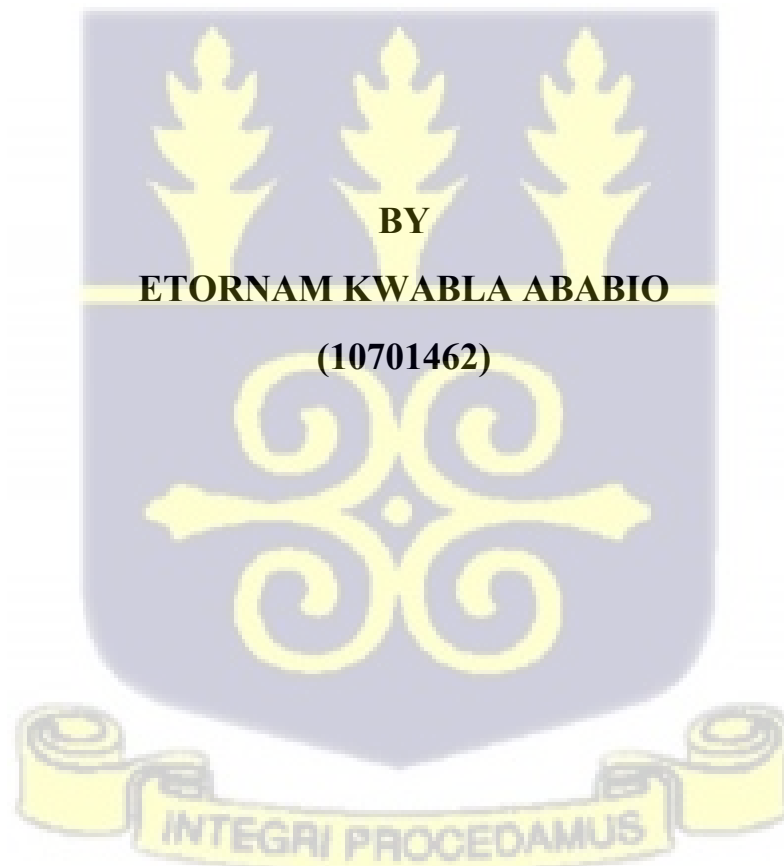


THE SYNTAX AND SEMANTICS OF TAFI PERCEPTION

VERBS



**THIS THESIS IS SUBMITTED TO THE UNIVERSITY OF
GHANA, LEGON IN PARTIAL FULFILLMENT OF THE
REQUIREMENT FOR THE AWARD OF MPhil IN
LINGUISTICS DEGREE**

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DECLARATION

I do hereby declare that this thesis is the result of my original research under the supervision of Dr. James A. N. Saanchi and Dr. Mercy Bobuafor and that it has neither in whole nor in part been presented for another degree elsewhere. References to other sources of information used in this work have been duly acknowledged.

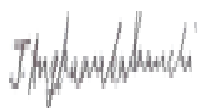


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DEDICATION

To my mum Ms. Augustina Dei and my wife Mrs. Jennifer Eyrarn Ababio in
sincere appreciation for their love and care

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ABSTRACT

This study investigates the perception verbs of Tafi, a Ghana-Togo Mountain language. Using the cognitive linguistics approach, the study examines the syntactic structures and semantic properties of verbs that express sensory information. The data for the study was gathered using the *Grammar of Perception* questionnaire (Norcliff et al. 2010), spontaneous discourse and purposely created scenarios to elicit sensory perception information. Viberg's (1984) typological survey on sensory perception verbs provides the framework within which the Tafi data was tested.

Tafi perception verbs largely fall within the semantic components of ACTIVITY, EXPERIENCE and COPULATIVE. The five basic sensory modalities are lexically differentiated in Tafi in exception of spontaneous sensory experiences of hearing, touch and taste which are lexically conflated in one verb. The percept object NPs of the conflated verb place semantic restrictions on the verb and help to differentiate the various sensory modalities. Also, perception verbs of Tafi are largely polysemous. The larger implication of the study is that the linguistic meaning of sensory perception verbs in Tafi is determined by syntactic structures and pragmatic context.

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LIST OF ABBREVIATIONS

1	first person
2	second person
3	third person
+ATR	advanced tongue root
-ATR	unadvanced tongue root
CM	class marker
COMP	complementizer
CTVs	complement taking verbs
DEF	definitive
DEM	demonstrative
DEP	dependent
FUT	future
INDEF	indefinite
INDEP	independent
LOC	locative
N	noun
NEG	negative

NP	noun phrase
PL	plural
POSS	possessive
PROG	progressive
PRS	present
PST	past
Q	question
REL	relative marker
SFX	suffix
SG	singular
SM	subject marker
SVC	serial verb constructions
UFP	utterance final particle
V	verb
VP	verb phrase

CHAPTER ONE

GENERAL OVERVIEW

1.0 Introduction

Cognitive linguistic research has considered sensory perception to be of crucial importance for our daily experiences including language (Sweetser 1990). Human life largely depends on interaction of the physical environment through the things people perceive with their senses. Because of the importance of these senses, human language interestingly has the capacity for expressing the things we perceive. The linguistic study of sensory perception offers us insight to understand how humans construe the world and how the world is linguistically represented. Five sensory modalities are distinguished in the field of perception, these are visual, auditory, tactile, gustatory and olfactory (Treis 2012).

This study focuses on verbs which express sensory behaviors in the Tafi language. It accounts for the grammatical and semantic properties of verbs that are used to talk about perceptual experiences and activities. Horie (1993:3) defines sensory perception verbs as “the kind of verbs that primarily encode the acquisition of sense data through the senses”. The linguistic study of sensory perception is a rich domain for investigating conceptualization and language. With Tafi being one of the underdescribed languages in Ghana, the study would offer great deal of insight about the worldview of the Tafi culture and the grammatical structure of verbs that express sensory information. Agyekum (2019) for instance argues that

verbs of perception and body part expressions are rich sources of data for understanding the worldview of a group of people. Even though sensory perception is a universal concept that is present in all cultures, languages differ in their linguistic expression of sensory perception, it is therefore ideal to investigate the peculiarities of these verbs in Tafi vis-à-vis their crosslinguistic points of convergence.

