcategorize finite clauses. This is shown in (30).

(30) Jack believes that Joan is famous.

This example is the finite counterpart of example (29) above. The clausal complement of the predicate *believe* in (30) is non-controlled in the sense that such clauses do not allow an external controller to control their clause internal arguments as discussed in section 7.2 of this chapter. This shows that the predicates like *believe* in English subcategorize both finite and non-finite clausal complements.

With this background, we shall consider the facts of Diraytata. In Diraytata predicates like *believe* functionally subcategorize finite or finite-infinitival clauses but it does not subcategorize non-finite clauses. This is illustrated in the following examples.

(31) *a. kussiyy-at [kittonnayyu-t ɗe-tona] ʔaman-in
Kussiyy-NFS Kittonnayyu-NFS come-to believe-IPFV

b. kussiyy-at [kittonnayyu-t ɗe-tona-ɗɗ] ʔaman-in
Kussiyy-NFS Kittonnayyu-NFS come-to/ing-her believe-IPFV
'Kussiyy BELIEVES Kittonnayyu's coming.'

c. kussiyy-at [ʔakkum kittonnayyu-t ɗe-t-i] ʔaman-in
Kussiyy-NFS comp Kittonnayyu-NFS come-3FSG-PRF believe-IPFV
'Kussiyy BELIEVES that Kittonnayyu came (has came).'

The complement clause (31a) is non-finite, (31b) is finite-infinitival and (31c) is finite. As is apparent from these examples, (31a) is ungrammatical but (31b) and (31c) are grammatical. The ill-formedness of (31a) tell us that

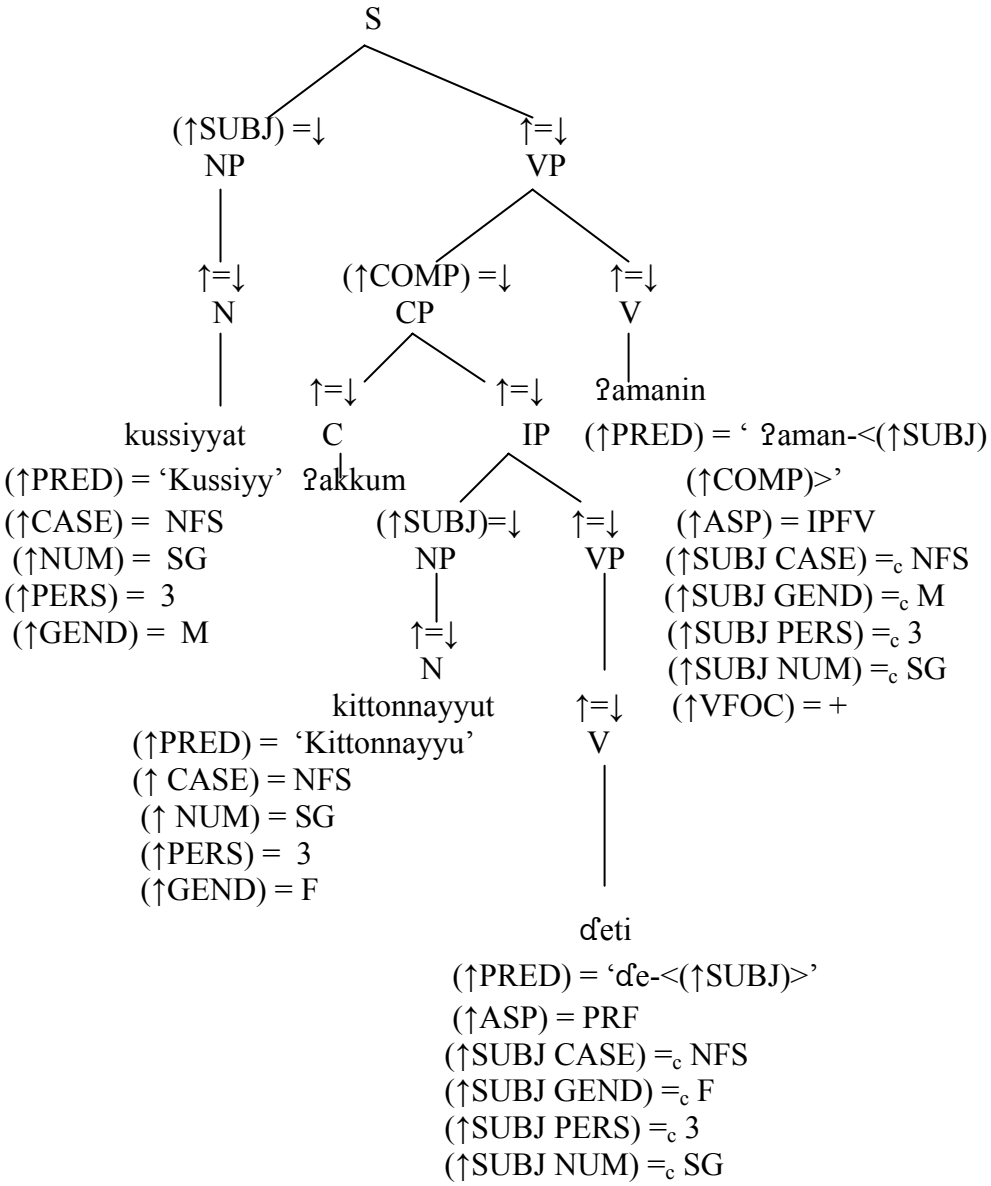
in Diraytata, unlike the predicate *believe* in English which subcategorizes finite and non-finite clausal complements, the predicate *ʔaman-* 'believe' subcategorizes finite-infinitival and finite clausal complements. Now if we draw our attention to examples (31b) and (31c) we can see that in both cases the matrix predicate *ʔaman-* 'believe' subcategorizes finite-infinitival and finite clausal complements. Both structures are well-formed. The well-formedness of such structures tell us that the predicate *ʔaman-* 'believe' in Diraytata functionally selects clausal complements whose predicate bears aspectual and /or agreement features.

Now let us turn our attention to the internal structure of the clausal complements in (31b) and (31c) so that to make some generalizations about them. If we closely observe the internal structures of such complement clauses we can learn that in both cases the predicate ɗe- 'come' functionally subcategorizes one argument, as it is intransitive. This argument has a grammatical function subject. In both cases this subject argument is *Kittonnayyu*. This can be learned from the non-focalized subject case affix *-t* displayed on the argument *Kittonnayyu*. If we compare this phenomena with the English example in (29) above we can see that in English, the post verbal argument of the predicate *believe*, *Joan,* is considered as object argument, where as its corresponding argument, *Kittonnayyu* in Diraytata is considered as subject argument of the complement clause predicate *ɗe-* 'come' but not that of *ʔaman-* 'believe'. This implies that the predicate *ʔaman-* 'believe' in Diraytata cannot be taken as an instance of 'raising-to-object' position. This is because as shown above the complement clause of such predicate has overt lexical noun with overt morphological case marking and it has no PRO and does not require an outside controller that comes from the matrix clause. In other words, all the lexical requirements of the complement clause predicate is satisfied within the clause itself. Just as the non-controlled English example in (30). The predicate *ʔaman-* 'believe' in Diraytata, therefore, will have the following lexical entry.

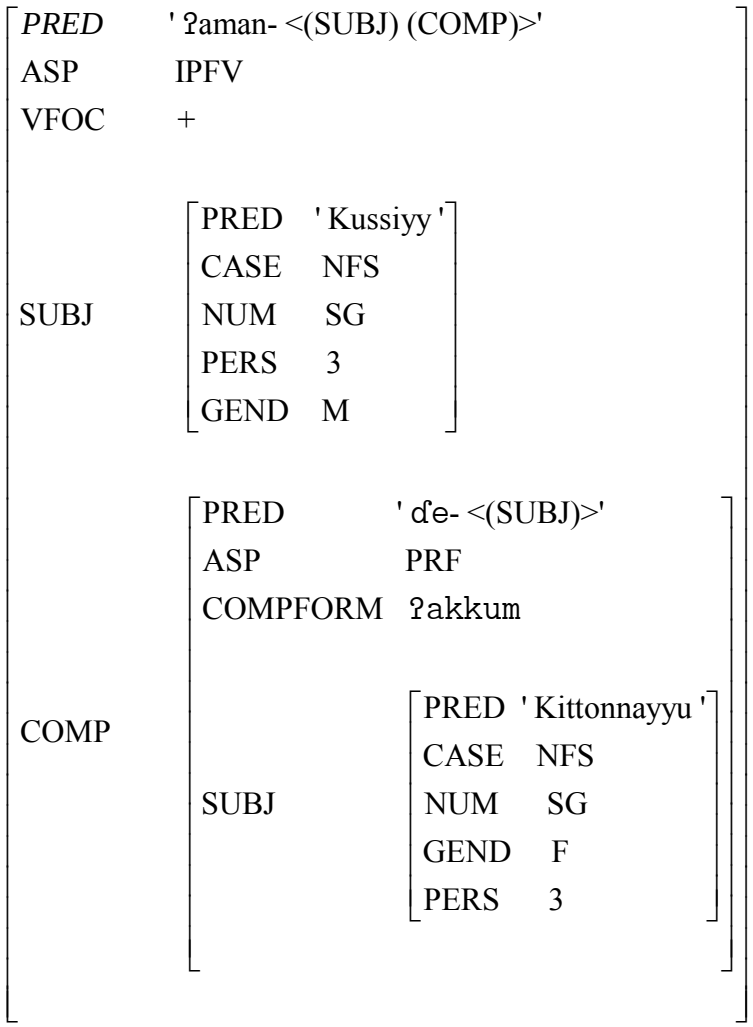
(32) ʔaman- V (↑PRED) = 'ʔaman-<(↑SUBJ) (↑COMP)>'

The above lexical entry specifies that the predicate *ʔaman-* 'believe' functionally subcategorizes the grammatical functions SUBJ and COMP arguments. The following is the c-structure and f-structure of example (31c) above.

(33) a. c-structure



b f-structure



It is apparent from the above c-structure and f-structure that the predicate *ʔaman*- 'believe' in Diraytata functionally subcategorizes SUBJ and COMP arguments. However, it does not subcategorize OBJ arguments as such. Besides, the clausal complement such predicate subcategorizes is a non-controlled one in the sense that such a clause does not allow an external controller to control its internal subject. Therefore, 'raising-to-object' does not seem to work for the predicate *ʔaman*- 'believe' in Diraytata.

7.4 Summary

In this chapter we have discussed the clausal complements of Diraytata. Such complements are arguments, which are functionally selected by the predicates. We characterized the clausal complements of Diraytata into two types, namely: controlled and non-controlled clauses on the basis of whether such clausal complements allow an external controller to control clause internal argument or not. Accordingly, those complement clauses that do not allow an external controller to control their clause internal arguments are commonly referred to as non-controlled clauses whereas those that do are called controlled clauses.

Functionally speaking, non-controlled clauses are closed complements or COMP arguments. In terms of constituent structure such complements are either Ss or CPs. They are Ss when they are finite-infinitival clauses and they are CPs when they are finite clauses. This is because finite complement clauses are always introduced by a complementizer *ʔakkum* and the place of the complementizer in a constituent structure is the head C of CP. However, finite-infinitival clauses lack a complementizer and their constituent structure begins in S rather than CP.

On the other hand, controlled clauses are clauses whose subjects are either anaphorically or functionally controlled by an outside controller. In anaphoric control, the invisible subject of the complement clause PRO is referentially identified with the matrix clause subject. In other words, the matrix clause argument controls the embedded clause implicit subject PRO. The constituent structure for such a complement clause is always VP rather than S or CP. Such clauses are closed complements or COMP arguments.

In functional control, the implicit subject of the complement clause is obligatorily identified with the subject of the matrix clause in the sense that it is not a kind of referential identity between the subject of the matrix clause and the subject argument of the embedded clause but rather there is a kind of absolute identity between the two arguments. In other words, the single subject argument is shared by both the matrix and subordinate clauses.

The raising predicate *pah-* ‘seem’ in Diraytata selects a finite or finite-infinitival complement clause. That is, a clause with the agreement and/or aspectual features. However, such a predicate does not subcategorize a non-finite clause. Thus, in Diraytata raising is possible only from finite clauses and it is impossible out of non-finite clauses. In raising construction the

complement clause is open complement or XCOMP argument. The constituent structure of the complement clause is CP but not VP because such clauses are introduced by the complementizer *ʔakkum*.

Finally, we have said that the predicate *believe* in English subcategorizes either SUBJ and COMP arguments when finite or SUBJ, OBJ, and XCOMP arguments when non-finite, whereas its equivalent the predicate *ʔaman-* 'believe' in Diraytata, subcategorizes SUBJ and COMP arguments only. Moreover such predicates in Diraytata cannot be taken as instances of raising because the complement clause of such a predicate has phonetically overt subject arguments with overt morphological case marking. Thus, the predicate *ʔaman-* 'believe' in Diraytata is neither a 'subject raising' nor an 'object raising' predicate.

Chapter 8

Anaphoric Binding

8.1 Introduction

In this chapter we will discuss anaphoric binding. The theory of anaphoric binding, in LFG, handles anaphoric relations. It seems similar to the "Binding Theory" of Government/Binding. However, in GB, Binding Theory is used not only to relate anaphoric binding relations but also to regulate movement operation, whereas in LFG the theory of anaphora is exclusively meant to relate anaphoric relations.

In GB the term anaphor is used to refer to reflexives and reciprocals, and traces of moved NPs and it does not subsume pronouns, whereas in LFG the class of anaphors subsume reflexives and reciprocals, and pronouns. The class of anaphors is further subdivided into two, namely: nuclear and non-nuclear anaphors. The nuclear anaphor refers to reflexives and reciprocals and the non-nuclear anaphor refers to pronouns.

The chapter is divided into five sections. Section 8.2 discusses the theory of anaphoric binding. Section 8.3 discusses nuclear anaphors. Section 8.4 discusses non-nuclear anaphors. The final section summarizes the highlights of the chapter.

8.2 Basic concepts

In transformational grammar particularly in GB, binding theory is stated in constituent structure terms. It deals with the interpretation of anaphors and pronominals. The theory operates at the level of Logical Form (LF). The theory has three principles, which are stated in (1) (adopted from Chomsky 1981:188).

(1) a. An anaphor is bound in its governing category
    b. A pronominal is free in its governing category
    c. An R-expression is free

The domain of the binding relation is stated in terms of governing category. The notion of 'governing category' of α is defined in Chomsky (1986:169) as:

> … a governing category is a maximal projection containing both a subject and a lexical category governing α (hence, containing α). A governing category is a " Complete functional complex" (CFC) in the sense that all grammatical functions compatible with its head are realized in it ….

The condition that the antecedent or binder must meet in binding relation is c-command. The notion of c-command is stated in Radford (1988:114) as the following:

(2) X c-commands Y if and only if the first branching node dominating X dominates Y, and X does not dominate Y, nor Y dominate X.

The basic idea behind c-command is that the antecedent or binder must be higher up than the anaphor in a tree. This is in short how binding relation is treated in GB.

Now we shall turn our attention to consider how the binding relation is treated in LFG. In LFG binding relation is treated under f-structure rather than c-structure. The constraints in anaphoric relation can be informally stated as (3) (adopted from Falk 2001: 182).

(3) a. A nuclear anaphor must be bound in the minimal nucleus containing it.
b. A nonnuclear anaphor must be free in the minimal nucleus containing it.

The Minimal Nucleus is "… the subpart of an f-structure consisting of a PRED feature and all the argument functions it selects" (Falk 2001: 178). In LFG the domain of anaphoric relation is characterized in terms of "inside-out" functional uncertainty (Dalrymple 1993:117). It involves the relation between two f-structures starting from the more embedded one to the less embedded. In other words, from the f-structure of the anaphor we need to look upwards in order to find the f-structure that contains the antecedent that is why it is called "inside-out" or bottom-up relation between two f-structures. The assumption is that anaphors lexically specify their binding requirements by "inside-out" functional equation. In formalizing binding

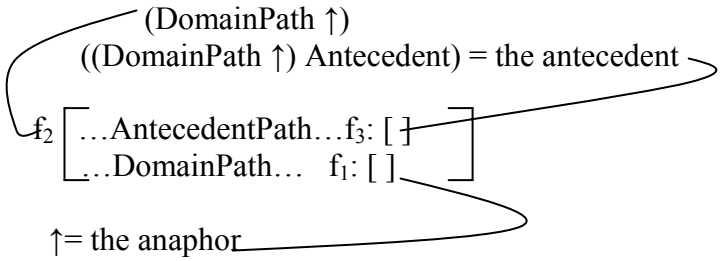
relations Dalrymple (1993:120) and Bresnan (2001:228) propose the following equation.