1.1 Statement of the Problem

Viberg's pioneering study of perception verbs had kindled the interest of many scholars of linguistics (for example Viberg 1984; Sweetser 1990; Ritchie 1991; Howes 2006; Majid & Levinson 2011; Aikhenvald & Storch 2013; Agyekum 2005 and 2019, Otoo 2018 and van Putten 2019) over the past three decades. Viberg's typological study distinguishes between languages that have a verb for each of the five senses and those that combine more than one sensory modality in a single verb. Aside linguistics, the subject of sensory perception has over the years been extensively explored across other disciplines including philosophy, psychology, and anthropology. In the area of linguistic research, a considerable amount of these research has focused on the grammatical and semantic properties of perception verbs in various languages. The various researches have so far shown some shared characteristics as well as varying degrees of differences. This study seeks to define the status of Tafi verbs of sensory perception in Viberg's cross-linguistic typology.

The thesis aims at providing detailed account of the syntactic and semantic properties of perception verbs in Tafi which has not yet been found in literature.

Bobuafor (2013) gives a seminal description of Tafi grammar and provides some insight on verbs of sensory perception. The study also identifies some sensory perception verbs and discusses the argument structure and sentential complementation of perception verbs. Available data on the Tafi verbs of perception is however sparse because detailed account of key syntactic structures and semantic properties seems to be missing in the literature of Tafi linguistics. The study seeks to bridge this gap by giving a comprehensive account of Tafi perception verbs. The study will provide fresh data that will feed into ongoing discussions on ‘Sensory Linguistics’ and be relevant for a cross-linguistic study of perception verbs.

1.2 Research Objectives

Using a cognitive-based approach, the study focuses on the syntactic structures that express perceptual experiences. The study also looks at how the various sensory modalities are encoded in Tafi verbs and grammatical constructions. It further examines some semantic and pragmatic information of the basic perception verbs.

On the whole, this study seeks to answer the following research questions:

1. How are the basic senses of vision, hearing, touch, taste and smell encoded in Tafi verbs?

2. What grammatical resources are available in Tafi for disambiguating senses which are lexically conflated in a single verb?
3. What semantic and pragmatic information do the basic perception verbs of Tafi have?

1.3 Method of Data Collection

The three research questions for this study are addressed using various methods of data collection: translation of English sentences into Tafi, purposely created scenarios to elicit sensory perception information and studying some spontaneous discourse at social gatherings in Tafi-Mador and Tafi-Agorme communities. For the translation, the *Grammar of Perception* questionnaire (Norcliffe, Enfield, Majid & Levinson 2010) was administered to ten respondents. The questionnaire is contained in a field manual (Norcliffe & Enfield 2010) designed by members of the Language and Cognition Department of the Max Planck Institute for Psycholinguistics. It is purposely developed for eliciting descriptions of perceptual events and states which are cross-linguistically comparable. The questionnaire comprises sixty main scenarios and additional sixty-three optional scenarios that cut across the five sensory domains of sight, hearing, touch, taste and smell and three semantic aspects of perceptual events and states based on the typological observations of Viberg (1984). The questionnaire comprises three main divisions and each division focuses on a specific semantic domain for describing perception events. The scenarios with targeted sentences was read out to the respondents in English. The scenarios were not translated by the informants, they only provide a

suitable context for the targeted sentences to be well interpreted and correctly translated. It is only the targeted sentences which are indicated in bold font that were translated by the informants (see appendix). Some vocabularies in the questionnaire were not culturally specific so they were modified to properly situate the questionnaire within the context of the Tafi language and culture. An example of a scenario with the targeted clause is illustrated below.

“1. Yesterday I accidentally left the milk in the sun. I wanted to know if it was still good to drink. I poured some into a cup **and smelled it.**”

(Norcliffe et al 2010 :10)

In addition to the questionnaire, some scenarios which were relevant for Tafi were created with the help of the informants and were translated. The translated scenarios were also augmented with spontaneous study of verbs of sensory perception in spontaneous discourses. The researcher also obtained permission from the inhabitants and recorded some of their conversations. The translations and conversations were recorded with a Techno Pouvoir 2 phone and transferred to the researcher's laptop. Snippets of the recordings involving the use of the targeted perception verbs were extracted and transcribed with the help of the informants for the analysis.

Three informants were used for the transcription task, they were purposely selected from Tafi-Mador and Tafi-Agorme. They are native speakers of Tafi who could also speak Ewe and English.

1.4 Language Name and Genetic Affiliation

The Tafi language falls within a genetic group of languages in West Africa known as the Ghana Togo Mountain (GTM) languages. The term ‘Ghana Togo Mountain languages’ defines the geographical locations where these languages are spoken even though the Benin region is not represented in the name. This language group is made up of fifteen languages that are spoken by people who live in the Akwapem-Togo-Atakora hills (Ameka 2017). Even though the Ghana Togo Mountain languages are distinct from one another, they are also as a group marked out by their nominal morphology from their neighboring languages like Gbe, Akan and Guan languages (Blench 2009:19). Heine (1968) stated in Ameka & Essegbey (2017) classifies the fifteen GTM languages into two sub-groups called NA-Togo and KA-Togo based on the terms that the languages use for meat and this establishes them as a genetic unit within the Kwa group of languages.



Figure 1. Heine’s classification of the GTM languages.

Adopted from Blench (2009:22)

From figure 1 above, Blench (2009) merged Tafi and Nyangbo as one language. The reason is that the Tafi language is closely related to Nyangbo that Dakubu & Ford (1988 :121) for instance refers to them as “dialects” of one language due to their proximate degree of mutual intelligibility. Recent literature on GMT languages has however treated Tafi and Nyangbo as two distinct languages.

The name Tafi refers to the geographical location, the language and the inhabitants. The people originally call themselves Bagbo and call their language Tɔgbɔ. According to Bobuafor (2013), the oral history of the Tafi people suggests that the name Tafi evolved from the Ewe expression “Tafilawo” which pejoratively means “head thieves”. The name historically emerged during a time when the Tafi people fought their neighboring Ewe communities in an attempt to protect their land from being annexed by the Ewes. At night, the warriors of Tafi, who were predominantly hunters secretly beheaded the Ewes and took their heads away. Since the Ewes did not know the perpetrators of this heinous crime, they only referred to them as Tafilawo “head thieves”. The Ewes later identified the Tafi people as the perpetrators of the heinous act, since then, the name “Tafi” has been used to refer to the town, the inhabitants and the language.

The Tafi language is spoken in all the four communities of Tafi namely Abuiɛ, Atome, Mador, and Agome. The Tafi communities use Ewe as the lingua-franca for communication with speakers of other GTM languages. Ewe is taught as a subject at all levels of basic education and it is also used as a medium of instruction at the lower primary level of Tafi schools.