(4) ((DomainPath ↑) Antecedent)

This equation enforces syntactic binding relation in LFG. The DomainPath in this equation represents a path through f-structures that ends at the anaphor. The notion of path is defined as sequences of attributes in an f-structure. DomainPath ↑ is interpreted as the f-structures that contains both the DomainPath and the anaphor. By the same token, Antecedent is a path through f-structures that leads to the potential antecedent. The equation above is lexically associated to the anaphor.

The equation in (4) can be further clarified by the representation below (adopted from Dalrymple 1993: 120).

(5)



As shown above the (DomainPath ↑) is the f-structure, which contains both the anaphor and its antecedent. Since the (DomainPath) is a path that ends at the anaphor, the constraints on it determine the domain of anaphoric binding.

The following are the conditions the antecedent of the anaphor meets in order to bind the anaphor. They are the f-command and f-precedence conditions. The f-command condition in LFG is analogous to the c-command condition of the GB Theory. The difference between the two lies in the fact that the former is stated in f-structure terms whereas the latter is stated in c-structure terms. The notion of f-command is defined as follows (adopted from Dalrymple 2001: 159).

(6) f-command:
f f-commands g if and only if ¬(f GF*) = g (f does not contain g)
and ((GF f) GF^{+}) = g (all f-structures whose value for some
grammatical function GF is f also contains g).

This definition is explicated in Dalrymple (2001:159) by means of the following examples:

(7) a. $\begin{bmatrix} \text{SUBJ } f[\ ] \\ \text{OBJ } g[\ ] \end{bmatrix}$ b. $\begin{bmatrix} \text{SUBJ } f[\ ] \\ \text{COMP } [\text{SUBJ } g[\ ]\ ] \end{bmatrix}$

c. $\begin{bmatrix} \text{SUBJ } f[\ ] \\ \text{OBJ } g[\ ] \\ \text{XCOMP } h[\ \text{SUBJ }\ ] \end{bmatrix}$

In (7a) the function labelled *f* and the function labelled *g* f-command each other. In (7b) the function labelled *f* f-commands the function labelled *g* but the function labelled *g* does not f-command the function labelled *f*. In (7c) the function labelled *f* does not f-command the function labelled *g*. This is because of the presence of the function labelled *h* that contains the function labelled *f*, which does not contain the function labelled *g*.

The f-precedence condition is defined in Kaplan and Zaenen (1989) as follows.

(8) f-precedence
f f-precedes g ($f <_f g$) if and only if for all $n_1 \in \phi^{-1}(f)$ and
for all $n_2 \in \phi^{-1}(g)$, n_1 c-precedes n_2.

As is stated in chapter 2, section 2.5, the symbol ϕ 'phi' designates the correspondence from c-structure to f-structure. The inverse of this symbol, the ϕ^{-1} designates the correspondence from f-structure to c-structure. F-precedence is, therefore, a relation that holds between two f-structures on the basis of their c-structure node precedence relation. According to the above definition, the f-structure *f* f-precedes the f-structure *g* if the node corresponding to the f-structure *f* c-precedes the node corresponding to the f-structure *g* in a c-structure.

8.3 Nuclear Anaphors

As mentioned above, the term nuclear anaphor subsumes reflexives and reciprocals. There are two types of reflexive morphemes in Diraytata: *ʔiss* and *mašš*-(cf. Hayward 1980). The former, *ʔiss*, is invariable in the sense that in all persons it occurs without changing its phonetic shape. The latter, *mašš*-, although it is invariable, it always occurs together with a dependent possessive suffix. The two reflexive forms function as object arguments

only and they do not function as subject arguments. The following are illustrative examples.

(9) a. kussiyy-at ʔiss he-hat-i
Kussiyy-NFS REFL FOC-shave-PRF
'Kussiyy SHAVED himself.'

b. kittonnayyu-t ʔiss he-k'uur-t-i
Kittonnayyu-NFS REFL FOC-cut-3FSG-PRF
'Kittonnayyu CUT herself.'

c. * ʔiss-at kussiyy he-hat-i
REFL-NFS Kussiyy.ABS FOC-shave-PRF

d. * ʔiss-at kittonnayyu he-k'uur-t-i
REFL-NFS Kittonnayyu.ABS FOC-cut-3FSG-PRF

(10) a. kussiyy-at maššˇ-ayy he-ʔikay-i
Kussiyy-NFS REFL-his FOC-kill-PRF
'Kussiyy KILLED himself.'

b. kittonnayyu-t maššˇ-adˇdˇ he-dˇaw-t-i
Kittonnayyu-NFS REFL-her FOC-hit-3FSG-PRF
'Kittonnayyu HIT herself.'

c.* maššˇ-ayy-at kussiyy he-ʔikay-i
REFL-POSS-NFS Kussiyy.ABS FOC-kill-PRF

d.* maššˇ-adˇdˇ-at kittonnayyu he-dˇaw-t-i
REFL-POSS-NFS Kittonnayyu.ABS FOC-hit-3FSG-PRF

The sentences in (9) have the invariable reflexive morpheme *ʔiss* whereas those in (10) are with the reflexive *maššˇ-*. Additionally, the examples in (9a,b) and (10a,b) are well-formed and those in (9c,d) and (10c,d) are ill-formed. The question is, then, how to account for the ill-formedness of such sentences. We shall address this question later.

Reciprocity is indicated by the morpheme *ʔorr*. Consider the following examples:

(11) a. ʔiskatt-awwa-n ʔorr he-tol-en-i
woman-PL-DEF RECP FOC-insult-PL-PRF
'The women INSULTED each other.'

b. ʔiyyaa ʔorr he-ʔikay-en-i
they RECP FOC-kill-PL-PRF
'They KILLED each other.'

c.* ʔorr-at ʔiskatt-awwa-n he-tol-en-i
RECP-NFS woman-PL-DEF FOC-insult-PL-PRF

d.* ʔorr-at ʔiyyaa he-ʔikay-en-i
RECP.NFS they FOC-kill-PL-PRF

The reciprocal marker *ʔorr* has an object function. This can be learned from the well-formedness of the examples in (11a,b) and the ill-formedness of the examples (11c,d). This is because in (11a,b) the reciprocal morpheme has the object function and in (11c,d) it has the subject function, which is why examples (11a,b) are well-formed and (11c,d) are ill-formed. The same question of how to account for this, raised earlier is also posed here.

As mentioned earlier, in LFG binding relation is made on f-structure. The "inside-out" functional uncertainty equation in (4) is used to show the anaphoric binding dependencies in reflexives and reciprocals.

(12) ((DomainPath ↑)Antecedent)

In order to show the binding relation on reflexives and reciprocals in Diraytata, we shall take example (9a) above. Its f-structure is as in (13) below:

(13) f_2:
$$\begin{bmatrix} \textit{PRED} & \text{'hat- < (SUBJ) (OBJ) >'} \\ \text{ASP} & \text{PRF} \\ \text{VFOC} & + \\ \text{SUBJ} \; f_3: & \begin{bmatrix} \text{PRED} & \text{'Kussiyy'} \\ \text{CASE} & \text{NFS} \\ \text{PERS} & 3 \\ \text{NUM} & \text{SG} \\ \text{GEND} & \text{M} \end{bmatrix} \\ \textit{OBJ} \quad f_1: & \begin{bmatrix} \text{PRED} & \text{'PRO'} \\ \text{PRONTYPE} & \text{REFL} \\ \text{FOC} & - \end{bmatrix} \end{bmatrix}$$

In the f-structure above the reflexive has the OBJ function and the antecedent *Kussiyy* has the SUBJ function. In this f-structure the *DomainPath* is (↑ OBJ) where the↑ stands for the f-structure f_2 and the attribute OBJ is a path through it, which ends at the anaphor. (↑ SUBJ) is the *AntecedentPath* that leads to the potential antecedent. By the same token, the *DomainPath* ↑ is the f-structure represented by f_2. Now before we consider the domain of binding relations and constraint on the possible grammatical function of the antecedent, it seems appropriate to consider the non-nuclear anaphors.

8.4 Non-nuclear anaphors

The class of non-nuclear anaphors subsume pronouns. Consider the examples in (14).

(14) a. kittonnayyu-t [hellemmat piɗɗi-t-i] ʔup-in-t
Kittonnayyu-NFS ewe.ABS buy-3FSG-PRF know-IPFV-3FSG
Literally 'Kittonnayyu KNOWS having bought (an) ewe.'

b. kittonnayyu-t kussiyy-as [hellemmat piɗɗi-t-i] he-ɗaat-t-i
Kittonnayyu-NFS Kussiyy-DAT ewe.ABS buy-3FSG-PRF FOC-give-3FSG-PRF
Literally 'Kittonnayyu having bought (an) ewe GAVE it to Kussiyy.'

In (14), the structures enclosed in the square bracket are embedded clauses. The subject arguments of such clauses are not morphologically realized.

However, the pronominal inflection bound on the embedded predicate *piʔɗ-* 'buy' specify the content of the subjects. This phenomenon is called pronoun incorporation. In LFG such an argument is designated by PRO. The point is that in such embedded clauses the subject argument of the clause is PRO and such a PRO does not appear in the c-structure, due to the Principle of Economy of Expression. However, the Completeness and Coherence Conditions dictate such a PRO to appear on an f-structure, as the bound affix on the verb builds the f-structure of the phonetically null argument. This has been discussed in chapter 5, section 5.2 and chapter 7, section 7.3. Particularly in chapter 7, section 7.3, we have identified two types of PROs following Bresnan (1982a). The first type of PRO has the attribute U (for unexpressed morphologically) with the value "+" and the second type has the attribute U with the value "-". Here our concern is the second type of PRO. That is the PRO of definite pronouns. In (10) the subject anaphor, PRO of the embedded clause is bound by the antecedent, *Kittonnayyu* the subject argument of the matrix clause. The general binding equation in (4) is used for the non-nuclear anaphoric binding dependencies.

(15) ((DomainPath ↑) Antecedent)

The f-structure of example (14a) is as in (16).

(16) f_3:
$$\begin{bmatrix} PRED & \text{'ʔup- <(SUBJ) (COMP) >'} \\ ASP & IPFV \\ VFOC & + \\ SUBJ\ f_4: & \begin{bmatrix} PRED & \text{'Kittonnayyu'} \\ CASE & NFS \\ PERS & 3 \\ NUM & SG \\ GEND & F \end{bmatrix} \\ COMP\ f_2: & \begin{bmatrix} PRED & \text{'picc- <(SUBJ) (OBJ) >'} \\ ASP & PRF \\ VFOC & - \\ SUBJ\ f_1: & \begin{bmatrix} PRED & \text{'PRO'} \\ U & - \\ PERS & 3 \\ CASE & NFS \\ NUM & SG \\ GEND & F \end{bmatrix} \\ OBJ & \begin{bmatrix} PRED & \text{'hellemmat'} \\ CASE & ABS \\ NUM & SG \\ PERS & 3 \\ GEND & F \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

In the above f-structure, the f-structures (f_3 COMP SUBJ) are the DomainPath that leads to the anaphor (or f_1). The f-structure (f_3 COMP SUBJ) f_1) contains the anaphor and all the paths leading to it. The path (f_3 SUBJ) is the AntecedentPath that leads to the potential antecedent for the anaphor. In the above f-structure, the subsidiary f-structure that contains the anaphor (↑) is labelled f_1, the outermost f-structure (DomainPath ↑) is labelled f_3, and the subsidiary f-structure at ((DomainPath ↑)Antecedent) is labelled f_4. In this example the antecedent, *Kittonnayyu* is the subject argument of the matrix clause and the anaphor, *PRO* is the subject argument of the embedded clause. This is not always the case in non-nuclear

anaphors. The antecedent could be the object argument of the matrix clause. This can be observed from the example (17a) which has the f-structure (17b).

(17) a. kussiyy-at kittonnayyu [ʔakkum ʔan-in-t] he-lel-i
Kussiyy-NFS Kittonnayyu.ABS comp go-IPFV-3FSG FOC-tell-PRF
Literally, 'Kussiyy TOLD Kittonnayyu as she will go.'
'Kussiyy TOLD Kittonnayyu to go.'

b. f-structure

$$
\begin{bmatrix}
\textit{PRED} & \text{'lel- <(SUBJ)(OBJ)(COMP)>'} \\
\text{ASP} & \text{PRF} \\
\text{VFOC} & + \\
\text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'Kussiyy'} \\ \text{CASE} & \text{NFS} \\ \text{NUM} & \text{SG} \\ \text{PERS} & 3 \\ \text{GEND} & \text{M} \end{bmatrix} \\
\textit{OBJ} & f_4: \begin{bmatrix} \text{PRED} & \text{'Kittonnayyu'} \\ \text{CASE} & \text{ABS} \\ \text{PERS} & 3 \\ \text{NUM} & \text{SG} \\ \text{GEND} & \text{F} \end{bmatrix} \\
f_3: \textit{COMP} & f_2: \begin{bmatrix} \text{PRED} & \text{'ʔan- < (SUBJ) >'} \\ \text{ASP} & \text{IPFV} \\ \text{VFOC} & - \\ \text{COMPFORM} & \text{ʔakkum} \\ \text{SUBJ} & f_1: \begin{bmatrix} \text{PRED} & \text{'PRO'} \\ \text{U} & - \\ \text{CASE} & \text{NFS} \\ \text{NUM} & \text{SG} \\ \text{GEND} & \text{F} \\ \text{PERS} & 3 \end{bmatrix} \end{bmatrix}
\end{bmatrix}
$$

In (17b), the path (f_3 COMP SUBJ) is the *DomainPath* that leads to the anaphor (f_1). The path ((f_3 COMP SUBJ) f_1) is the *DomainPath* $\uparrow$ that contains the anaphor and the set of f-structures leading to it. By the same token, the path (f_3 OBJ) is the *AntecedentPath* leading to the antecedent, *Kittonnayyu*. As shown in (17b), the subsidiary f-structure that contains the anaphor is labelled f_1, the outermost f-structure (*DomainPath* $\uparrow$) is labelled f_3, and the subsidiary f-structure that contains the antecedent ((*DomainPath* $\uparrow$*)Antecedent)* is labelled f_4.

Now let us compare the f-structures of the nuclear anaphor in (13) with the f-structure of the non-nuclear anaphor in (17b). The comparison is with respect to the syntactic domain in which the antecedent and the anaphor found. In (13) the DomainPath that leads to the anaphor has an atomic attribute whose path expression is (f_2 OBJ) whereas in (17b) the DomainPath that leads to the anaphor has sequences of attributes whose path is (f_3 COMP SUBJ). This situation tells us that the DomainPath for the nuclear anaphor and non-nuclear anaphor is not identical. That is to say, the DomainPath for the nuclear anaphor is local in the sense that the path crosses through a single attribute. On the other hand, the DomainPath for the non-nuclear anaphor is non-local in that the path crosses through sequences of attributes. The question that follows from this is that, if the nuclear and non-nuclear anaphors have differences with respect to their DomainPath, why do we use the same general binding equation for both of them? It is true that the same "inside-out" functional uncertainty equation is used for both nuclear and non-nuclear anaphors. However, this does not mean that the syntactic domain in which the potential antecedent is found for both the nuclear and non-nuclear anaphors are the same. Their syntactic domain is restricted by means of domain constraint. That is, the domain constraints specify the domain in which the antecedent of the anaphor can appear. For example, for the nuclear anaphors the domain in which the anaphor can be bound with the antecedent in Diraytata is the Minimal Nucleus containing it. Thus, in the f-structure (13) above both the reflexive and the antecedent, *Kussiyy* occur as the arguments of the predicate *hat-* 'shave'. This means that, the nuclear anaphor in Diraytata satisfies the Minimal Nucleus binding domain. On the other hand, the non-nuclear anaphors as shown in the f-structure (17b) are free in the Minimal Nucleus. We, therefore, use the following Positive Binding Constraint for the nuclear anaphors (adopted from Bresnan 2001:229 with some modification).