1.5 Linguistic features of Tafi

In this section, I will introduce some linguistic features and provide some grammatical preliminaries for the study of the Tafi language. The aim is to place the language in context and give a general overview of some linguistic properties of the language. Some essential aspects of phonology, morphology and syntax are discussed with a special focus on Tafi verbs. The section provides the necessary background information for my analyses in chapters three and four and helps the reader to follow the examples and explanations. The section explains two relevant morphosyntactic features of Tafi: the noun class system and subject cross referencing which mark grammatical agreement in the language.

1.5.1 Phonemic Inventory of Consonant Sounds

Tafi is made up of 39 consonant phonemes which spread across eight (8) different places of articulation: bilabial, labio-dental, alveolar, post alveolar, palatal, velar, labio-velar and glottal. The consonants of Tafi may be described as stops, fricatives, affricates, nasals, liquids and glides with regards to the manner of articulation. In terms of phonation, the consonants have voiced and voiceless features. The tabular distribution of the sounds in table 1 below shows the voiceless sounds occurring to the left of their voiced counterparts which are adjacently located on the right. Other consonantal features like aspiration, labialization and nasalization are indicated in the second line of the rows.

Table 1. The Tafi consonant chat (based on Bobuafor 2013:19)

	Bilabial	Labio-dental	Alveolar	Post-alveolar	Palatal	Velar	Labio-velar	Glottal
Stops	p b b ^h		t d	ɖ		k ɡ	kɸ ɡb	ʔ
Fricatives	ɸ	f v fw	s z		ʃ ʒ	x xw		h fi hw
Affricates			ts dz		tʃ dʒ tʃw			
Nasals	m		n		ɲ	ŋ ŋw		
Liquids			l, r					
Glides					y		w w̃	

1.5.2 Vowel Sounds

Tafi has a nine-vowel system (Bobuafor 2009: 57). All the vowels have nasalized counterparts apart from /o/. The vowels are divided into advanced tongue root [+ATR] and unadvanced tongue root [-ATR] based on the tongue root position. [+ATR] vowels are produced with the tongue root advanced whilst the [-ATR] are produced with a retracted tongue root. The [+ATR] vowels are /i, e, o, u/ and the [-ATR] vowels are /ɪ, ɛ, ɔ, ʊ/. The vowel /a/ can occur with both [+ATR] and [-ATR] vowels so it is generally regarded as a neutral vowel. Table 2 below shows the Tafi vowel system.

Table 2. *The Tafi vowel chart* (Bobuafor 2009: 57)

	Front		Central	Back	
	[+ATR]	[-ATR]		[+ATR]	[-ATR]
High	i	ɪ		u	ʊ
Mid	e	ɛ		o	ɔ
Low			a		

The ATR vowel harmony in Tafi is usually controlled by root, this is because there is harmony between the vowel of prefixes and the vowel of the first syllable of the root. This means that the ATR value of the first vowel in the root determines the form of the prefix.

1.5.3 *Tafi Orthography*

Tafi is yet to have a standard orthography, so, in this study, I have adopted the orthographic conventions of Bobuafor (2013) which so far serves as the most reliable source for a comprehensive information on the language. The conventions are primarily based on the Ewe orthography because most Tafi speakers who had attained basic education are familiar with the conventions of the Ewe orthography. The IPA representations of the sounds /b^h/, /ɸ/, /f/, /ʒ/, /tʃ/, /tʃw/, /dʒ/, /fi/ and /p/ are respectively represented orthographically as bh, f, sh, zh, tsy, tsyw, dzy. h and ny and these symbols are used throughout this work. All other consonants are represented by the same characters which more or less have the same phonetic value of the IPA symbols. The vowels /i, ɪ, e, ɛ, a, ɔ, o, ʊ, u/ are represented orthographically as i, ɪ, e, ɛ, a, ɔ, o, ʊ, u respectively. A tilde (~) written above

nasal and nasalized vowels. Apart from /o/, all the other vowels have inherently nasalized counterparts.

1.5.4 The Basic Clause Structure of Tafi

Bobuafor (2013) identified the basic constituent order of the Tafi clause structure as:

Subject	Verb	Obj ₁	Obj ₂	X
		DATIVE /	THEME	adjunct
		GOAL		

Based on the structure, Tafi is described as an SV language for intransitive clauses and an AV(D)O for transitive clauses. In a simple clause, the subject occurs at the initial part of the clause and cross referenced on the verb. The grammatical subject and object are differentiated by distinct forms of pronouns.

1.5.5 The System of Grammatical Agreement

One major characteristic of GTM languages is the activeness of their noun class system except Ikposso which appears to lose its noun class system due to its close contact with Ewe (Ameka & Essegbey 2017). The Tafi noun class system has two components, these are reference to the noun's prefix (if there is none) and grammatical agreement pattern (Bobuafor 2009). The Tafi language has been identified to have a ten (10) noun class system which are identified by the prefixes a¹-,ba(a)-, o-, i-, ki-, a²-, ka-, bu¹-, bu²-, and ti- to which nouns are assigned. The

noun class system comprises five singular classes (a¹-, o-, ki-, ka- and bɔ²-), four plural classes (ba(a)-, i-, a²-, and bɔ¹ and (tɪ) as the only non-count class. In non-sentence initial positions, the CV noun class prefixes ba(a)-, ki-, ka-, bɔ¹-, and bɔ² drop their initial consonants in spontaneous speech (Bobuafor 2009). The tɪ prefix however always maintains its full form in any position that it finds itself.

The noun class system of Tafi marks agreement between the subject and verb. Within the noun phrase, there is an agreement pattern between the head noun and some modifiers within the phrase. However, it is noted that adjectives, interrogative qualifiers and intensifiers and ordinals do not show agreement with the head noun. Possessive pronominal constructions of the Tafi language also mark agreement within the structure and the language also accepts loanwords in its class system. The noun class prefixes and agreement markers that go with verbs and other elements within the noun phrase structure are summarized in table 3 below.