(18) Positive (Nuclear) Binding Constraint:
((DomainPath $\uparrow$) Antecedent INDEX) = ($\uparrow$ INDEX)
$\neg$($\rightarrow$ PRED)

In (18), the "→" indicates the f-structure value of the attribute DomainPath. The notation ¬(→ PRED) shows the DomainPath can not pass through an f-structure containing PRED. It means that the antecedent of the nuclear anaphor in Diraytata must appear within the f-structure of the PRED that contains the anaphor in order that the antecedent binds the anaphor. Such a binding relation is expressed by co-indexation[1]. This is shown in the f-structure below.

(19) f_2:
$$\begin{bmatrix} PRED & \text{'hat- < (SUBJ) (OBJ) >'} \\ ASP & PRF \\ VFOC & + \\ SUBJ \quad f_3: & \begin{bmatrix} PRED & \text{'Kussiyy'} \\ CASE & NFS \\ PERS & 3 \\ GEND & M \\ NUM & SG \\ INDEX & i \end{bmatrix} \\ OBJ \quad f_1: & \begin{bmatrix} PRED & \text{'PRO'} \\ PRONTYPE & REFL \\ INDEX & i \end{bmatrix} \end{bmatrix}$$

In the f-structure (19) the antecedent, *Kussiyy* and the anaphor *PRO* are coindexed. The index (i) shows that the antecedent, *Kussiyy* binds the reflexive anaphor, *PRO*.

The equation for the non-nuclear anaphor is as shown in (20) (adopted from Bresnan 2001: 229 with the addition of the off-path).

(20) Negative (Non-nuclear) Binding Constraint:
((DomainPath ↑) Antecedent INDEX) ≠ (↑ INDEX)
¬(→ PRED)

The "off-path constraint" of the non-nuclear anaphor above shows that such anaphors are free in the Minimal Nucleus which is why the antecedent and the anaphor do not have the same index within the Minimal Nucleus. This is

[1] In Dalrymple (1993) referential relations is designated by subscripted ρ rather than by index notation.

indicated by the negative equation (Antecedent INDEX) ≠ (↑ INDEX). Such a binding relation is shown in (21).

(21) f_3:
$$\begin{bmatrix}
\textit{PRED} & \text{'lel-<(SUBJ) (OBJ) (COMP)>'} \\
\text{ASP} & \text{PRF} \\
\text{VFOC} & + \\
\text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'Kussiyy'} \\ \text{CASE} & \text{NFS} \\ \text{PERS} & 3 \\ \text{NUM} & \text{SG} \\ \text{GEND} & \text{M} \end{bmatrix} \\
\textit{OBJ} \quad f_4: & \begin{bmatrix} \text{PRED} & \text{'Kittonnayyu'} \\ \text{CASE} & \text{ABS} \\ \text{PERS} & 3 \\ \text{NUM} & \text{SG} \\ \text{GEND} & \text{F} \\ \text{INDEX} & \text{i} \end{bmatrix} \\
\textit{COMP}: & \begin{bmatrix} \text{PRED} & \text{'ʔan-<(SUBJ)>'} \\ \text{ASP} & \text{IPFV} \\ \text{VFOC} & - \\ \text{SUBJ} \quad f_1: & \begin{bmatrix} \text{PRED} & \text{'PRO'} \\ \text{U} & - \\ \text{CASE} & \text{NFS} \\ \text{NUM} & \text{SG} \\ \text{GEND} & \text{F} \\ \text{PERS} & 3 \\ \text{INDEX} & \text{i} \end{bmatrix} \end{bmatrix}
\end{bmatrix}$$

In the above f-structure, the antecedent, *Kittonnayyu*, binds the nonnuclear anaphor *PRO*. The binding relation is shown by the index (i). The antecedent, *Kittonnayyu,* and PRO are co-indexed. The domain for such anaphoric binding relation is outside the Minimal Nucleus.

Thus far we have seen the domain of anaphoric binding relation. We have said that nuclear anaphors must be bound within the Minimal Nucleus, whereas non-nuclear anaphors are free within the Minimal Nucleus. Now let us turn back to the question posed in connection to the ill-formed structures in (9c,d), (10c,d) and (11c,d) above, and try to see whether or not the domain of anaphoric binding could give us an explanation for their ill-formedness. As a matter of fact, the domain of anaphoric binding cannot give us explanation for the ill-formedness of such structures. This is because in the examples (9c,d), (10c,d) and (11c,d) both the anaphors and their antecedents appear within the Minimal Nucleus and hence there is no violation of the domain constraint.

Let us see whether or not the f-command condition could give us explanation for the ill-formedness of the examples in (9c,d), (10c,d) and (11c,d). A close observation of these examples reveals that both the antecedents and the anaphors occur as arguments of the predicates. To be more concrete, the f-structure of example (9c) is given as (22).

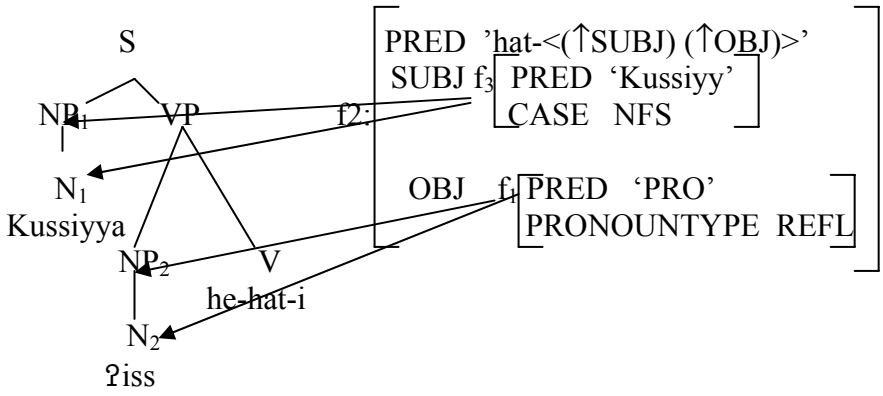
(22) f2 :
$$\begin{bmatrix} PRED & \text{'hat- < (SUBJ) (OBJ) >'} \\ ASP & PRF \\ VFOC & + \\ SUBJ\ f_3: & \begin{bmatrix} PRED & \text{'PRO'} \\ PRONTYPE & REFL \\ CASE & NFS \end{bmatrix} \\ OBJ\ f_1: & \begin{bmatrix} PRED & \text{'Kussiyy'} \\ CASE & ABS \\ NUM & SG \\ PERS & 3 \\ GEND & M \end{bmatrix} \end{bmatrix}$$

In the f-structure (22) the predicate *hat-* 'shave' has two arguments with the grammatical function SUBJ and OBJ. If we pay a particular attention to the arguments, the SUBJ argument *is* the anaphor *PRO* whereas the OBJ argument, *kussiyy* is the antecedent. If we want to describe the relation between the antecedent, *Kussiyy* and the anaphor *PRO* in terms of the notion of f-command discussed above, we can see that both arguments f-command each other. In other words, it is not only the antecedent that f-commands the

anaphor *PRO* but the anaphor *PRO* also f-commands the antecedent, *Kussiyy*. In such f-structures there is no violation of the f-command condition. This situation tell us that f-command does not help us to explain the ill-formedness of the sentences in (9c,d), (10c,d) and (11c,d). This is because all these sentences obey the f-command condition and yet they are ill-formed. If, the f-command condition does not give us an explanation for the ill-formedness of these sentences, then let us now consider the f-precedence condition and try to see whether or not this condition could give us explanation for their ill-formedness.

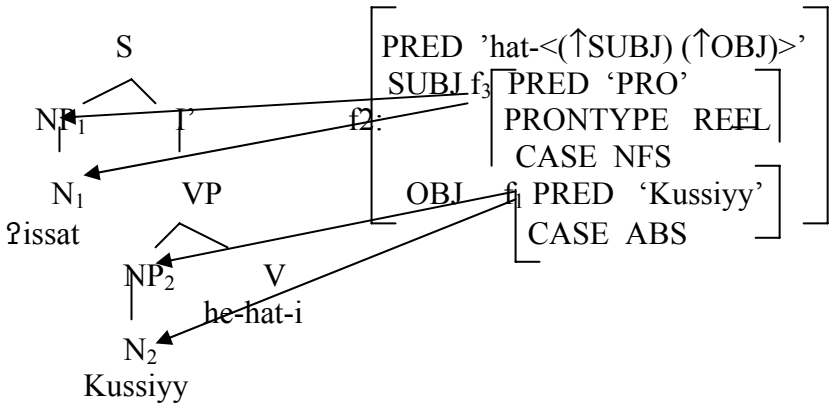
Example (23) gives the c-structure and the f-structure for the well-formed sentence (9a).

(23) a. c-structure b. f-structure



(Note that in the above representations we do not give a detail specification of both the c-structure and f-structures but rather specifications that seem pertinent to the case in point are given). In this example the antecedent f-structure labelled f_3 through inverse ϕ (ϕ^{-1}) related to the nodes NP_1 and N_1 in the c-structure. In a similar way the nuclear anaphor labelled f_1 via the inverse ϕ related to the nodes NP_2 and N_2 in the c-structure. In this example the f-structure of the antecedent, *Kussiyy* f-precede the f-structure of the nuclear anaphor *ʔiss* and hence the antecedent binds the anaphor. Let us consider the ill-formed sentence (9c) above. The following is the c-structure and f-structure of (9c).

(24) a. c-structure b. f-structure



The nuclear anaphor f-structure labelled f_3 is inversely (ϕ^{-1}) related to the nodes NP_1 and N_1 in the c-structure. In a similar way the antecedent f-structure labelled f_1 through inverse ϕ related to the c-structure nodes NP_2 and N_2. A close observation of both the c-structure and the f-structure in (24) reveals that the anaphor precedes the antecedent. This in turn violates the antecedent f-precedence condition, as this condition states that the f-structure of the antecedent must f-precede the f-structure of the anaphor. Thus, in (24) there is a clear case of violation of the antecedent f-precedence condition that is why this sentence is ill-formed. The same can be said for the examples in (9d), (10c,d) and (11c,d). In these sentences the f-structure of antecedent does not f-precede the f-structure of the anaphor, as a result of this the sentences are ill-formed.

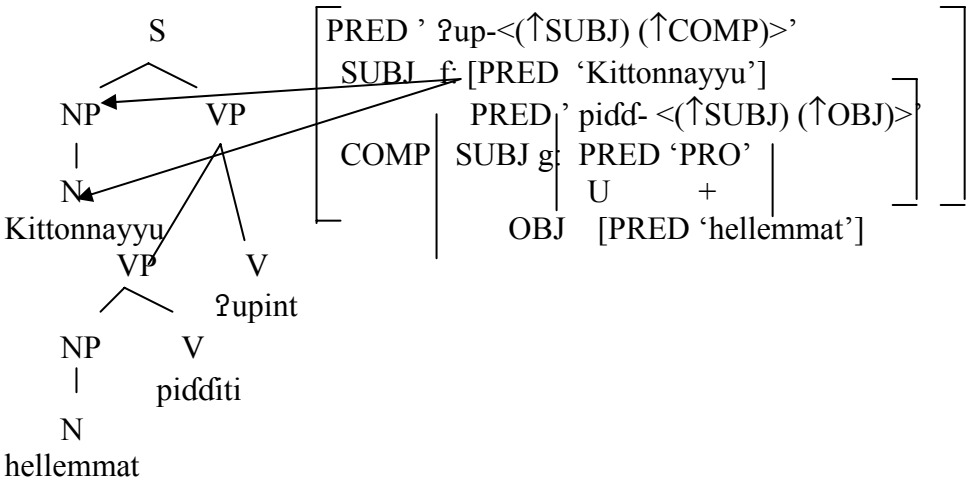
Now we shall consider the effect of the antecedent f-precedence condition on the non-nuclear anaphors. For the sake of discussion we shall repeat example (14a) as (25).

(25) kittonnayyu-t [hellemmat piɗɗi-t-i] ʔup-in-t
Kittonnayyu-NFS ewe.ABS buy-3FSG-PRF know-IPFV-3FSG
Literally, 'Kittonnayyu KNOWS having bought (an) ewe.'

In (25) the structure enclosed in the square bracket is a subordinate clause, whose subject is *PRO*. This *PRO* is identified with the matrix clause subject, *Kittonnayyu.* That is to say that the antecedent, *Kittonnayyu* binds *PRO*. According to the equation (20) above the non-nuclear anaphor must be free in the Minimal Nucleus, which means that the anaphoric binding domain for such pronouns is outside the Minimal Nucleus containing the anaphor. This is as far as the anaphoric binding domain is concerned. When we take the

antecedent f-precedence condition into consideration, we can observe that the example in (25) does not satisfy this condition. This is because the antecedent f-precedence condition as mentioned earlier is based on c-structure precedence relation. That is to say that f-precedence relation is a relation that takes place between two f-structures on the basis of their c-structure nodes precedence relation corresponding the two f-structures. The following is the c-structure and f-structure of sentence (25).

(26) a. c-structure b. f-structure



If we observe the c-structure and f-structure representations in (26), we can see that there is a mismatch between the two representations. The mismatch is due to the representation of the embedded subject argument labelled *g* in the f-structure and its absence from the c-structure. The representation of the phonetically null subject argument labelled *g* in the f-structure in (26b) is accounted for in terms of the Completeness and Coherence Conditions discussed in chapter 2, section 2.4. By the same token the absence of such null argument in the c-structure in (26a) can be accounted for in terms of the Principle of Economy of Expression, which prohibits an empty category from appearing in the c-structure. This situation makes the antecedent f-precedence relation impossible. This is because as we have said above, antecedent f-precedence relation between the antecedent and anaphor in (25) holds insofar as both the antecedent and the anaphor represented in the c-structure and the nodes that contain the antecedent c-precedes the nodes that contain the anaphor. As a matter of fact there are no c-structure nodes that represent the anaphor *PRO*. This situation may lead us to argue that the antecedent f-precedence condition does not apply to non-nuclear anaphors with phonetically null embedded argument.

The subject argument of an embedded clause, in Diraytata, is always phonetically null if the embedded subject is co-referential with the matrix clause argument. This can be learned from example (27).

(27)* kittonnayyu-t [ʔit-i hellemmat piɗɗi-t-i] ʔup-in-t
Kittonnayyu-NFS she-NFS ewe.ABS buy-3FSG-PRF know-IPFV-3FSG

Example (27) is similar to example (25) above except that in example (27) the embedded clause has an overt subject pronoun, *ʔit-* 'she', which is co-referential with the matrix clause subject argument, *Kittonnayyu*. On the other hand, in (25) the subject argument of the embedded clause is phonetically null as its content is specifiable from the bound affix on the predicate of the embedded clause. Example (25) is well-formed and (27) is ill-formed. The ill-formedness of (27) can be accounted for in terms of the presence of an overt pronoun *ʔit* 'she' as the subject argument of the embedded clause. The well-formedness of example (25) and the ill-formedness of (27) may lead us to conclude that, in Diraytata, overt pronouns can not appear as a subject of an embedded clause if the embedded clause subject is co-referential with the matrix clause argument. If this is the case, then we can also further conclude that, in Diraytata, the antecedent f-precedence condition does not apply to non-nuclear anaphors. If the antecedent f-precedence condition does not apply to non-nuclear anaphors, then let us consider the antecedent f-command condition and see whether this condition applies for non-nuclear anaphors.

Example (25) has the f-structure (28) below.