Table 3. Tafi noun class prefixes, agreement markers and pronouns

(Bobuafor 2013:62)

Class	Class Pfx	SM	Subj Pron	Obj. Pron/ indep. pron.	Dep. pron.	Poss. Pron.	Dem. Pfx	Indef. mrk. Pfx	Num. Pfx	Int. Qtf.	NP-nyáá- NP
a ¹ -	a/e-/ Ø-	a/e-	a/e-	yí	a/e-	a-	a-	te-	te-	-	nyáá/ nyéé
ba (a)-	ba-/ be-	ba-/ be-	ba-/ be-	balf	la/ le-	a-N -alf	a-	te-	ta-/ tie-	ta-	nyáá/ nyéé
o-	o/o-	o/o-	o/o- la/lo-	okf	la/ lo-	o-	o-	to-	to-	-	nyáá/ nyóó
i-	i/i-	(i/i-)	i/i- li/li-	ikf	li/ li-	i-	i-	ti-	ti-/ ti-	ti	nyéé/ nyéé
ki-	ki-/ ki-	(ki-/ ki-)	ki-/ ki-	kalf	li/ li-	i-	i-	ti-	ti-	-	nyéé/ nyéé
a ² -	a/e-	a/e-	la-/ le-	alf	la/ le-	a-	a-	te-	ta-/ te-	taa-	nyáá/ nyéé
ka-	ka-/ ke-	ka-/ ke-	ka-/ ke-	kalf	kalf	ta-	a-	tie-	tie-	-	nyáá/ nyéé
bu ² -	bu-/ bu-	-	bu-/ bu-	bulf	lu/ lu-	u-	o-/ u-	tu-	tu-/ tu-	tou-	nyáá/ nyóó
bu ¹ -	bu-/ bu-	-	bu-/ bu-	bulf	lu/ lu-	u-	o-/ u-	tu-	tru-	-	nyáá/ nyóó
ti-	ti/ti-	(ki-/ ki-)	ki-/ ki-	kalf	li/ li-	i-	i-	ti-	-	taa-	nyéé/ nyéé

At the clausal level, Tafi marks agreement by cross-referencing nouns on the verbs with which they occur. With this, the classification of nouns is not solely based on the class prefixes with which they occur but the primary consideration for classification is the agreement markers. The second and third columns of table 3 contain class prefixes and subject markers (SM) respectively. The two bu- classes are null for subject marking because nouns which belong to these classes no longer cross-reference their verbs. The ki-, i- and ti- classes among others do not show consistency in marking agreement on the verb. Sometimes they overtly mark

agreement with their appropriate subject markers and at other instances they do not.

The noun class prefixes are the same as the subject-verb agreement markers. The subject-verb agreement markers and the noun prefixes have two forms which depend on the ATR value of the initial vowel in the verb root. In rapid speech, where a CV syllable makes up the subject-verb agreement marker, either the onset consonant or the entire agreement marker may be dropped. The examples that are shown later in this work have the subject-verb agreement marker glossed as SM while the noun prefixes are indicated by CM and CM.PL for singular and plural prefixes respectively.

1.5.6 The Structure of Tafi Verb Forms

The Tafi verb form distinguishes subject marker (SM), negative marker (NEG), tense aspect and mood (TAM) and the stem of the verb (STEM) with a suffix (SFX). The subject marker (SM) occupies the initial position with a pronominal which cross-references the lexical subject on the verb. The subject is however not cross-referenced on the verb when it belongs to the -bu noun class. The negative marker (NEG), tense, aspect and mood (TAM) and the verb stem (STEM) follow in that order. The final position is usually occupied by a verb extension such as the comitative suffix -nɔ. The structure of the verb form is indicated as SM NEG TAM STEM-SFX. The verb form is exemplified in the clauses below.

1. Kofi á-tí-wa kǐ-xwí e-lishí
Kofi SM-NEG-work CM-work CM-night
'Kofi does not work in the night'

2. Éébho ivuń
é-é-bho ki-vu ní
3SG-PRSPROG-beat CM-drum DEF
He is beating the drum

3. Bɔ bav iedzĩm obón
bɔ-ba-vɪ ke-dzi kimɪ obón
1PL-FUT-go CM-market in CM-today
'we will go to the market today'

(Bobuafor 2013:179)

The form of the vowel that fills any of the slots that immediately occur before the verb stem grammatically agrees with in ATR value of the (initial) vowel in the stem.

1.6 The Sociolinguistic Aspect

Tafi is one of the least studied languages among the GTM languages and languages in Ghana in general. Until Bobuafor's (2013) seminal description of the grammar of the language, not much had been known about the language due to the paucity of data available on the language. UNESCO describes the Tafi language as vulnerable in its list of endangered languages with about 4400 speakers (Moseley 2010). The rating of Tafi as vulnerable has been explained to mean that the language is restricted to limited domains of use like the home. The 2010 Population and Housing Census of Ghana has estimated the population of Tafi to be 16,700. This figure as observed by Bobuafor (2013) does not represent the

number of speakers of the language but the number of residents in the town during the period of enumeration. The Tafi community is predominantly multi-lingual with almost every speaker of Tafi also speaking the Ewe language which is the dominant language of the Volta Region and the language spoken by the immediate neighboring communities of Tafi. Dakubu (1988) estimated that about 97% of Tafi speakers also speak Ewe. The medium of instruction in Tafi schools in accordance with the language policy of Ghana is the English language. Ewe is also taught as a subject from kindergarten to the junior high School and used as the medium of instruction up to the lower primary school. The official language policy and the use of Ewe as the language of commerce between Tafi and its neighboring communities has restricted the use of the Tafi language to very limited domains of use especially among children.

The teaching of Ewe in Tafi schools, the use of Ewe as the dominant language of the local media and the use of Ewe as the medium of communication in churches, health facilities and for commercial activities can account for the massive lexical borrowing from Ewe. The language also marginally borrowed some words from Akan and English. As prototypical of lexical borrowing in languages, certain changes occur in the linguistic features of words borrowed into Tafi.

1.7 Significance of the Study

This study opens a fresh discussion on verbs of sensory perception and supplies relevant data for the study of the Tafi language. The study also gives insight into the worldview of the Tafi people. The study argues that language reflects how we perceive our environment with our senses. The study also establishes a strong connection between our sensory perception and conceptual system. The study will guide and provide necessary information for future linguistic study of sensory perceptual experiences and activities. It is expected that this study will immensely contribute to the description and documentation of the Tafi language.

1.8 Structure of the Thesis

The study is organized into five chapters. Chapter one presents introductory issues on the topic, statement of the problem, research objectives, method for data collection and significance of the study. The chapter also presents background information on the language under investigation and gives preliminary information on the grammar of Tafi. Chapter two focuses on the theoretical framework within which data will be analyzed and reviews related literature. Chapters three and four focus on the syntactic and semantic descriptions respectively of Tafi sensory perception verbs. Chapter five finally summarizes the findings, draws conclusions based on the analysis and gives possible directions for future research.

CHAPTER TWO

THEORETICAL FRAMEWORK AND LITERATURE

REVIEW

2.0 Introduction

This chapter is divided into two main parts. The first part gives an insight into cognitive linguistics which is the theoretical framework of the study. The section describes two complementary models of cognitive linguistics: cognitive semantics and cognitive grammar and their guiding principles. The second part of this chapter reviews some approaches to the study of perception verbs. These approaches include the lexical pattern of perception verbs in languages, the polysemy of perception verbs and some pragmatic information given by the verbs that express sensory perception.

2.1 Theoretical Framework- Cognitive Linguistics

This study is situated within the Cognitive Linguistics framework. Cognitive Linguistics accounts for language as inherently systematic, structured and functional and describes how the language system helps to realise its functions (Evans & Green 2006). The key assumption of cognitive linguists is that patterns of thought are reflected by language. Cognitive linguistics aims at explaining language structures and the relationship that exists between meaning and the mind (Thang 2009). The theory considers the meaning of linguistic expressions to be

grounded on the cognitive experiences of humans. Sweetser (1990:1) points out the function of cognitive linguistics and states that “language is systematically grounded in human cognition and cognitive linguistics seeks to show exactly how”. Cognitive linguists usually describe the cognitive linguistic paradigm as a ‘movement’ or an ‘enterprise’ because they consider it to be an omnibus approach that encompasses “a common set of guiding principles assumptions and perspectives” that gave birth to complementary and in some cases overlapping theories (Evans & Green 2005: 3). In cognitive linguistics, linguistic meaning is viewed as part of general cognition and thinking and linguistic investigations contribute to the understanding of the human mind (Langacker 2008). Cognitive linguistics places emphasis on the role of meaning. It relies heavily on a model of meaning (cognitive semantics), this is because of the assumption that an adequate model of grammar can only be developed within the context of a well-delineated model of meaning. Cognitive linguistic practitioners thus consider linguistic behavior as inseparable from general cognitive abilities (Ibarretxe-Antunano 2004). Compared to other approaches to language study, cognitive linguistics stands out by opposing boundaries which are placed on language and other physiological phenomena. In this vein, the structure of language is seen as drawing on other basic systems such as memory, perception and categorization (Langacker 2008).

Two major models of cognitive linguistics are relevant for this study. These are cognitive semantics and cognitive grammar. These complementary models are employed in the analysis of the data for this study.

2.1.1 Cognitive Semantics

Chomsky's generative tradition blatantly disregarded the roles played by semantics and pragmatics in linguistic speculations and sort of built strong views on the supremacy of syntax. Langacker (1987:12) in opposition to Chomsky's approach argues that "...meaning is what language is all about; the analyst who ignores it to concentrate solely on matters of form severely impoverishes the natural and necessary subject matter of the discipline and ultimately distorts the character of the phenomena described" .

Cognitive semantics dovetails into the overarching goal of cognitive linguistics which seeks to ascertain the global integrated system of conceptual structuring in language (Talmy 2000). It shows how conceptual structure is encoded and reflected in language. As an approach for language study, cognitive semantics looks at the relationship between the mind, embodied experience and culture (Evans & Green 2006). Aside the primary goal of helping to gain a deeper understanding of conceptual and linguistic capacities of humans, cognitive semantics can also be useful for conceptual analysis, historical conceptual-semantic studies, comparative socio-cultural analysis, studies having to do with the relationship between grammar and lexicon and modeling linguistic or semantic processing (Allwood 1999).

For an effective analysis of conceptual semantics, Allwood (1999) presents six relevant basic semantic categories. Allwood (1999) demonstrates that the cognitive semantics approach is characterized by the view that there are set of tools

and mechanisms inherent in language that enables it to structure information which are relevant in human interaction. One of the supports that language lends to conceptual structuring is to support the classification of real phenomena. The six categories are entities, properties, relations, processes, states and (course of) events. This is diagrammatically represented below.

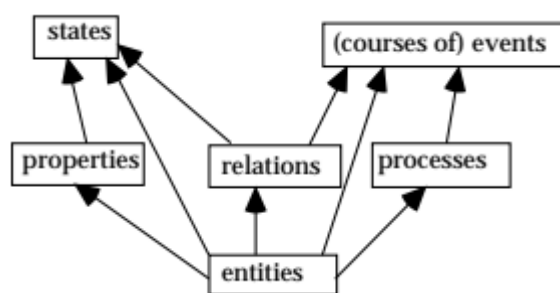


Figure 2. Relations between semantic-epistemic categories (Allwood 1999: 4)

Evans & Green (2006) in explaining the dependence of cognitive linguistics on the model of meaning state that “grammar is viewed within the cognitive framework as a meaningful system in and of itself, which therefore shares important properties with the system of linguistic meaning and cannot be meaningfully separated from it”. This suggests that linguistic form and linguistic meaning are inseparable.

Cognitive semantics deals with conceptual content and how it is structured in language (Talmy 2000:4). This approach to language study is premised on the argument that the meaning of lexical items is conceptual. This means that the meaning of a lexeme represents a concept that is formed in the mind based on experiences with an entity. Cognitive semantics explains that lexical meaning is not a fixed thing but a matter of construal and conventionalization. According to

Gardenfors (1998) unlike the realistic approach to semantics where the meaning of an expression refers to something that exists in the world, cognitive semantics establishes a relationship between the meaning of expressions and mental entities. Within the cognitive semantics paradigm, researchers systematically analyze language as having its root in the general cognitive abilities of human beings (Sweetser 1990). With emphasis on lexical meaning rather than sentence meaning, the principal idea of cognitive semantics is that the meanings carried out by expressions are purely mental.

Evans and Green (2006) suggest that “cognitive linguistics is concerned with investigating the relationship between experience, the conceptual system and the semantic structure encoded by language”. The cognitive semanticist therefore explains the relationship that exists between linguistic system and conceptual system and how they in turn relate with embodied experience. This is done through investigating how knowledge is represented and how meaning is constructed. In this regard, language is employed as a tool for investigating cognitive phenomena. This is done by mapping linguistic expressions with cognitive structures of which language is part (Gardenfors 1998).

2.1.1.1 Principles of the Cognitive Semantic Approach

Cognitive semantics approach is underpinned by four fundamental guiding principles (Evans & Green 2006: 157). These are:

- (a) Conceptual structure is embodied (the ‘embodied cognition thesis’).
- (b) Semantic structure is conceptual structure.
- (c) Meaning representation is encyclopaedic.
- (d) Meaning construction is conceptualization

(a) Conceptual Structure is Embodied

Cognitive linguists and cognitive semanticists in particular are concerned with the nature of relationship that exists between conceptual structure and the way people experience the world. The attempt to establish and explain this relationship is what is known as embodied cognition thesis (Evans & Green 2006: 157). Embodied cognition means that the nature of a speaker’s body has consequences on linguistic expression and the meaning that is put across to the hearer (Thang 2009: 250). According to Evans and Green (2006), “the nature of our embodiment determines and delimits the range and the nature of the concepts that can be represented, we can then examine how these concepts are encoded and externalized via language by looking at how language system provides meaning-based concepts derived from embodiment”.