(28) f_3:

$$\begin{bmatrix}
\textit{PRED} & \text{'ʔup-<(SUBJ) (COMP)>'} \\
\text{ASP} & \text{IPFV} \\
\text{VFOC} & + \\
\text{SUBJ} \quad f_4: & \begin{bmatrix} \text{PRED} & \text{'Kittonnayyu'} \\ \text{CASE} & \text{NFS} \\ \text{NUM} & \text{SG} \\ \text{GEND} & \text{F} \\ \text{PERS} & 3 \\ \textit{INDEX} & \text{i} \end{bmatrix} \\
\textit{XCOMP} \quad f_2 & \begin{bmatrix} \text{PRED} & \text{'piɗɗ-<(SUBJ) (OBJ)>'} \\ \text{ASP} & \text{PRF} \\ \text{VFOC} & - \\ \text{SUBJ} \quad f_1: & \begin{bmatrix} \text{PRED} & \text{'PRO'} \\ \text{U} & - \\ \text{PERS} & 3 \\ \text{NUM} & \text{SG} \\ \text{GEND} & \text{F} \\ \text{INDEX} & \text{i} \end{bmatrix} \\ \textit{OBJ} & \begin{bmatrix} \text{PRED} & \text{'hellemmat'} \\ \text{CASE} & \text{ABS} \\ \text{NUM} & \text{SG} \\ \text{PERS} & 3 \\ \text{GEND} & \text{F} \end{bmatrix} \end{bmatrix}
\end{bmatrix}$$

In (28), the f-structure labelled f_1 is the anaphor; the f-structure labelled f_4 is the antecedent. The f-structure labeled f_4 f-commands the f-structure labelled f_1 by the f-command definition (6). But, the f-structure labelled f_1 does not f-command the f-structure labelled f4. That is to say the antecedent, *Kittonnayyu* f-commands the anaphor PRO. From this one

would argue that the antecedent f-command condition applies to non-nuclear anaphors in Diraytata.

8.5 Summary

In this chapter we have been concerned with anaphoric binding relations in Diraytata. In section 8.2, the basics of the anaphoric binding theory have been discussed. We have said that in LFG anaphoric binding relation is treated in f-structure. The anaphoric binding relation is characterized in terms of "inside-out" functional uncertainty equation. It involves the relation between two f-structures starting from the more embedded to the less embedded one. This equation is lexically associated with the anaphor.

In general, there are two constraints on the anaphoric binding dependencies, namely the Domain Constraint and the Antecedent Constraint. The domain constrain restricts the domain in which anaphoric relation takes place. For the nuclear anaphor the domain of anaphoric binding is the Minimal Nucleus containing it. Whereas the non-nuclear anaphors are free in the Minimal Nucleus. Such restriction is stated in terms of "off-path" constraint.

The Antecedent Constraint is of two types, the antecedent f-precedence and the antecedent f-command conditions. The antecedent f-precedence condition requires the antecedent to f-precede the anaphor on the basis of their c-structure precedence relation.

The anaphors of Diraytata have been divided into two: nuclear and non-nuclear anaphors. The nuclear anaphors subsumes reflexives and reciprocals. There are two types of reflexive morphemes: *ʔiss* and *mašš-*. They function as an object argument only. Reciprocity is indicated by the morpheme *ʔorr*. Like the reflexives, the reciprocal morpheme has an object function. On the other hand, the non-nuclear anaphors subsumes pronouns designated by PRO. Such PRO has the attribute U (for unexpressed morphologically) with the value "-".

The nuclear anaphors of Diraytata obey the antecedent f-precedence condition whereas the non-nuclear anaphor does not. Similarly, the f-command condition does not apply to nuclear anaphors because both the antecedent and the anaphor f-command each other, whereas the non-nuclear anaphors always f- command the anaphor. From the forgoing discussion on the antecedent condition, we conclude that, in Diraytata, the f-precedence condition applies to nuclear anaphors and the f-command condition to non-nuclear anaphors.

Chapter 9

Argument Structure and Lexical Mapping Theory

9.1 Introduction

In this chapter we will explore the argument structure and the theory of Lexical Mapping. The chapter is divided into four sections. The first section states the conception of argument structure and it also tries to briefly summarize the currently existing views about argument structure. The second section explains the need for lexical mapping theory and the conception of lexical mapping theory. The third section shows the application of the Lexical Mapping theory to different constructions. The final section gives a brief summary of the highlights of the chapter.

9.2 Argument Structure

The emergence of the notion of argument structure in LFG can be traced back to the works of Bresnan (1978) and Williams (1980, 1981). In these works argument structure was treated as a kind of grammatical information, which is found in the lexical entry of predicates. In transformational grammar particularly in Government/Binding Theory (Chomsky 1981, 1982, 1986), argument structure is treated as part of the lexicon. This is because the predicate semantically selects (s-selects) its complement(s) and assigns thematic roles (θ- roles) to the selected complement(s). The assignment of thematic roles to complement(s) is constrained by the θ-Criterion.

However, there is no unified consensus among linguists about the conception of what argument structure is, including those who are working within LFG. The reason for such discrepancy in the conception of argument structure is attributed due to the nature of the subject matter itself. Regarding this Bresnan (2001:304) remarks:

> The reason for this is that argument structure has two faces, semantic and syntactic. On the semantic side, argument structure represents the core participants in event (states, processes) designated by a single predicator. From this point of view it appears as a type of representation of event structure. On the syntactic side, argument structure represents the minimal information needed to characterize the syntactic dependents of an argument-taking head. From this point of

> view it appears as a type of syntactic subcategorization or valence register.

According to Bresnan and Zaenen (1990), Zaenen and Engdahl (1994), and Mohanan (1994, 1997) argument structure contains lexical information such as the number of arguments a predicate selects, the syntactic types of the selected arguments and the hierarchical relations of the arguments, which is relevant to syntactic structure. Hence, argument structure is a lexical syntactic construct rather than a semantic construct (Bresnan 2001).

Contemporary research on argument structure within LFG is rooted in three different theoretical sources. Some researchers have adopted Dowty's (1991) conception of Proto-Role argument classification with some modifications (e.g. Zaenen 1993, Alsina 1993, 1996, Ackerman and Moore 2001). Some have adopted Rappaport Hovav and Levin's (1998 a,b) Lexical Semantics with some modifications (e.g. Bresnan 2001). Still others have adopted Jackendoff's (1983, 1990) Conceptual Semantics (e.g. Butt 1995, Broadwell 1998, Falk 2001).

According to Alsina (1993, 1996) argument structure (a-structure) is derivative of lexical semantic representation. It contains information about the number of arguments of a given predicate subcategorizes and the ordering of the selected arguments that follow the thematic hierarchy proposed by Bresnan and Kanerva (1989). In this hierarchy arguments that have Agent role are prominent (higher) than those arguments that have Patient roles. Thus, according to Alsina the thematic roles such as Agent, Patient, etc. are Lexical Semantic construct and they are not elements of argument structures. And hence they have no direct role to play in determining the grammatical function of arguments. Accordingly, argument structure (a-structure) contains the argument-taking predicate along with selected arguments listed in accordance with the thematic hierarchy, without the association of arguments with thematic roles (Alsina 1996).

Alsina classifies arguments into three Proto-Roles (P-Role) such as P-A (Proto-Agent), P-P (Proto-Patient), or neither of the two. Regarding the Proto-Role classification criteria he says:

> Let us assume that, if an argument is an "incremental theme" (that is, the argument of a telic predicate-an achievement or an accomplishment-that serves to measure the completion of the event), or "undergoes a change of state," or "is causally affected by another participant," it is necessarily classified as a P-P. On the other hand, the properties of "causing an event or change of state in another participant" and "volitional involvement" seem to be determining

> properties of the P-A classification; a third property, "sentience (and/ or perception)," also appears to be relevant for the P-A classification, but only if the argument has none of the key properties are unspecified for the P-Role classification (Alsina 1996: 40).

From the above quotation we can observe that the causer argument with "volitional involvement" is classified as a Proto-Agent whereas as an argument with "incremental theme" as Proto-Patient. Arguments which do not fall into the above two groups are assigned no Proto-Role. To make his proposal concrete Alsina (1996:42) presents the argument structure for the predicates *come* and *give* as follows.

(1) a. come V [PRED 'come <[P-P] [ ] >']

b. give V [PRED 'give < [P-A] [(P-P)] [P-P] >']

As is apparent from (1a) the predicate *come* has two arguments. The first argument is the person who does the act of coming, which is classified as proto-patient. The second argument has to do with distance, which is neither classified as P-A nor as P-P. In other words, it is unspecified for proto-role. On the other hand, in (1b) the predicate *give* has three arguments. The first argument receives P-A, as it refers to the giver. The second argument of the predicate *give* is assigned an optional P-P on the basis of whether it is casually affected or not, whereas the third argument has to do with the entity which is given and receives P-P. This seems similar to *Actor* and *Undergoer* roles in Role and Reference Grammar (RRG, W.A. Foley and R.D. Van Valin 1980). The *Actor* role is basic and it refers to the participant that performs, effects, instigates and controls the situation indicated by the predicate. The *Undergoer* role, on the other hand, is derivative of the Actor role and refers to the one which is affected by the *Actor* in some way. But the [P-A] and [P-P] roles are not quite the same as RRG's *Actor* and *Undergoer* roles as the [p-p] is not derivative of [P-A].

Generally speaking, from Alsina's viewpoint, the semantic information available in argument structure is entirely restricted to information about the proto-role status of each argument and their hierarchical ordering which is necessary for mapping to f-structure. The ordering of arguments in argument structure depends on the thematic hierarchy.

Rappaport Hovav and Levin's (1998a,b) theory of argument structure considers argument structure as an interface between semantics and syntax of a predicate. Their interface model is given in (2) below (adopted from Bresnan 2001:304).

(2) lexical semantic structure
↓
a- structure
↓
syntactic structure

In the above model 'syntactic structure' refers to d-structure, that is, the structure to which transformational rules apply. Bresnan (2001) adopted the basic idea of their conception of argument structure with some modification. Since d-structure is not acceptable in LFG, Bresnan substituted this level by functional structure (f-structure). The modified model of Bresnan (2001) is as shown in (3) below.

(3) lexical semantic structure
↓
a-structure
↓
f-structure

According to this model the projection from the lexical semantic structure to a-structure is called Lexico-semantic projection. In the same way, the projection from a-structure to f-structure is called Lexico-syntactic projection.

Still another influential approach to argument structure is that of Jackendoff's (1990) Semantic Structures. Jackendoff's theory of conceptual structure does not recognize a separate level of argument structure. This is because his Lexical Conceptual Structure can do all the work expected from argument structure. This theory considers θ-roles (thematic roles) as argument positions in the Lexical Conceptual Structure. Thus, θ-roles such as Agent, Theme, etc. are considered as particular structural positions within the lexical conceptual content. The arguments in Lexical Conceptual Structure are related to syntactic arguments (or NPs/ DPs) by means of co-indexation. Jackendoff identifies two types of index notations: one for the correspondence between syntactic arguments (or NPs/DPs) and conceptual positions (indicated by Roman alphabet), and the other for the correspondence between conceptual positions within the Lexical Conceptual Structure (indicated by Greek letters). To be more concrete the Lexical Conceptual Structure of the verb *give* is as shown in (4) below (adopted from Butt 1995:135).

(4)

$$\left[\begin{array}{l} \text{give} \\ \text{V} \\ \left[\begin{array}{l} \text{CS}([\alpha],\text{GO}_{\text{Poss}}([\ ]_{\text{A}}, \text{TO}[\beta])) \\ \text{AFF}^{+}([\ ]^{\alpha}_{\text{A}}, [\ ]^{\beta}_{\text{A}}) \end{array}\right]_{\text{EVENT}} \end{array}\right]$$

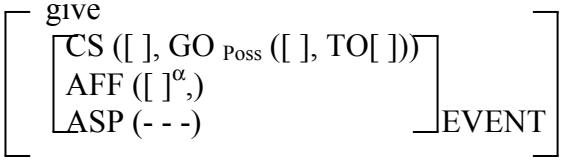
The above matrix is interpreted as follows: *give* belongs to a category V that describes an event. In the event described, the actor α causes (CS) something to be possessed by a beneficiary β. In (4) above, the Thematic Tier, which is headed by the function CS carries the meaning of the verb, whereas the Action Tier headed by the function AFF (Affect) shows argument relations (such as actor/ patient/beneficiary). The arguments in the Action Tier must be related to the slot on the Thematic Tier. This is done by means of co-indexation as mentioned above. The Greek letter α in both Tiers shows that the actor in the Action tier is identified as the causer in the Thematic Tier. By the same token, The Greek letter β in both Tiers shows that the beneficiary in the Action Tier is identified with the argument of TO in the Thematic Tier. The unfilled square brackets ([ ]) in (4) indicate that the verb *give* has three arguments.

Jackendoff's theory of Lexical Conceptual Structure allows two or more θ-roles to correspond to a single syntactic argument (NP/DP). This claim violates the θ-Criterion of Chomsky in that the correspondence between θ-roles and syntactic arguments (NPs/DPs) must be a one-to-one and can not be one-to-many. Jackendoff reformulates the θ-Criterion of Chomsky as the 'Neo-θ-Criterion'. The Neo-θ-Criterion allows a syntactic NP/DP to have multiple θ-roles.

Butt (1995) adopts the Lexical Conceptual Structure approach of Jackendoff (1990) to her analysis of the structure of complex predicates in Urdu. However, she makes some modifications on the representation of Lexical Conceptual Structure in order to fit the LFG formalism. The first modification has to do with the level at which information is represented. For Jackendoff it is represented at the level of Lexical Conceptual Structure, as he does not recognize a separate level of argument structure (a-structure). But, for Butt information is represented at the level of a-structure. The second modification relates to the organization of a-structure. Jackendoff's Lexical Conceptual Structure has a level for category information such as V for verb as shown in (4). This level is, however, considered as unnecessary in Butt's a-structure. Another modification is that the subscript A, which was employed by Jackendoff to distinguish arguments, is dispensed from

Butt's a-structure representation. Still another modification is that Butt adds an Aspect Tier in addition to the Thematic and Action Tiers of the Lexical Conceptual Structure presented in (4). Example (5) below shows the modified a-structure for the verb *give* (adopted from Butt 1995:143).

(5)



The newly added Aspect Tier as can be seen from (5) has ASP function with three slots. The first slot shows the beginning of an event, the second slot stands for the duration and the final slot represents the end point of an event.

So far we have briefly looked at different approaches to argument structure such as Dowty's (1991) conception of Prot-Role argument classification, Rappaport Hovav and Levin's (1998a,b) Lexical Semantics and Jackendoff's (1983, 1990) Conceptual Semantics and their application within LFG. However, for the sake of our purpose in this thesis we shall follow Falk's (2001) argument representation. Falk (2001) has presented informally the conception of thematic role or θ-roles based on Jackendoff's (1990) conceptual structure but without using Jackendoff's formalism. According to Falk (2001) the notion of thematic role or θ-role is ambiguously used by some syntacticians in that θ-structure is sometimes treated as a-structure. Thus, for an adequate characterization of a- structure one has to make a clear-cut distinction between θ-structure and a-structure. Regarding the difference between θ-structure and a-structure Falk (2001: 105) says:

> A-structure differs from θ-structure in several ways. In the first place, it abstracts away from the conceptual structure details of thematic roles, representing simply the thematic hierarchy …. It is a more strictly linguistic representation than the lexical conceptual structure of which θ-structure is a simplification. Second, it defines what grammatical functions each argument can be potentially mapped to. Third, as a syntactic representation, it only deals with syntactically relevant aspects of θ-structure and is the locus of constraints. … Nonthematic arguments, such as expletives and idiom chunks, are also represented at a-structure, although they naturally have no role to play at conceptual structure.

The θ-structure contains the θ-roles such as AGENT, PATIENT, THEME, etc. whereas the a-structure, as we shall see shortly, consists of features that

can be a natural class for grammatical functions such as [±r] (thematically restricted or not) and [±o] (objective or not). The f-structure consists of the actual grammatical functions SUBJ, OBJ, etc. This can be represented as in (6) below.

(6) θ-structure: (Agent) (Beneficiary) (Experiencer/Goal)…

a-structure: [±r] [±o]

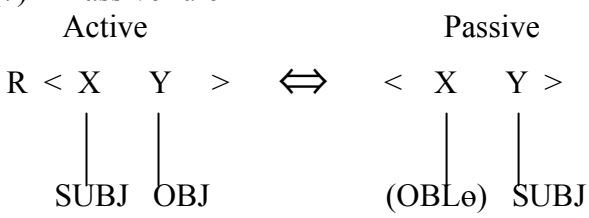
f-structure: (SUBJ) (OBJ) (OBJ_θ) …

Thus far, we have seen the three levels of representations, θ-structure, a-structure and f-structure. The next crucial question is how are these three levels linked together? This question will take us to the next section.