(b) Semantic Structure is Conceptual Structure

Cognitive approaches to meaning are based on the de Saussurean view that words represent concepts in the minds of the speaker and not objects that exist in the real world (Reda 2016). According to de Saussure's view, linguistic signs are structured as concepts. This principle posits that the meanings that are associated with linguistic units are equivalent to concepts. These concepts are not haphazard, rather, conceptual content is structured in languages. Sweetser (1990) supports the argument that meaning is deeply rooted in the cognitive experiences of the cultural, social, mental and physical world of humans. She posits that even the domain of linguistic meaning which is obviously disorderly can often be proved to be structured around the cognitive domain of a speaker's understanding. According to Talmy (2000:21), "this cross linguistically select set of grammatically specified concepts provides the basic schematic framework for conceptual organization within the cognitive system of language". This however does not mean that semantic structure and conceptual structure are identical. According to cognitive semanticists, the meanings that are associated with a word constitute only a fraction of possible concepts that are associated with that word.

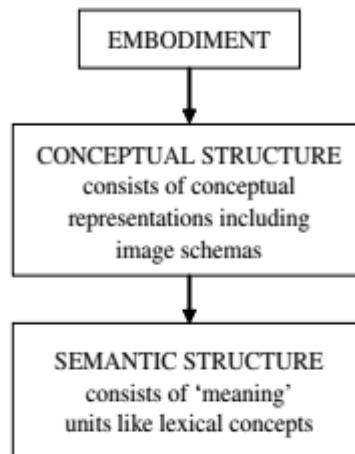


Figure 3. From embodiment to linguistic meaning. Talmy (2000: 177)

The principle of thesis of embodied cognition is supported by George Lakoff and Mark Johnson's theory of image schemas which presents an abstract conceptual representation that results from of the everyday interaction of humans with their environment.

(c) Meaning Representation is Encyclopaedic

This principle is closely related to the principle that semantic structure is conceptual structure. The principle asserts that words do not only represent a matrix of meaning per the definition of the dictionary but goes beyond to provide access to a wide range of context-dependent meanings associated with a word. Meaning is therefore constructed by selecting a particular meaning that is suitable within the context of an utterance. Consider the sentences below.

- a. The child is safe.
- b. The beach is safe.

c. The shovel is safe

Using the sentences above, the meaning of the word *safe* in (a) is not the same as the meaning of the same word in (b) and (c). Within the context of (a), *safe* means that child is free from harm. The same word in (b) does not mean that the beach is free from harm, it may mean that the beach is does not pose danger to the child. Similarly, sentence (c) does not mean that the shovel is free from harm, instead, it may mean that it is not likely to cause any harm to the child. This means that to understand the meaning of the word *safe* in each utterance, one needs to make use of encyclopaedic knowledge associated with the individual words within the context of an utterance.

(d) Meaning Construction is Conceptualization

According to this principle, meaning is not encoded in language, rather, the various linguistics units provide clues for meaning construction in a particular context and with a certain background information. This view indicates that meaning is constructed at the level where concepts are formed. Meaning is therefore seen as conceptualization. Evans & Green (2006) explain conceptualization as a dynamic process where linguistic units are used as prompts for a number of concepts and background knowledge. According to Fauconnier (1997), the process of cognitive construction that underlie language use completely deals with situations that include background knowledge that is highly structured and different kinds of reasonings.

2.1.2 Cognitive Grammar

The syntactic component of this work is analysed within the framework of cognitive grammar. Cognitive grammar is a distinct subunit of the cognitive approach to grammar. This theoretical framework was developed by Roland Langacker. It seeks to psychologically account for language structure in a way which relates language structure to cognitive processes and also shows relationship between semantic structure and conceptual structure (Langacker 1987). The hypothesis of cognitive grammar is that grammar, meaning and lexicon are not separate process but rather seen as a continuum (Geeraerts 2006). According to the theory, grammar does not operate independently from meaning, rather there is an inherent meaning in grammar that makes it inseparable from semantics. Central to cognitive grammar is the notion that grammar comprises symbolic units which pairs linguistic form and linguistic meaning.

2.2 Sensory Modalities and Language

Humans are sensitive to different forms of energy that are available to them in their physical environment. The senses have been identified in humans as having the capacity of capturing energy that exist in mechanical, chemical, sound and light stimuli (Chaudhuri 2010). Winter (2019) defines sensory modality as “subtype of perceptual experience that is associated with a dedicated sensory organ and its own cognitive machinery in the brain”. Research on sensory modalities tacitly assumes that there are five major sensory modalities. These five primary senses are visual,

auditory, taste, smell and touch. The number of sensory modalities has remained controversial among scholars without any universally accepted number. Sensory language researchers have explicitly recognized the cultural relativity with regards to how the sensory world is partitioned (Winter 2019; Classen 1993 and Howes 1991). Plato as indicated in Howes (2011) for instance could not clearly show any distinction between the senses and feelings. In one of the lists of senses that Plato provided, he mentions sight, hearing, and smell. He left out taste and includes hot and cold, and sensations of pleasure, discomfort, desire and fear instead of the sense of touch. There are scores of other subdivisions of the sensorium that do not fit neatly into the five senses model. For instance, the five senses of Javanese tradition are seeing, hearing, talking, smelling and feeling. The Cashinahua of Peru also make a distinction between six senses which receive stimuli from the skin, the hands, the eyes, the ears, the liver and the genitals (Howes 2011). Classen (1993) regards the five senses model as a Western classification where even within the West itself there has not been an agreement on the number of senses. A cross-modal interaction between the senses makes the classification of the senses a difficult task because it becomes unclear where to draw a boundary between any two senses. For example, there is a conflation of the senses of hearing and smell in some African cultures (Howes 2006). The five sensory model is adopted for this study because it is the most important field-specific components within the domain of perception (Viberg 1984).

Languages have proved to offer insight into how the sensual modalities are conceptualized across cultures (Majid & Levinson 2011, Aikhenvald & Stoch

2013). Perceptual experiences are expressed by a category of verbs known as perception verbs. These verbs which describe perceptual experiences reflect a culture's conceptualization of the senses. The way one culture thinks about a sensory experience may differ from how another culture thinks about the same sensory experience (van Putten 2019). Majid and Levinson (2011:12) describe languages as “windows on the senses”, this description means that languages provide a means by which we know how cultures conceptualize sensory experiences. In some African languages for instance, smell is conceptualized as something that people can hear. An example is the Ewe language where the auditory verb *se* ‘hear’ can also mean “to smell (something), “to feel a touch” and to “feel a taste of something”. This conflation of the senses of hearing and smell in some cultures is what Howes (2006:25) calls “audio-olfactory synesthesia”.