9.3 Lexical Mapping Theory

Lexical Mapping Theory (hereafter LMT) deals with the mechanism by which arguments of a predicate syntactically realized. In other words, LMT is about the correspondence between thematic structure and syntactic functions of a predicate. The idea of LMT was first introduced by L. Levin (1986) in her pioneering work on unaccusativity. The theory has been subsequently developed and refined by Bresnan and Kanerva (1989), Bresnan and Zaenen (1990), Bresnan and Moshi (1990), and Bresnan (2001). Before we go into the details of LMT, it seems worth mentioning the motivation for LMT. In the early design of LFG, Bresnan (1982b), diathesis alternation was handled by lexical redundancy rules. A typical instance of such alternation is the active/passive alternation discussed in Chapter 5, Section 5.3. For the sake of exposition we repeat the passive rule in (25) of Chapter 5, Section 5.3, as in (7) below:

(7) Passive rule



In the above rule the SUBJ of the active lexical entry is replaced by the optional OBLθ in the passive. In the same way, the OBJ of the active is replaced by SUBJ in the passive. Such a rule is, however, non-monotonic in the sense that it involves a deletion operation (as the OBJ function which is

present in the active is missing in the passive). Besides, rules are considered to be explanatorily weak to give a general picture of the linking relation between diathesis alternation and their interaction. These were the drawbacks of the earlier design of LFG, which led for the inception of a more general monotonic[1] theory of relation changes called LMT.

LMT has four components: semantic role hierarchy, classification of grammatical functions, mapping principles, and well-formedness conditions. Now, we will take up each of these components in turn.

9.3.1 Semantic role hierarchy

The LMT assumes the following universal hierarchy of semantic roles presented according to their relative ranking.

(8) Thematic Hierarchy (Bresnan and Kanerva 1989: 23):

ag > ben > recip / exp > inst > th / pt > loc

In the above universal semantic role hierarchy, thematic roles are arranged in decreasing order beginning from Agent through beneficiary, recipient/ experiencer, theme/ patient, to location.

9.3.2 Classification of grammatical functions

The theory further assumes that grammatical functions can be analytically classified into binary features: [±r] (thematically restricted or not) and [±o] (objective or not). Such classification in turn is used as the basis for the syntactic mapping of thematic roles. With the help of these features, we can group the basic grammatical functions into the following natural classes.

	[-r]	[+r]
[-o]	SUBJ	OBLθ
[+o]	OBJ	OBJθ

Table 8 Binary classification of grammatical functions

[1] Lexical Mapping Theory is monotonic in that it can add syntactic features but cannot delete. The LMT is designed to apply only in the lexicon. However, according to Butt (1995) the mapping of arguments to grammatical function in Urdu predicates is formed in the syntax. Thus she renames LMT as MT (Mapping Theory).

Table 8 shows the feature decomposition of the syntactic functions SUBJ, OBJ, OBJθ and OBLθ into [±r] and [±o]. The binary distinctive feature [±r] represents either the semantically unrestricted feature [-r] or semantically restricted one [+r]. The semantically unrestricted feature ([-r]) refers to the syntactic functions SUBJ and OBJ. This is because the syntactic functions SUBJ and OBJ are not inherently linked to a particular thematic role in the sense that such functions can be linked to a variety of thematic roles. Moreover, such roles can be linked even to non-thematic arguments such as expletives or pleonastic elements. In other words, the functions SUBJ and OBJ have no restrictions regarding the thematic role they bear. The semantically restricted feature, [+r], on the other hand, refers to the grammatical functions OBJθ and OBLθ. These grammatical functions are restricted as compared to SUBJ and OBJ functions in the sense that they have restrictions as to what thematic roles they bear.

In a similar way, the feature non-objective ([-o]) refers to SUBJ and OBLθ functions. This is because the grammatical functions SUBJ and OBLθ cannot function as object of a predicate. But rather they function as external arguments of a predicate. The feature objective ([+o]), on the other hand, refers to the grammatical functions OBJ and OBJθ, which function as an object of a predicate. These basic grammatical functions are partially ordered as in (9) (adopted from Bresnan 2001: 309).

(9) Partial Ordering of Argument Functions:

SUBJ > OBJ , OBLθ > OBJθ

In (9) the negatively specified grammatical functions such as [-r] and [-o] are least marked functions whereas [+r] and [+o] are most marked grammatical functions.

9.3.3 Mapping principles

This component postulates the principles of syntactic mapping of thematic roles. It has the following three subcomponents (as in Bresnan and Kanerva 1989): Intrinsic Role Classification, Morpholexical Operations, and Default Role Classification. The condition on these principles is that they must preserve syntactic information. That is to say that they can add syntactic features but they cannot change or delete syntactic features. By so doing monotonicity is achieved.

9.3.3.1 Intrinsic Role Classification

Intrinsic Role Classification is a principle that is concerned with θ-structure to a-structure mapping of arguments. It associates arguments of a predicate with thematic roles at a-structure. According to Bresnan and Kanerva (1989) some types of grammatical functions across languages linked with particular semantic roles. Such as the object and subject grammatical functions are associated with theme/patient roles, nonobject grammatical functions with the agent role, and oblique or subject grammatical functions linked with the locative roles. These are presented in (10) (adopted from Bresnan and Kanerva 1989:25).

(10) Intrinsic Role Classification

a. agent encoding: ag
|
[-o]

b. theme encoding: th/pt
|
[-r]

c. locative encoding: loc
|
[-o]

Following Alsina and Mchombo (1989), Bresnan and Moshi (1990) make the following modifications on the intrinsic role classification above in order to handle applicative and dative constructions. Accordingly, the direct objects, that is, theme/patient role may have an alternative intrinsic role classification [+o] but the indirect objects, benefactive and recipient roles lack [+o]. This is shown in (11) (adopted from Bresnan and Moshi 1990:168).

(11) a. Applied and theme roles ("internal arguments")

θ | [-r] or θ | [+o]

b. Applied benefactive, recipient roles ("indirect objects")

* θ
|
[+o]

9.3.3.2 Morpholexical Operations

This principle affects the argument structure of a predicate by suppressing or adding thematic roles. Morpholexical Operation is applied on grammatical function with negative feature specification as [-r] or [-o]. A typical example of such operation is that of passivization. It suppresses the thematically most prominent argument $\hat{\theta}$ (theta-hat) of a predicate (adopted from Bresnan and Kanerva 1989).

(12) Passive: $\hat{\theta}$
|
∅

This suppression principle states that the agent role of the active predicate is suppressed in the corresponding passive predicate.

Still another type of suppuration operation relevant for mapping relations in Diraytata is Theme Suppression (Alsina and Mchombo 1989 quoted in Bresnan and Moshi 1990).

(13) Theme Suppression

th/pt
|
ø

This type of suppression operation converts a transitive predicate into intransitive.

9.3.3.3 Default Role Classification

Default Role Classification is another mapping principle that links a-structure to f-structure. This mapping principle applies after the entire morpho-syntactic derivations of a predicate. That is to say, after θ-structure to a-structure mapping. According to this mapping principle, the highest thematic role ($\hat{\theta}$) receives [-r] and all other grammatical functions receive [+r] feature as shown in (14). It should be noted that the feature [+r] cannot be assigned by default to a thematic role that has [-r] feature by intrinsic role classification (in order to avoid feature clashes which are not allowed).

(14) Default Role Classification

a. $\hat{\theta}$
|
[-r]

b. θ
|
[+r]

9.3.4 Well-formedness conditions

There are two conditions that constrain lexical mapping relations.

(15) Function-Argument Bi-uniqueness (Bresnan 2001: 311)
Each a-structure role must be associated with to a unique function, and conversely.

This condition is akin to the θ-Criterion (Chomsky 1981) there difference lies on the fact that the θ-Criterion is a constraint on syntactic d-structure whereas the Function-Argument Bi-uniqueness applies on a-structure in the lexicon.

(16) The subject Condition (Bresnan 2001: 311)
Every predicate should have a subject.

9. 4 Application of LMT to the predicates in Diraytata

Now, we shall demonstrate how the above postulated LMT applies to various argument-taking predicates discussed in chapter 5, 6 and 7.

9.4.1 Intransitive

The stative predicate kokkaɗ- 'got strong' selects a theme subject. This is shown in example (1a) chapter 6, section 6.2, repeated here as (17) below.

(17) kussiyy-at he-kokk-aɗ-i
Kussiyy-NFS FOC-strong-MID-PRF
'Kussiyy GOT STRONG.'

The intrinsic role classification associated with theme argument is as in (18):

(18) kokkad- < THEME >
|
intrinsic: [-r]

In (18) the *theme* role is intrinsically linked to [–r] by the theme encoding principle (10b) above. According to this principle theme role can be mapped to either SUBJ or OBJ functions. Now the default principle applies.

The default role classification applies after the intrinsic role classification. It applies following the position of theme role in the thematic hierarchy.

(19) kokkad- < THEME >
|
intrinsic: [-r]
default:

In (19) the theme role has [-r] intrinsic role classification (by the theme encoding principle 10b). The default role classification [+r] cannot apply to the theme role, which has [-r] intrinsic feature. This is because it creates feature clashes and this is not allowed.

When we combine the intrinsic and default role classifications together, the result is that the theme role maps to a grammatical function [-r], which is either to the SUBJ or OBJ function. The final output is as shown in (20).

(20) kokkad- < THEME >
|
intrinsic: [-r]
default:
SUBJ/OBJ

(20) shows that the theme argument can be realized either as a SUBJ or an OBJ function. It is the well-formedness conditions on argument mapping relations, which help us to identify which of the two potential candidates to choose. The Subject Condition requires every predicate to have a subject. In order to satisfy this condition the theme argument must be realized as SUBJ function, otherwise this condition will be violated.

(21) kokkaɗ- < THEME >
|
intrinsic: [-r]
default:
SUBJ/OBJ
w.f: SUBJ

In (21) the Subject Condition is satisfied insofar as the theme role is realized as SUBJ. Similarly, the Function-Argument Bi-uniqueness is also satisfied, as there are no two thematic roles associated to the same grammatical function.

9.4.2 Transitive

The predicate ɗaw- 'hit' in Diraytata selects two arguments as shown in example (23ai) of chapter 5, section 5.3, and example (11b) of chapter 6, section 6.4, repeated here as (22) below.

(22) kussiyy-at ʔit he-ɗaw-i
Kussiyy-NFS her.ABS FOC-hit-PRF
'Kussiyy HIT her.'

In (22) *Kussiyy* is the *agent* argument whereas *ʔit* is a *patient* argument. The intrinsic role classification for such arguments is as in (23):

(23) ɗaw- < AGENT, PATIENT >
| |
intrinsic: [-o] [-r]

The agent is intrinsically linked to [-o] (by the mapping principle 10a) and the patient is associated to [-r] (by the mapping principle 10b).

What comes next is the default role classification. The default role classification applies on the basis of the position of agent and patient roles in the thematic hierarchy as in (24).

(24) ɗaw- < AGENT, PATIENT >
| |
intrinsic: [-o] [-r]
default: [-r]

The default role classification associates the feature [-r] to the *agent* argument (by default role classification principle 14a), as it is the highest argument in the thematic hierarchy. On the other hand, the patient argument cannot be assigned the feature [+r] by the default role classification as it has already [-r] feature by the intrinsic role classification. If we assign the default feature [+r], there will definitely be a feature conflict between the intrinsic and default classifications. This is because the default feature [+r], of the patient argument, is incompatible with the intrinsic feature [-r] and this is not allowed by the theory. Thus, the default role classification applies to the agent argument but it does not apply to the patient argument in (24).

The combined effect of both the intrinsic and default role classifications maps the agent argument with the features [-o] and [-r] onto the SUBJ grammatical function. By the same token the patient argument maps onto [-r] that means either to the SUBJ or OBJ function. This is shown in (25) below.

(25) ɗaw- < AGENT, PATIENT >

intrinsic:	[-o] [-r]
default:	[-r]
	SUBJ SUBJ/OBJ

The well-formedness conditions constrain the association of argument mapping relations. In (25), the agent argument maps onto the SUBJ function and there are two potential candidates for the patient argument to be linked with, the SUBJ or the OBJ function. The Function-Argument Bi-uniqueness Condition forces us to map the patient argument with the OBJ function rather than with the SUBJ.

(26) ɗaw- < AGENT, PATIENT >

intrinsic:	[-o] [-r]
default:	[-r]
	SUBJ SUBJ/ OBJ
w.f:	SUBJ OBJ

As is apparent from (26) the predicate *ɗaw-* 'hit' selects agent and patient arguments with the grammatical functions SUBJ and OBJ respectively.

Before we consider the passive counterpart of the predicate *ɗaw-* let us see its active intransitive counterpart. We have pointed out in chapter 6, section 6.4 that transitive predicates in Diraytata have active intransitive counterparts. Example (22) above has the corresponding active intransitive form in (27).

(27) kussiyy-at he-ɗaw-i
Kussiyy-NFS FOC-hit-PRF
'Kussiyy HIT.'

The active intransitive form of the verb *ɗaw-* subcategorizes agent argument with the grammatical function SUBJ. LMT assumes that the active intransitive predicate *ɗaw-* has two arguments in the intrinsic role classification just as its transitive counterparts as shown in (28).

(28) ɗaw- < AGENT, PATIENT >
| |
Intrinsic: [-o] [-r]

In (28) the agent role intrinsically encodes [-o] (by principle 10a) and the patient role encodes [-r] (by principle 10b) above. The active *ɗaw-* undergoes intrnsitivisation before the default role classification applies as in (29).

(29) ɗaw- < AGENT, PATIENT >
| |
Intrinsic: [-o] [-r]
Theme Suppression: ø

The Theme Suppression operation makes the patient role invisible for the default role classification. Thus, the default role classification applies only to the agent role and assigns [-r] to it.

(30) ɗaw- < AGENT, PATIENT >
| |
Intrinsic: [-o] [-r]
Theme Suppression: ø
default: [-r]
_____
SUBJ

In (30) the agent role with [-o] intrinsic and [-r] default roles maps onto SUBJ function.

Let us consider the passive counterparts of the predicate *ɗaw-* 'hit'. Consider the example in (31).

(31) ʔit-i (kussiyy-an) he-ɗaw-an-t-i
she-NFS Kussiyy-by FOC-hit-PASS-3FSG-PRF
'She WAS HIT (by Kussiyy).'

As mentioned above, example (31) is the passive counterpart of example (22). In (31) ʔit 'she' is a patient argument with SUBJ grammatical function and *kussiyy-an* 'by Kussiyy' is an optional OBL_{ag}. Now we see how LMT accounts for the derivation of passive from active predicate. LMT assumes that both active and its corresponding passive predicates have the same number of arguments in the mapping from θ-structure to a-structure. The difference lies on the mapping of arguments to the syntax (from a-structure to f-structure). This is illustrated in (32).

(32) ɗawam- < AGENT, PATIENT >
| |
intrinsic: [-o] [-r]

The passive predicate *ɗawam-* 'be hit' has two arguments in the intrinsic role classification just as its corresponding active counterpart *ɗaw-* 'hit' in (23). The agent argument intrinsically encodes [-o] (by the encoding principle 10a) and the patient encodes [-r] (by the encoding principle 10b). However, when the passivizer morpheme *-am* is attached to the predicate *ɗaw-*, then the highest role ($\hat{\theta}$) of this predicate, the agent, is suppressed (by Morpholexical Operation principle 12) as shown in (33).

(33) ɗawam- < AGENT, PATIENT >
| |
intrinsic: [-o] [-r]
passive: ∅

In (33) the Morpholexical Operation principle applies to the agent argument. As a result of this, the agent argument is suppressed and it cannot map to the syntax. In other words, the agent role is not visible to default role classification. The default role classification cannot apply to the patient

argument, as the patient argument has already [-r] feature intrinsically. This makes applying [+r] default feature to the patient argument vacuous.

(34) ɗawam- < AGENT, PATIENT >

intrinsic:	[-o]	[-r]
passive:	∅	
default:		
		SUBJ/OBJ

The default classification does not apply in (34) for the reasons mentioned above. Another important issue that can be raised in connection to (34) above relates to the fact that the patient argument has the intrinsic feature [-r], which means that it fills the unrestricted function, either the SUBJ or the OBJ. The question is then which of the two functions map onto the syntax.

The Subject Condition, which is one of the well-formedness conditions, states that every predicate must have a subject. In light of this condition the only grammatical function that the patient argument to be associated with is the SUBJ, but not the OBJ function. This is given in (35) below.

(35) ɗawam- < AGENT, PATIENT >

intrinsic:	[-o]	[-r]
passive:	∅	
default:		
		SUBJ/OBJ
w.f:		SUBJ

The representation in (35) is well-formed in the sense that both the conditions are satisfied. The Subject Condition is satisfied insofar as the patient argument is realized as the SUBJ function. Similarly, the Function-Argument Bi-uniqueness is satisfied, as the patient role uniquely corresponds to the SUBJ function.

9.4.3 Ditransitive

The predicate *ɗaay-* 'give' has three arguments with agent, recipient and theme roles. For the sake of illustration example (18) of chapter 6, is repeated here as (36).

(36) a. kussiyy-at mat'af kittonnayyu-s he-ɗaay-i
Kussiyy-NFS book.ABS Kittonnayyu-DAT FOC-give-PRF
'Kussiyy GAVE (a) book to Kittonnayyu.'

b. kussiyy-at mat'af he-ɗaay -i
Kussiyy-NFS book.ABS FOC-give-PRF
'Kussiyy GAVE (a) book.'

c. kussiyy-at kittonnayyu-s he-ɗaay -i
Kussiyy-NFS Kittonnayyu-DAT FOC-give-PRF
'Kussiyy GAVE to Kittonnayyu.'

d. kussiyy-at he-ɗaay -i
Kussiyy-NFS FOC-give-PRF
'Kussiyy GAVE.'

In (36a) *Kussiyy* is the agent, *Kittaonnayyu* is the recipient and *mat'af* 'book' is the theme. The intrinsic role classification associated to these roles is as in (37).

(37) ɗaay- < AGENT, RECIPIENT, THEME, >
| | |
intrinsic: [-o] [-r] [+o]

By the intrinsic role classification, the agent role is linked with [-o] (by the agent encoding principle 10a), the recipient role with [-r] (by principle 11b) and theme role with [+o] (by the theme role principle 11a).

The default role classification, which is based on the position of the agent, recipient and theme roles, in the thematic hierarchy, is as shown in (38).

(38) ɗaay- < AGENT, RECIPIENT, THEME, >
| | |
intrinsic: [-o] [-r] [+o]
default: [-r] [+r]

The default feature [-r] is linked to the agent argument. The default feature [+r] is assigned to the theme argument. The default feature [+r] does not apply to the recipient argument, as it has already [-r] feature intrinsically. It is, therefore, not possible to assign the default feature [+r] to it as the two features are incompatible.

When both the intrinsic and default role classifications combined together we get the following:

(39) ɗaay- < AGENT, RECIPIENT, THEME, >

intrinsic:	[-o]	[-r]	[+o]
default:	[-r]		[+r]
	SUBJ	SUBJ/OBJ	OBJθ

In (39) the agent role, which has [-o] intrinsic and [-r] default features maps onto SUBJ function. In a similar way, the theme role, which has [+o] intrinsic and [+r] default feature is assigned the grammatical function OBJθ. The recipient role to be syntactically realized, there are two potential grammatical functions, SUBJ and OBJ. The question is which of the two grammatical functions the recipient argument should be associated with. Here, the well-formedness conditions come to play in order to decide to which grammatical function the recipient argument is to be linked with. We cannot associate the recipient role with SUBJ function because the agent argument has already associated with it. The Function-Argument Bi-uniqueness Condition prohibits us from associating the recipient role with SUBJ function, as it does not allow two thematic roles to have identical grammatical functions. This is because the agent argument is already associated with SUBJ function and it cannot be associated with the recipient argument again. As a result of this Condition the recipient argument maps onto OBJ function. This is shown in (40).

(40) ɗaay- < AGENT, RECIPIENT ,THEME, >

intrinsic:	[-o]	[-r]	[+o]
default:	[-r]		[+r]
	SUBJ	SUBJ/OBJ	OBJθ
w.f:	SUBJ	OBJ	OBJθ

Thus far we have seen the argument structure of the predicate *ɗ'aay-* 'give'. We have said that the predicate has three arguments: agent, recipient and theme with the grammatical functions SUBJ, OBJ and OBJθ (where the θ = theme role) respectively.

This is, however, not the whole story about the active ditransitive forms in Diraytata as illustrated in (36b-d). In (36b) the recipient argument is missing, in (36c) the theme argument is missing, and in (36d) both the recipient and theme arguments are missing. The question that arises at this point is how to account for such facts of Diraytata. To account for (36c) seems fairly straightforward in that it can be handled by Theme Suppression operation as this principle suppresses the theme argument. This is represented in (41).

(41) ɗ'aay- < AGENT, RECIPIENT ,THEME, >

intrinsic:	[-o]	[-r]	[+o]
Theme Suppression:			ø
default:	[-r]		
	SUBJ	SUBJ/OBJ	
w.f:	SUBJ	OBJ	

In (41) the Theme Suppression principle suppresses the theme argument. The default role links [-r] to the agent role which has [-o] intrinsic feature and maps onto SUBJ function. The well-formedness condition maps the recipient argument onto OBJ function.

When we come to example (36b), in this sentence it is the recipient argument which is missing and we do not have a Morpholexical Operation principle that suppresses the recipient argument (neither in Bresnan and Kanerva (1989) nor in Bresnan and Moshi (1990)). We, therefore, propose the following Recipient Suppression operation to handle the recipient/ benefactive suppression in Diraytata.

(42) Recipient Suppression

recip / ben

|

ø

This Morpholexical Oppression suppresses the recipient or the benefactive arguments.

In (36b) the Recipient Suppression applies to the recipient argument. This is shown in (43).

(43) ɗ'aay- < AGENT, RECIPIENT ,THEME, >

intrinsic:	[-o]	[-r] [-r]
Recipient Suppression:		ø
default:	[-r]	
	SUBJ	SUBJ/OBJ
w.f:	SUBJ	OBJ

In (43) the agent argument maps onto SUBJ function. The recipient argument is suppressed and the theme argument maps onto OBJ.

In (36d) both the recipient and the theme arguments are suppressed as in (44).

(44) ɗ'aay- < AGENT, RECIPIENT ,THEME, >

intrinsic:	[-o]	[-r] [-r]
Recipient Suppression:		ø
Theme Suppression:		ø
default:	[-r]	
	SUBJ	

In (44) the active intransitive form of the predicate *ɗ'aay-* 'give' selects the agent argument with the grammatical function SUBJ.

Let us consider the passive of ditransitives. Diraytata is a symmetrical object language in that it can passivize either of the object NPs in ditransitive constructions (for the details see chapter 5, section 5.3). The ditrnasitive predicate in example (28) in chapter 5, section 5.3 are repeated as (45).

(45) a. kussiyy-at kittonnayyu-s mat'af he-ɗ'aay-i
kussiyy- NFS kittonnayyu-DAT book.ABS FOC-give-PRF
'Kussiyy GAVE a book to Kittonnayyu.'

b. kittonnayyu-t kussiyy-an mat'af he-ɗaas-an-t-i
kittonnayyu-NFS kussiyy-by book.ABS FOC-give-PASS-3FSG-PRF
' Kittonnayyu WAS GIVEN a book by Kussiyy.'

c. mat'af-at kittonnayyu-s kussiyy-an he-ɗaas-am-i
book- NFS kittonnayyu- DAT kussiyy-by FOC-give-PASS-PRF
'(A) book WAS GIVEN to Kittonnayyu by Kussiyy.'

(45a) is the active form and (45b,c) are the passive forms. The arguments in (45 b,c) will have the following intrinsic role classification.

(46) ɗaasam- < AGENT, RECIPIENT, THEME >
| | |
Intrinsic: [-o] [-r] [-r]

The intrinsic role classification links the agent role with [-o] (by the agent encoding principle 10a), the recipient role with [-r] as such role always be [-r] (by principle 11b) and the theme role with [-r] (by principle 11a).

The passive predicate *ɗaasam*- 'was given' in (45b,c) has three arguments in the intrinsic role classification When the passive morpheme *–am* is attached to the predicate *ɗaay*- the agent role is suppressed (by the Morpholexical Operation principle 12) as in (47).

(47) ɗaasam- < AGENT, RECIPIENT, THEME >
| | |
intrinsic [-o] [-r] [-r]
passive ø

When the Morpholexical Operation principle applies to (47) the agent role is suppressed and hence it is not visible to default role classification. The default role cannot apply to both the recipient and the theme roles as they have [-r] intrinsically.

(48) ɗaasam- < AGENT, RECIPIENT, THEME >
| | |
Intrinsic: [-o] [-r] [-r]
passive: ø
default: _____
SUBJ/OBJ SUBJ/OBJ

In (48) the recipient role has unrestricted function in that it can map onto the SUBJ or the OBJ function, the same is true for the theme role. However the recipient and the theme roles cannot both map onto SUBJ or OBJ at the same time. This is prohibited by the Function-Argument Biuniqueness. That is to say, if one of them realized as the SUBJ function, the other must be realized as OBJ function and vice versa. Thus we have two mapping possibilities either the recipient maps onto the SUBJ and the theme with OBJ as in example (45b) or the recipient role maps onto OBJ and the theme maps onto SUBJ as in example (45c). This alternative is shown in (49).

(49) ɗaasam- < AGENT, RECIPIENT, THEME >

	|	| |
Intrinsic:	[-o]	[-r] [-r]
passive:	ø	
default:		
		SUBJ/OBJ SUBJ/OBJ
w.f:		SUBJ OBJ or
		OBJ SUBJ

9.4.4 Raising

The raising predicate *pah-* 'seem' has a propositional argument with a grammatical function XCOMP. This has been discussed in chapter 7, section 7.3. For the sake of illustration example (19b) of chapter 7, section 7.3, is repeated here as (50).

(50) kittonnayyu-t [ʔakkum ʔan-t-i] pah-in-t
Kittonnayyu-NFS comp go-3FSG-PRF seem-IPFV-3FSG
(Literally), 'Kittonnayyu SEEMS that she has gone.'

In (50) *Kittonnayyu* is not a thematic argument of the predicate *pah-* 'seem' but it is rather the thematic argument of the embedded predicate *ʔan-* 'go'. This is because as discussed in chapter 7, the raising predicate *pah-* selects XCOMP only. The subject argument of such a predicate is not a thematic argument in the sense that it has no semantic content. Thus the a-structure of the subject argument has an empty argument role, or more specifically an athematic argument role (Zaenen and Engdahl 1994). In LFG athematic arguments are represented outside the angled bracket. Moreover, the XCOMP complement of the raising predicate *pah-* 'seem' considered here as having OBL_{PROP} grammatical function following Zaenen and Engdahl (1994). The intrinsic classification for such an argument is as in (51).

(51) pah- __ < PROPOSITION >
|
intrinsic: [-o]

In the intrinsic classification above the athematic argument of the raising predicate *pah*- is represented as blank because to show that such an argument is not a thematic argument of the predicate. The only argument of the predicate has a propositional argument role, which is associated with the intrinsic feature [-o].

The default classification, on the other hand, assigns the feature [-r] to the athematic argument, as this feature by definition refers to unrestricted function. The feature [+r] is linked to the propositional role by principle (14b).

(52) pah- __ < PROPSITION >
| |
intrinsic: [-o]
default: [-r] [+r]

According to this representation the athematic argument maps onto the feature [-r], which means either to the SUBJ or OBJ function. By the same token, the propositional argument maps onto OBLɵ (where ɵ= proposition).

(53) pah- __ < PROPSITION >
| |
intrinsic: [-o]
default: [-r] [+r]

SUBJ/OBJ OBLɵ

In this representation there are two competing grammatical functions to be mapped with the athematic argument. They are SUBJ and OBJ functions. In order to meet the Subject Condition the athematic argument must be linked with SUBJ function.

(54) pah- __ < PROPSITION >

intrinsic:	[-o]
default: [-r]	[+r]
SUBJ/OBJ	OBLɵ
w.f. SUBJ	OBLɵ

In (54) both the Subject Condition and the Function-Argument Bi-uniqueness Conditions are satisfied and hence the association of argument mapping relations is well-formed.

9.4.5 Causative

As discussed in chapter 5, section 5.3, a causative morpheme in Diraytata is a three-place predicate. It subcategorizes agent, patient and event. As shown there the patient of the causative morpheme is fused with the agent argument of the base predicate. For the sake of illustration example (44) of chapter 5, is repeated here as (55).

(55) kittampo-t kussiyy kittonnayyu-s mat'af he-piɗɗ-osiy-i
Kittampo-NFS Kussiyy-ABS Kittonnayyu-DAT book.ABS FOC-buy-CAUS-PRF
'Kittampo MADE Kussiyy BUY a book for Kittonnayyu.'

In this example, *Kittampo*, the grammatical subject, is the causer of the event whereas the logical subject, kussiyy, is the causee. The intrinsic role classification of the arguments in (55) is as shown in (56).

(56) piɗɗosi- < Agent, Patient, Event < Agent, Recipient, Theme >

intrinsic:	[-o]	[-r]		[-o]	[-r]	[+o]

In (56) the agent of the causative predicate is intrinsically linked with the feature [-o] (by the encoding principle 10a). The patient argument is linked with the intrinsic feature [-r] (by the encoding principle 10b). In a similar way, the agent of the base predicate is intrinsically linked with [-o] (by the encoding principle 10a), the recipient argument with the intrinsic feature [-r], and finally the theme argument with the intrinsic feature [+o].

The default classification of such arguments is as in (57).

(57) piɗɗosi- < Agent, Patient, Event < Agent, Recipient, Theme >

intrinsic:	[-o]	[-r]	[-o]	[-r]	[+o]
default:	[-r]				[+r]

In (57) the agent argument is mapped onto the default feature [-r]. The patient argument of the causative morpheme that has an intrinsic feature [-r] is fused with the base predicate agent, which has an intrinsic feature [-o], to form an agent-patient argument. The default feature [+r] does not apply to the fused argument as one of the arguments has the intrinsic feature [-r]. The default feature [+r] does not apply to the recipient argument as it has [-r] intrinsically. The theme argument is linked with the default feature [+r].

When the intrinsic and default role classifications combine together the result will be as in (58).

(58) piɗɗosi- < Agent, Patient, Event < Agent, Recipient, Theme >

intrinsic:	[-o]	[-r]	[-o]	[-r]	[+o]
default:	[-r]				[+r]
	SUBJ	SUBJ/OBJ	SUBJ/OBJ		OBJθ

In (58), the agent argument is mapped onto SUBJ function. There are two potential grammatical functions for the syntactic realization of the fused agent-patient argument. They are, namely, SUBJ and OBJ functions. The same is true for the recipient argument. The only possible way is to map both the agent-patient and the recipient arguments onto the OBJ function. The theme argument is mapped onto OBJθ function. This is shown in (59).

(59) piɗɗosi- < Agent, Patient, Event < Agent, Recipient, Theme >

intrinsic:	[-o]	[-r]	[-o]	[-r]	[+o]
default:	[-r]				[+r]
	SUBJ	SUBJ/OBJ	SUBJ/OBJ		OBJθ
w.f.	SUBJ	OBJ	OBJ		OBJθ

This representation violates the Function-Argument Bi-uniqueness condition. The case relates to the mapping of the grammatical function OBJ onto two different thematic roles. To be more specific the OBJ function is associated with the agent-patient argument and the same function is also associated with the recipient argument, which is not allowed by the Condition mentioned above. This is because according to this Condition each argument must correspond to a unique syntactic function and conversely. The question then is who to solve this problem.