2.3 Viberg's Semantic Classification of Basic Perception Verbs

Viberg's (1984) typological study presents a framework for a cross-linguistic analysis of perception verbs. According the study, the basic paradigm of the verbs of perception is compartmentalized into three broad categories based on the semantic roles that the subjects play. The three semantic classifications are *experiences*, *activity* and *phenomenon* which cut across the domain of the five basic sensory modalities: visual, auditory, tactile, gustatory and olfactory perceptions. The possible prototypical meanings that perception verbs convey are represented by three categories of verbs.

2.3.1 Experience / State Perception Verbs

The first category of classification refers to a process that cannot be intentionally controlled by a human agent (Viberg 1984). The senses receive expression independently without the will of the person concerned (Ibarretxe-Antunano 1999).

This is shown in the English examples below:

1. a. Kofi *saw* the bird in the tree.
- b. The girls *heard* a loud noise.
- c. Ama *felt* ants walking on her leg.
- d. I *smelled* petrol in the room.
- e. We *tasted* ginger in the beverage.

In the sentences above, the stimuli are not intentionally controlled by the subjects. The verbs *saw*, *heard*, *felt*, *smelled*, *tasted* describe passive perception of the various phenomenon through the various sense organs. Viberg (1984) describes this category of verbs “experience / a state / inchoative achievement”.

2.3.2 Activity Perception Verbs

The second group of perception verbs according Viberg’s semantic classification refers to processes that are deliberately controlled by the human agent. The English verbs that fall in this class are *look*, *listen*, *touch*, *smell* and *taste*. Examples of their usage is illustrated in the sentences below.

2. a. John *looked* at the accident victims in dismay.
- b. I will *listen* to the announcement on radio at 6:00pm.
- c. Jennifer *felt* the edge of the cloth.
- d. Gloria *tasted* the food to check if the salt was okay.
- e. Andrew *smelled* the food to see if it was wholesome.

2.3.3 Source-Based/ Copulative Perception Verbs

The last class of perception verbs is the where the experienced entity is the subject. In other words, the subject is the stimuli of perception. In English constructions, the perceiver is omitted because the subject does not experience anything nor control a perceptual action. Consider some English examples below.

3. a. Millicent *looks* happy.
- b. The boys *sounded* happy.
- c. The bread *felt* hard.
- d. The perfume *smells* good.
- e. The food *tastes* good.

The verbs *looks*, *sounded*, *felt*, *smell* and *tastes* in the sentences above are the stimuli of perception. This group of verbs are known as “copulative” (Viberg 1984:3) or “percept” (Gisborne 1996:1). Different authors have used different terminologies to describe the three semantic classes of perception verbs but Viberg’s *experience*, *activity* and *source-based copulative* nomenclature had been

adopted for this study for the sake of uniformity. The three semantic classes are what Viberg (1984:124) termed as “the basic paradigm of verbs of perception”

2.4 The Perception Verb of Vision

A crosslinguistic investigation of perception verbs established that visual perception verbs are most prominent among verbs that express perceptual experiences because seeing provides the primary means by which people perceive the world (Sweetser 1990). Rhee 2016 notes that visual perception is given the highest primacy among the various sensory mechanisms. The popular adage that *seeing is believing* lends credence to the primacy of visual perception. When a person can perceive something with the eyes, it is highly possible that the person will not doubt the existence of that thing.

The lexicalization pattern of perception verbs differs from one language to the other. In some languages, activity-based visual perception and experience-based visual perception are lexically expressed by the same verb roots. An example is Ewe (a Kwa language) where the visual verb *kpɔ* applies to both activity-oriented and experience-oriented visual perceptions. In the Tafi language, different verb roots express activity and experience visual perceptions. Experience-based visual perception is realized in the Tafi verb *dí* and activity-based visual experiences are realized in Tafi as *mɔ* (Bobuafor 2013).

According to Viberg’s analysis, visual situations can be expressed in about three possible ways in English language. These are the experience that the

perceiver cannot control (*see*), the experience that the perceiver can control (*look at*) and the situation where the subject in the construction is the object of perception (*look*).

4. a. We *looked at* the photos on the wall
- b. I *saw* the photo album
- c. The photos *looked* faint

Focusing on the semantics, the vision verbs in (4) define the semantic role of their subjects. For instance, *looked* in (4a) requires an agent that controls the action expressed by the verb. In sentence (4b), the subject is an experiencer of the verb “*saw*”, the subject only undergoes a visual sensation. The experience-based perception verbs are subject-oriented by their nature. These verbs have their grammatical subjects being the perceiver and the perceiver’s role is emphasized in the act of perception. In the case of sentence (4c) the verb makes the subject to be the source of perception. Phenomenon expressions which are also known as copulative expressions are described as source-based because it is a phenomenon that plays the role of a grammatical subject (Treis 2012 and Wnuk 2016).

Syntactically, the three possible ways of expressing visual perceptions in English display different patterns of complementation (Gisborne 2010). The agentive LOOK in (4a) requires a directional prepositional phrase, with the preposition AT in particular preceding the noun phrase. The experiencer verb SEE selects a direct object and may require a THAT-clause in other type of constructions. The percept LOOK in (4c) selects an adjective as its complement.

In Dongolawi, a language spoken in the Nile Valley of Northern Sudan, the verb *nal* expresses both controlled visual activity and uncontrolled visual activity verb takes two arguments in both cases. The language has a way of distinguishing between activity visual perception and experience-based visual perception. When *nal* expresses a controlled-visual activity, the construction takes the imperative form (Jakobi & El-Gazuuli 2013).

2.5 The Perception Verb of Hearing

In auditory perception, a message from a source is channeled through the ear. The brain receives stimuli from an outside source through the ear (Agyekum 2019). Sweetser (1990: 41), describes the importance of auditory perception that “...the function of hearing par excellence is, of course , linguistic communication; and since it is our major communicative pathway, it is also our major means of intellectual and emotional influence on each other”. The auditory verbs of perception in English also display the same pattern as their visual perception counterparts (Gisborne 2010). In this case, LISTEN is activity-oriented, HEAR is experience-oriented and SOUND is source-based. For example,

5. a. We *listened* to the lyrics.
- b. We *heard* him sing
- c. The rhythm *sounded* good

Similar with the English activity vision verb, the activity-oriented hearing verb LISTEN as shown in example (5a) above also takes a directional prepositional phrase made up of the preposition TO followed by a noun. The experiencer verb HEAR in English is also transitive. It requires an object that can take the form of a noun phrase or a noun clause. For example,

6. a. We heard the sound of the engine.