Alsina (1993) proposes a version of LMT termed Functional Mapping Theory (henceforth FMT). FMT constrains the correspondence between arguments and syntactic functions, just as the LMT in standard LFG. Although FMT shares the basic mapping principles with the standard LMT, the two mapping theories vary in many ways. The first difference lies in the decomposition of grammatical functions. In this respect FMT uses [subj ±] and [obl ±] binary feature decomposition of grammatical functions, parallel to the LMT feature decomposition [±r] and [±o]. The second difference relates to the representation of a-structure, in FMT the a-structure contains Proto-Roles (P-Roles) but not semantic roles. The third point relates to the mapping conditions in that the FMT dispensed the Function-Argument Bi-uniqueness condition of the standard LMT.

FMT has two linking principles that can take care of the correspondence between arguments and grammatical functions. The first principle is External Argument Mapping Principle. It is formulated as in (60) (adopted from Alsina 1996:44).

(60) External Argument Mapping Principle:

$$\left[PRED\ \text{'X} < [\text{P-A}]_{1} \ldots > \text{'} \right]_{2} \rightarrow \left[\begin{bmatrix} \text{obl} & - \\ \text{subj} & + \end{bmatrix} [\ ]_{1} \right]_{2}$$

The mapping principle above is interpreted as, the external argument[2] of a predicate must be co-indexed with a subject function at f-structure. The second mapping principle is called Internal Argument Mapping Principle. It is formulated as the following (adopted from Alsina 1996:44).

[2] According to Alsina the external argument refers to subject function whereas his internal argument refers to either subject or object function.

(61) Internal Argument Mapping Principle:

$$\left[PRED\ '\ X < ...[\text{P-P}\ ]_1 \ ... >'\right]_2 \rightarrow \left[\left[\text{obl}\ -\right][\ ]_1\right]_2$$

The Internal Argument Mapping Principle above could be interpreted as an internal argument of a predicate must be co-indexed with a direct function at f-structure. The External Argument Mapping principle distinguishes a subject from object functions, as it has the feature specification [obl -] and [subj +]. On the other hand, the Internal Argument Mapping Principle identifies direct functions only, that is to say it maps [P-P] argument onto a subject [subj +] or an object [subj -] function. Hence, either a subject or object is required to satisfy this mapping principle. Alsina further states that the direct function[3] has to fulfill the following well-formedness conditions (taken from Alsina 1996:46).

(62) Coherence Condition:
Every direct function must be licensed by a mapping principle.

This condition states that an internal argument must map onto direct function and a direct function such as object must be licensed by the mapping principle. This means that a direct function of an f-structure that is not co-indexed with an internal argument is prohibited. In light of this condition, therefore, no direct function is allowed in an f-structure to exist without being co-indexed with an internal argument (Alsina 1996:20).

(63) Subject Condition:
An f-structure with propositional content must include a subject (as one of its grammatical function) and no f-structure may include more than one subject.

According to the Subject Condition only one subject in a clause is allowed.

With this background information now we shall consider the causative sentence in (55) repeated here as (64).

(64) kittampo-t kussiyy kittonnayyu-s mat'af he-piɗɗ-osiy-i
Kittampo-NFS Kussiyy-ABS Kittonnayyu-DAT book.ABS FOC-buy-CAUS-PRF
'Kittampo MADE Kussiyy BUYa book for Kittonnayyu.'

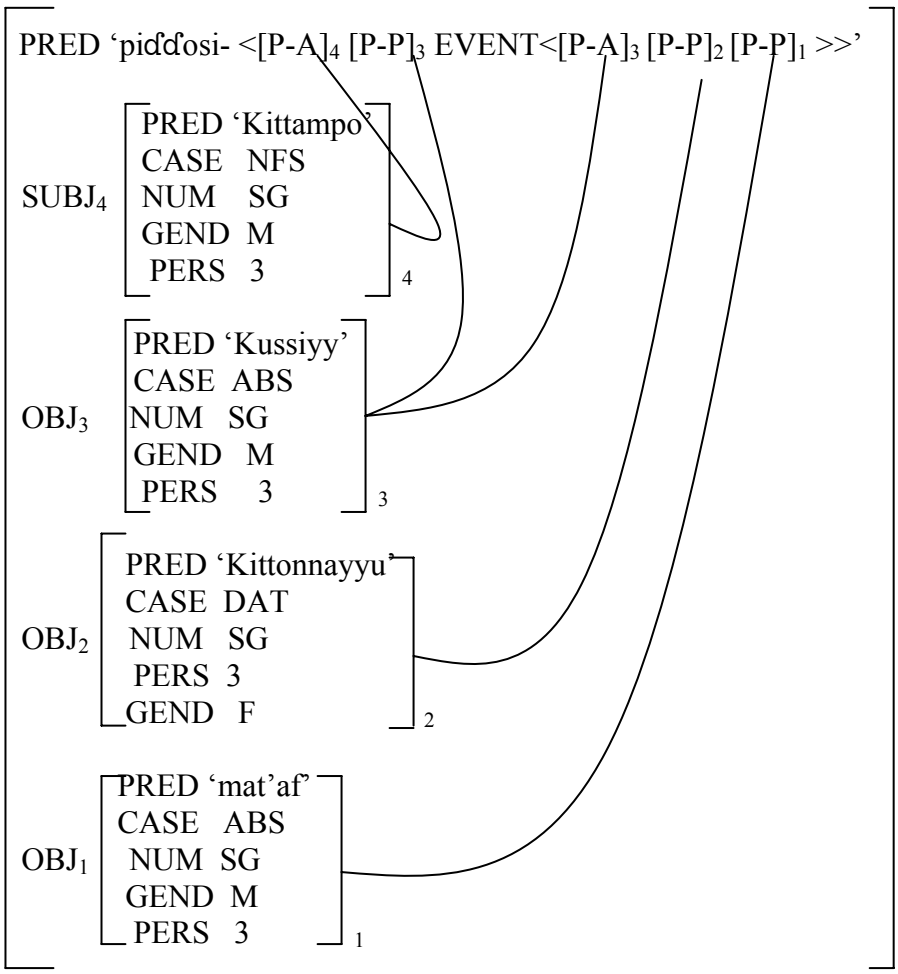
[3] Direct function subsumes the grammatical function subject and object.

According to Alsina (1996) the argument structure of the sentence in (64) is as in (65) below.

(65) ‘piʤʤosi- <[P-A]$_4$ [P-P]$_3$ EVENT<[P-A]$_3$ [P-P]$_2$ [P-P]$_1$ >>

In (65), [P-A]$_4$ argument of the causative verb *piʤʤosi-* ‘made buy’ is the external argument. The arguments: [P-A]$_3$, [P-P]$_2$ and [P-P]$_1$ are direct functions. The mapping of these arguments to syntactic function is as shown in (66).

(66)



The external argument, *Kittampo* maps onto the subject function by the External Argument Mapping Principle (60). The [P-P]$_3$ - [P-A]$_3$, the [P-P]$_2$ and [P-P]$_1$ arguments of the causative verb map onto direct functions by the Internal Argument Mapping Principle (61) and Subject Condition (63). The correspondence between arguments and functions is made by co-indexation.

That is to say the index on the argument (whether it is external or internal argument) must correspond to the index on the grammatical function in order to be linked with. This can be noticeable from the correspondence of arguments and syntactic functions in (66).

A closer examination of the mapping correspondence between arguments and syntactic functions in (66) reveals that in such structure there are three object functions. The first one is the logical subject of the base, *Kussiyy,* and the second one is the benefactive object, *Kittonnayyu,* and the third one is the theme object, *mat'af* 'book'. As we mentioned earlier the presence of these three object functions violates the Function-Argument Bi-uniqueness principle of the standard LMT. In order to solve such problems the LMT postulates the function OBJ_θ in addition to the OBJ function. Even then, this cannot solve the problem, as there are three object functions. This problem can be solved by using FMT. This is because FMT allows multiple object functions. In light of this theory it is possible to have more than one object functions as long as the objects have a different index and correspond to distinct arguments. Thus, the object function OBJ_3 in (66) maps onto the fused argument $[P\text{-}P]_3$ -$[P\text{-}A]_3$, the object function OBJ_2 maps onto $[P\text{-}P]_2$ argument and the object function OBJ_1 maps onto $[P\text{-}P]_1$ argument. Although OBJ_1, OBJ_2 and OBJ_3 are object functions, they are not identical in the sense that they bear different indices and they are also mapped onto different arguments and hence the presence of the three object functions do not violate the Uniqueness Condition discussed in chapter 2. We, therefore, argue that the FMT of Alsina seems appropriate for the analysis of causatives in Diraytata, as it allows multiple object functions.

9.5 Summary

In this chapter we have been concerned with the argument structure and the theory of Lexical Mapping. In the first section we have tried to briefly look at the conception of argument structure and the current existing views about argument structure. We have said that there is no unified consensus about the definition of argument structure among linguists. The reason is the fact that argument structure has two faces as pointed out by Bresnan (2001), which has led to its various interpretations. We have also pointed out that there are differences in the representation of argument structure even among researchers within LFG. Some have adopted Dowty's (1991) conception of Prot-Role argument classification. Others have adopted Rappaport Hovav and Levin's (1998a,b) Lexical Semantics. Still others have adopted Jackendoff's (1983, 1990) Conceptual Semantics.

In the second section we have dealt with the Lexical Mapping Theory. We have said that LMT is a theory about the correspondence between semantic structure and syntactic functions of a predicate. The theory has four components: semantic role hierarchy, classification of grammatical functions, mapping principles, and well-formedness conditions.

The third section has been concerned with the application of the LMT to various predicates in Diraytata. We have considered intransitive, transitive, passive, raising and causative predicates. Regarding transitive predicates we have seen that transitive predicates in Diraytata have active intransitive counterparts. In order to handle the active intransitive counterparts of ditransitive predicates we proposed the Recipient Suppression principle that can account for the recipient or benefactive suppression in Diraytata.

We have also seen that the standard LMT handles all the above-mentioned argument-taking predicates except the causative predicates. This is because the causative construction violates the well-formedness condition. To be more specific it violates the Function-Argument Bi-uniqueness principle. We have also seen a version of LMT called FMT. We have shown that how the FMT handles the causative constructions in Diraytata.

Chapter 10

Summary and Conclusion

This chapter recapitulates the main points discussed throughout the thesis. Chapter 1 contains a general introduction about the people, the classification of the language, review of related literature, the present study, details about the fieldwork and some notes on the phonology of the language. We have recognized four major lexical categories: noun, verb, adjective and adposition, and three minor categories: determiner, Infl and Comp.

In chapter 2, the theoretical framework of the study has been introduced. The basics of the theory of Lexical-Functional Grammar along with its formal architecture were presented.

In chapter 3, we have seen the noun morphology. We have shown that focus is obligatory in Diraytata and hence one constituent must be focused in a clause. In this language when a non-subject is focused, a subject occurs in a nominative case, whereas when a subject is focused it occurs in an absolutive case. Such interaction between a focused constituent and a subject's case may lead us to question the appropriateness of the use of the term nominative case as it is used in accusative languages (Lapointe 1985) for a subject in Diraytata. In accusative languages the term nominative refers to a subject of both intransitive and transitive verbs. But in Diraytata a subject of transitive and intransitive verbs can be either in a nominative or in an absolutive case depending on the focused constituent. This situation forces us to reject the nominative case as inappropriate to designate a subject case in Diraytata and substituted by Non-focalized subject case (NFS).

Definiteness interacts with case and number marking, that is, the type of definite marker attached to a given noun is dependent of whether the noun is non-focalized subject case marked or not, and also whether the noun is singular or plural. The great majority of nouns form their plural by suffixing plural morphemes. There are, however, nouns which are inherently plural

and which do not attach plural affixes. We argued that such nouns should be specified as plural in the lexicon or dictionary.

The language has a two-gender system: masculine and feminine. There is, however, no overt morpheme that can mark the gender of a noun. In a few nouns the feminine gender is derived by suffixing the morpheme *–et*. Still, there are a few animate nouns that use lexical gender to distinguish masculine from feminine. Diraytata has grammatical gender, as nouns whose referents reflect overt sexual differences may correlate with masculine or feminine gender irrespective of their biological sex.

In the second section we have discussed the derivational processes. We have seen that nouns can be derived from different sources such as nouns, category neutral bound stems and verbs. Besides, compound nouns are formed from two existing nouns or a combination of a noun and other categories.

In chapter 4, we have discussed adjectives in Diraytata. Attributive adjectives inflect for gender and number but not for case and definiteness. Attributive adjectives show feminine gender by suffixing the morpheme *–at*. Reduplicating the initial *CCV* part of their stems indicates number on attributive adjectives. The predicative adjectives in Diraytata occur in clause final position. Such adjectives are verbs as they behave like verbs than adjectives. The evidence for this comes from the consideration of focus, reduplication and predicate nouns. Regarding derivation we have discussed adjectives derived from nouns and compound adjectives.

In chapter 5, we have looked at the verb morphology of Diraytata. The chapter has two major sections. In the first section we have dealt with inflectional affixes. We have said that verbs in this language inflect for agreement, aspect and mood. Agreement is a collection of nominal features for person, number and gender. The language has an obligatory subject-verb agreement in the sense that in a sentence a verb must agree with its corresponding subject NP in number, person and gender and this is indicated by the bound affixes attached on a verb. We have identified three types of bound affixes: grammatical agreement, pronominal inflection (or pronoun incorporation) and phonetically null (ø) affixes. Grammatical agreement constrains the feature of a subject NP and does not build a subject f-structure. The pronominal inflection defines the feature of a subject NP and builds a subject f-structure. The presence of such bound affixes on a verb can pre-empt the occurrence of any overt subject pronoun in a constituent structure. This phenomenon is referred to by the name pro-drop and the languages that exhibit such features are known as pro-drop

languages. The third type of bound affix is a phonetically null third person masculine singular affix, which is proposed to fill the gap in the verb paradigms.

Regarding aspect, the language makes a distinction between perfective and imperfective aspects. The perfective aspect is marked by the suffix morpheme *–i* and the imperfective by *–in*. The language distinguishes only past and non-past. Reference to past coincides with the perfective aspect and refers to completed actions only. Likewise the non-past coincides with the imperfective aspect and refers to actions either in the present or future moment. In this language imperative and optative (jussive) moods are expressed morphologically. The imperative mood is encoded by the morphemes *–i* and *–a,* for second person singular and plural respectively. Optative mood is encoded by the morpheme *–u* for first person and third person both in the singular and plural forms.

The second section discusses derivation, which includes passives, middles and causatives. A typical passive construction in Diraytata involves affixing the passivizer morpheme *–am* to a transitive verb. This process is purely morphological.

In Diraytata middle verbs are derived by attaching the morpheme *-ad* to a base predicate. It has been pointed out that middles are difficult to characterize. This is because when such a morpheme is attached to intransitive verbs it shows the subject is the experiencer of the state of being specified by a verb and when it is attached to transitive verbs, it indicates that the agent subject is the beneficiary of the action specified by a verb.

In the final part of the section we have examined the causative constructions in Diraytata. We have said that there are two types of causative affixes: *-i* and *–osi*. The former derives causatives from intransitive verbs only whereas the latter derives causative both from intransitive and transitive verbs. We have said that causativization affects both the argument structure and the assignment of grammatical relations. When the causative *–osi* is attached to a two-place predicate it becomes a three-place predicate. The three-place predicate has one subject, the causer and two object NPs. Similarly, when this morpheme is suffixed to a three-place predicate it becomes a four-place predicate. Such predicates have four arguments, out of which three arguments are object NPs.

In chapter 6, we have seen the phrasal arguments in Diraytata. We have divided the predicates into three types based on the argument types they select at f-structure. The predicates in type one select SUBJ function only,

whereas those in type two select SUBJ and OBLθ functions. Type three subsumes transitive predicates. The predicates under this type are characterized by their potential to passivize. They are further divided into two subtypes: monotransitive and ditranstives. The monotransitives subcategorize SUBJ and OBJ functions. We have also seen that transitive predicates have active intransitive counterparts.

In chapter 7, we have discussed the clausal complements of Diraytata. Such complements are arguments, which are functionally selected by the predicates. We have characterized the clausal complements of Diraytata as belonging to two types, namely, controlled and non-controlled clauses on the basis of whether such clausal complements allow an external controller to control clause internal argument or not. Accordingly, those complement clauses that do not allow an external controller to control their clause internal arguments, are commonly referred to by the name non-controlled clauses whereas those clausal complements that allow an external controller to control their clause internal arguments, are called controlled clauses.

Functionally speaking, non-controlled clauses are closed complements or COMP arguments. In terms of constituent structure such complements are either Ss or CPs. They are Ss when they are finite-infinitival clauses and they are CPs when they are finite clauses. This is because finite complement clauses are introduced by a complementizer *ʔakkum* and the place of the complementizer in a constituent structure is the head C of CP. However, finite-infinitival clauses lack a complementizer and their constituent structure is rooted by S rather than CP.

Controlled clauses are clauses whose subjects are either anaphorically or functionally controlled by an outside controller. In anaphoric control, the invisible subject of the complement clause PRO is referentially identified with the matrix clause subject. In other words, the matrix clause argument controls the embedded clause implicit subject PRO. The constituent structure for such a complement clause is always VP rather than S or CP. Such clauses are closed complements or COMP arguments.

In functional control, the implicit subject of the complement clause is obligatorily identified with the subject of the matrix clause. This is not a kind of referential identity between the subject of the matrix clause and the subject argument of the embedded clause, but rather that the single subject argument is shared by both the matrix and subordinate clauses.

An instance of a predicate inducing functional control is the raising predicate *pah-* ‘seem’ in Diraytata. It selects a finite or a finite-infinitival

complement clause. However, such a predicate does not subcategorize a non-finite clause. Thus, in Diraytata raising is possible only from a finite clause and it is impossible out of a non-finite clause. In raising constructions the complement clause counts as an open complement or XCOMP argument. The constituent structure of the complement clause is CP but not VP because such clauses are introduced by the complementizer *ʔakkum*.

Finally, we have said that the predicate *believe* in English subcategorizes either SUBJ and COMP arguments when finite or SUBJ, OBJ, and XCOMP arguments when non-finite, whereas its equivalent the predicate *ʔaman-* 'believe' in Diraytata, subcategorizes SUBJ and COMP arguments only. Moreover such predicates in Diraytata cannot be taken as instances of raising because the complement clause of such a predicate has phonetically overt subject arguments with overt morphological case marking. Thus, the predicate *ʔaman-* 'believe' in Diraytata is neither a 'subject raising' nor an 'object raising' predicate.

In chapter 8, we have been concerned with anaphoric binding relations in Diraytata. The anaphors of Diraytata have been divided into two: nuclear and non-nuclear anaphors. The nuclear anaphors subsume reflexives and reciprocals. There are two types of reflexive morphemes: *ʔiss* and *mašš-*. They function as an object argument only. Reciprocity is indicated by the morpheme *ʔorr*. Like the reflexives, the reciprocal morpheme has an object function. On the other hand, the non-nuclear anaphors subsume pronouns designated by PRO. Such PRO has the attribute U (for unexpressed morphologically) with the value "-".

The nuclear anaphors of Diraytata obey the antecedent f-precedence condition whereas the non-nuclear anaphors do not. Similarly, the f-command condition does not apply to nuclear anaphors because both the antecedent and the anaphor f-command each other, whereas in the non-nuclear anaphors the antecedent f- command the anaphor.

In chapter 9, we have been concerned with the argument structure and the theory of Lexical Mapping. In the first section we have tried to briefly look at the conception of argument structure and the currently existing views about argument structure.

In the second section we have dealt with the Lexical Mapping Theory. We have said that LMT is a theory about the correspondence between semantic structure and syntactic functions of a predicate. The theory has four

components: semantic role hierarchy, classification of grammatical functions, mapping principles, and well-formedness conditions.

The third section has been concerned with the application of the LMT to various predicates in Diraytata. We have considered intransitive, transitive, passive, raising and causative predicates. Regarding transitive predicates we have seen that transitive predicates in Diraytata have active intransitive counterparts.

We have also seen that the standard LMT handles all the argument-taking predicates except the causative predicates. This is because the causative constructions violate the Function-Argument Bi-uniqueness principle.

The following are some of the contributions of the present thesis:

(1) As mentioned in chapter 3, a subject with non-focalized subject case cannot go with the neutral form of a predicate. Likewise a subject with absolutive case can go neither with the full form nor with the reduced form of a predicate. We have accounted for such a mismatch between a subject case and a predicate form in terms of violation of the Consistency Condition.

(2) We have argued in chapter 4 that predicative adjective and the attributive forms are derived from a common source, which is a category neutral bound stem. From this bound stem attributive adjective is derived by doubling the initial consonant of the stem and the predicative adjective by prefixing the morpheme *he-*. Hence, attributive adjectives are adjectives and the predicative adjectives are verbs. The presence of attributive adjective clearly shows that a category adjective exists in Diraytata.

(3) In chapter 5, in order to fill the gap in a predicate paradigm we have posited a phonetically null bound affix designated ‘ø’ that can be interpreted as third person masculine singular. The inclusion of such an empty element is justified in LFG as it contributes to semantic expressivity.

(4) In chapter 5 and 9 we have argued that the standard LMT is inadequate to account for causatives of ditransitive predicates in Diraytata. The reason is that such causative constructions allow two OBJ functions which are contrary to the Function-Argument Bi-uniqueness principle (Bresnan, 2001). We have argued that the

version of LMT called FMT of Alsina (1996) is appropriate to handle the ditransitve causative constructions in Diraytata.

(5) In chapter 5, it is argued that Diraytata is one of the *symmetrical object languages* as it can passivize either of the object NPs in double object constructions.

(6) We have seen in chapter 6 that the ditranstive predicates in Diraytata have active intransitive counterparts. In other words, ditranitive predicates drop their internal arguments (i.e. recipient and theme arguments). Such a phenomenon cannot be accounted in terms of pro-drop because the predicates in Diraytata do not show agreement with internal arguments. The Morpholexical Operations of Bresnan and Kanerva (1989) and Bresnan and Moshi (1990) lack recipient or benefactive suppression. Thus in order to account for recipient or benefactive deletion we have proposed the following Recipient Suppression operation.

(i) Recipient Suppression

recip/ ben

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Finally we conclude by stating that this research has substantiated that the basic principles and the formal architecture of LFG are generally correct to handle the empirical facts of Diraytata. However, we need to add some operations (i.e. Recipient Suppression) to sharpen the theory.

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Appendix

Tale 1. karmanne ʔoraytet ‘ a lion and a hyena ’

karma-nne ʔoraytet kiy-an
lion-and hyena exist-PL

´There was (a) lion and (a) hyena.

karm-ot horma ʔoraytet-i kaman he-k’af-en-i
lion-NFS ox hyena-NFS cow FOC-have-PL-PRF

‘(A) lion HAD an ox and (a) hyena HAD (a) cow.´

ʔiyyaa helt helt-as lušš-as ʔollen he-sen-en-i
They turn turn-by look-for together FOC-agree-PL-PRF

´They have AGREED to look after (a) cow and (an) ox in turn.´

ʔaw šokku helt karma k’ar-as kaman he-ɗal-t-i
day one turn lion on-by cow FOC-give birth- 3FSG-PRF

´One day on (a) lion’s turn (a) cow GAVE BIRTH to a calf.´

karma-ot ʔokkan ɗal-aɗɗ-i ʔirrot-ayy-en horm-ayy ɗal-ep
lion-NFS calf gave birth-her-PRF force-his-by ox-his give birth-to

kiyašiš-an k’eɗat-as he-k’ap-ayy-i
pretending-by take-for FOC-think-him-PRF

´ (A) lion WANTED to take the calf, as if his ox had given birth to (a) calf.`

sekkenna ʔoraytet horm-aw ɗal-i he-kiɗ-i
then (a) hyena ox-my give birth-PRF FOC-say-PRF

‘Then he TOLD (a) hyena that it is my ox that gave birth to (a) calf.’

ʔoraytet-i lammi ʔiyyokku kaman-aw ɗal-i
hyena-NFS but no cow-my give birth-PRF

he-kit-t-i
FOC-say-3FSG-PRF

‘But (a) hyena SAID it is my cow that gave birth to (a) calf.’

lakka talla šitta he-sohaɗɗ-i
two between quarrel FOC-raise-PRF

‘(A) quarrel between the two TOOK PLACE.’

sekkanna pinant ʔinnu reeh-en kiɗ-en-i ʔollen
then wild animal we judge-PL say-PL-PRF together

he-sen-en-i
FOC-agree-PL-PRF

‘They have AGREED their case to be judged by wild animals.’

turk’antas keltayt ran-top he-ʔan-en-i
initial baboon with- to FOC-go-PL-PRF

‘Initially they WENT to (a) baboon.’

keltayt-at kaass-ayy horma ɗal-i kiɗ-i
baboon-NFS ask-he ox give birth-PRF say-PRF

he-reeh-i
FOC-judge-PRF

‘When (a) baboon was asked, he JUDGED that it is an ox that gave birth to (a) calf.’

sekkenna pinant hepil kollopa firrota-nne kaʔalt
then wild animal others rabit antelope-and fox

ran-top he-ʔan-en-i
with-to FOC-go-PL-PRF

‘Then they WENT to other wild animals: rabbit, antelope and fox’

ɗehen karma hurr-en horma ɗal-i kiɗ-en-i
all lion fear-PL ox give birth-PRF say-PL-PRF

he-reeh-en-i
FOC-judge-PL-PRF

‘By fearing (a) lion all of them JUDGED that it is an ox that gave birth to (a) calf.’

mutaytate k’ililayt ʔollaɗ he-ɗey-i
final monkey late FOC-come-PRF

‘Finally (a) monkey CAME late.’

karma-ot k’ililayt man-as haka ʔannet ʔollaɗ he-kiɗ-i
lion-NFS monkey why-for until now late FOC-say-PRF

‘(A) lion ASKED (a) monkey why were you late?’

k’ililayt-at pakatet ɗoohhi-t-i ʔan-tu likkisi ʔollaɗ
monkey-NFS sea burn-3FSG-PRF I- NFS extinguish late

he-kiɗ-i
FOC-say-PRF

‘The monkey SAID, I was late because I was extinguishing the fire from a burning sea.’

karm-ot mitat layyan pakatet hus ʔahilat
lion-NFS answer surprised sea country where

ɗoohhi-t-i ʔatti ʔakk-i he-kiɗ-i
burn-3FSG-PRF you see-PRF FOC-say-PRF

‘(A) lion was surprised and ASKED (a) monkey in which country did you see (when) a sea burn?’

k’ililayt-at horm-at hus ʔahilat ɗal-i ʔatti
monkey-NFS ox-NFS country where give birth-PRF you

ʔakk-i kiɗ-i reehayt pahhi reeh-i he-kiɗ-i
see-PRF say-PRF judgment true judge-PRF FOC-say-PRF

‘It is SAID, a monkey judged truly by asking in which country did you see when an ox gave birth to (a) calf?’

A lion and a hyena

There was a lion and a hyena. The lion had an ox and the hyena had a cow. They had agreed to look after the ox and the cow in turn. One day, during the lion’s turn, the cow gave birth to a calf. Then he told to the hyena that his ox had given birth to a calf. But the hyena said that it was my cow that gave birth to the calf. As a result of this, a great quarrel arose between them. Finally they have agreed that wild animals shall judge them.

First they went to a baboon, after narrating the story to the baboon, they asked for his judgment. Because he feared the lion, the baboon judged that it was the ox that gave birth to the calf. Next they went to other wild animals a rabbit, an antelope and a fox. All of them judged in favor of the lion. Finally a monkey arrived late. The lion asked the monkey why he was so late. The monkey replied I was late because I was extinguishing a burning sea. The lion was a bit surprised by the answer and asked the monkey ‘where did you see when a sea burn’. The monkey replied, where you saw an ox give birth to a calf. By saying so, the monkey gave the correct judgment.

Tale 2. ʔikkiret, fillenta-nneʔittayya ‘A louse, a flea and a bug’

ʔaw šokku ʔikkiret filleta-nne ʔittayya kallat ʔollen
Day one louse flea-and bug live together

kiɗ-en-i kallat he-hir-en-i
say-PL-PRF live FOC-start-PL-PRF

‘One day a louse, a flea and a bug discussed living together and STARTED living together.’

ʔollen sen-en-i paršot paršat-an kaaš-as
together agree-PL-PRF beer brew-PL sale-to

‘They agreed to brew beer and to sell it.’

paršat ʔinnu malla ʔayno kapiya-lle haʔiyy kaaš-as ŋ-ani-n-i
brew we after who market-to carry sale-to 1-go-PL-PRF

he-kiɗ-en-i
FOC-say-PL-PRF

‘They SAID, After we brew the beer, who is going to carry it and sell it in the market?’

fillet ʔatti ʔinnu haʔiyy he-kiɗ-en-i
flea you us carry FOC-say-PL-PRF

‘They ASKED the flea to carry the beer for them to the market.’

fillet-at ʔan-tot haʔiyyo toriyyo ʔokkot ʔampat peʔint-illo
flea-NFS I-NFS carry jump pot back fall-down

pak'int he-kiɗ-i
break FOC-say-PRF

'The flea SAID if I carry the beer to a market, when I jump the pot will fall down from my back and be broken.'

ʔaan ʔikkiret he-kassaɗ-en-i ʔikkiret ʔatti paršot seɗen kapiya-lle
now louse FOC-ask-PL-PRF louse you beer this market-to

ŋ-ani-n-i he-kiɗ-en-i
1-go-PL-PRF FOC-say-PL-PRF

'Now they ASKED the louse to carry the beer to the market for them.'

ʔikkiret ʔan-tu ammi šakkar k'apa-m kapiya ʔan tura
louse I-NFS NEG slow have-NEG market me before

rawwinan ammi fotina-m
over NEG can-NEG

'Since I am too slow, I will reach there after the market is over. So I cannot do this.'

sekkanna ʔittayya kassaɗ-en-i ʔittayya ʔatti paršot seɗen ʔinnu
after bug ask-PL-PRF bug you beer this us

ʔan-i he-kiɗ-en-i
go-PRF FOC-say-PL-PRF

'After that they ASKED the bug to carry the beer to the market for them.'

Appendix

ʔittayya ʔan-tu folluntu k'apa ʔayno ʔan kera
Louse I-NFS bad odor have who me from

piɗɗ-in he-kiɗ-i
buy-IPFV FOC-say-PRF

'A bug SAID, I have a bad odor, who will buy from me?'

ʔaan kallat ʔollen pušam-en-i mana he-ɗìkka he-kiɗ-en-i
now live together fail-PL-PRF what FOC-good FOC-say-PL-PRF

'Since we cannot live together, what is to be done now?'

fillet ʔan-tu husk kal-op kalin ɗìka nam luuka k'uɗan kall-oyyu
flea I-NFS dirt side-in enter blood human suck this live-me

'The flea said, I will live in the dirt and suck the blood of human beings.'

ʔikkiret ʔan-tu rifanta-nne ʔuwwat-ill-op kalin ɗìka lukk-in
louse I-NFS hear-and cloth-inside-to enter blood suck-IPFV

kall-oyyu
live-me

'The louse said, I will live inside the hair and clothes of human beings and suck their blood.'

ʔittayy ʔan-tu lott-ill-op kallin ɗìka luuk-in kall-oyyu
bug I-NFS bed-inside-to enter blood suck-IPFV live-me

'The bug said, I will enter into a bed and suck the blood of humans.'

ʔiyyaa kid-en-i he-pulam-en-i
they say-PL-PRF FOC-depart-PL-PRF

'They departed from each other.'

A louse, a flea and a bug

One day a louse, a flea and a bug decided to live together and they have started living. They agreed to brew and sell beer. But they raised one question, after we brew the beer, who will take the beer to the market and sell it for us. They asked the flea to take this responsibility. The flea refused to accept this because if I put the beer on my back, while I am jumping it will fall down and be broken. Next they asked the louse to take this responsibility. The louse replied since I am too slow, I will reach there after the market will be over. Finally, they asked the bug to carry the beer to the market. The bug replied, since I have a bad odor no one is going to buy the beer from me. They came to realize that they cannot live together. The flea said I will live in dirty places and suck the blood of human beings, the louse said I will live in the hair and clothes of human beings and suck their blood, and the bug said I will live in a bed and suck the blood of human beings. They finally departed.