NP

- b. We heard he drives a new car.
NOUN CLAUSE

In (6a), the hearing verb expresses auditory perception when it takes a noun phrase object. When the verb takes a noun clause as an object as shown in example (6b), the hearing verb refers to a hearsay or a reported speech.

2.6 The Verbs of Touch, Smell and Taste

A careful study of sensory perception data has pointed out that there is a close association between the sense of touch and other senses across languages. In Swedish, Viberg identifies that the verb *kanna* ‘feel’ which refers to touch is also used for taste and smell. Sweetser (1990) also reveals a trend in all Indo-European languages which indicates that the verb that have the meaning “feel” in the sense of tactile sensation is the same verb that refers to sensory perception generally. Sweetser further notes that sight is the sense that is mostly differentiated from general perception across the Indo-European languages and this is followed by

hearing. This assertion is also confirmed in some African languages. In Avatime, a Kwa language spoken in Ghana for instance, van Putten (2019) reveals that just like Hausa, the Avatime language has only two verbs that describe perceptual experiences. These are *mɔ* ‘see’ for visual perception and *nu* ‘hear/feel (touch) /taste/smell’ for non-visual perception. In Akan, the basic verb *te* ‘perceive’ distinguishes four basic sensory perceptions; auditory, olfactory, tactile and gustatory from visual perception. (Agyekum 2019). In Ewe, also a Kwa language, the verb *se* ‘perceive’ also applies to the senses of touch, taste and smell. It appears cross-linguistically that the senses of touch, taste and smell seem to be conflated in the same lexical items.

2.7 The Lexical Pattern of Perception Verbs in Languages

Languages across the world have varied number of verbs that express perceptual experiences and activities although humans across all cultures have the same physiological endowment for sensory perception. This means that there are differences in the lexicalization pattern of perception verbs across languages. English for instance, have different verbs for talking about the five senses. Cross-linguistically, some verbs conflate meaning across the different sensory modalities (Aikhenvald & Storch 2013; Jakobi & El-Gazuuli 2013). This means that the verbs may cover more than one sense. van Putten (2018) identifies only two classes of verbs that express the five basic sensory experiences and activities in Avatime. The Avatime pattern of lexicalization compartmentalizes the verbs that express sensory perception into visual perception and non- visual perception. These are *mɔ* ‘see’

and *nu* ‘hear, feel, taste and smell’. Agyekum (2005) also classifies the perception verbs of Akan into two major categories, these are *hunu* ‘see’ and *te* ‘perceive’. The verb *te* covers the perceptual experiences of smell, touch, taste and hear. Viberg (1983) describes verbs such as *nu* ‘hear, feel, taste, smell’ in Avatime and *te* ‘smell, touch, taste and hear’ in Akan as polysemous because there appears to be a meaning extension from one domain of sensory perception to cover other domains.

Also, some languages have different verb roots for active and spontaneous perceptual experiences. In English for instance, visual perception is expressed in two verb roots “look” and “see”. In other languages, both active and spontaneous or stimulus perceptual experiences are expressed in only one verb. Ewe is a typical example of such languages where the verb *kpɔ* ‘see’ and *se* ‘hear’ refer to both active and spontaneous visual and auditory perceptions respectively.

2.8 The Polysemy of Perception Verbs

The polysemy of verbs of perception is an area that has gained considerable attention from linguists who have discussed linguistic expression of sensory experiences. The relatedness versus unrelatedness of meaning is one of the features that distinguish polysemy from homonymy (Agyekum 2005; Ibarretxe-Antunano 1999). There are three key characteristics that define polysemy in languages. These are:

1. There are two or more different but related meanings.

2. These meanings are associated with one linguistic form only.
3. The linguistic form belongs to one and the same morphosyntactic category in all its uses.

(Heine 1997:8)

One major problem concerning the issue of relatedness of meaning has to do with the degree of relatedness coupled with the fact that the intuition of native speakers on the “true’ interpretation may sometimes be misleading. Lakoff (1987) identifies a systematic relationship between elements of the same model and elements of different cognitive models to be the cause of polysemy. He pointed out that when talking about polysemy, the focus should not be placed on the multiplicity of meaning but those multiple meanings should be systematically related in a natural way. This is different from contrastive ambiguity which is traditionally known as homonymy which occurs when a lexical item takes two or more distinct and unrelated meanings (Ibarretxe-Antunano 1999).

Sweetser (1990) also posits the possibility of a cross-linguistic examination of perception verbs to observe the historical shift of meaning from one domain of sense to other senses. If one sense is identified as the historical source of the other, it then becomes possible to establish a semantic and cognitive link between the two senses. The polysemy of the perception verbs may include other non-prototypical meanings that the verbs carry outside the domain of physical perception. The discussion below looks at the meaning extension of the senses as found across various language in literature.

2.8.1 Polysemy of Vision Verbs

Vision by far is one of the most studied sense among the five senses within the domain of sensory literature. This section looks at some polysemous realizations of the vision verb in languages. Many polysemous extensions have been identified in literature but two extensions which point to a cross-linguistic commonality will be discussed.

One polysemous realization of verbs that express visual experiences is that they also express mental domains across languages. According to Sweetser (1990), although other senses also take intellectual meaning, the objective and intellectual part of our mental life appears to be regularly linked to our sense of vision. Agyekum (2019) identifies the correlation between vision and the intellect and points out that vision is the most reliable source of obtaining information about the world. Ibarretxe-Antunano (1999) in a comparative study of English, Basque and Spanish and points out that one group of meaning extension relates physical vision to mental activities or intellect. In this group, the vision verb conveys meaning such as “to understand”, “to foresee”, “to visualize”, “to regard”, “to imagine”, “to revise”, and “to mediate” among others. Agyekum (2019) identifies extensions in the mental domain such as “to discern”, “to notice”, “to understand” and “to experience”. Otoo (2018) also identifies some extended meanings of the vision verb *na* “see” into the realm of cognition in Ga, a Kwa language spoken in Ghana. Some of the meanings carried out by the vision verb are “to find out”, “consult”, “experience”, “discover”, “understand”, “quarrel”, “discern”, “realize” and “notice”. These verbs are broadly categorized in three main groups, these are

cognitive, idiomatic usage and the use of the verb as an imprecation. In the cognitive domain, vision verbs are used in Ga to give a true and objective account from a speaker. According to Otoo (2018), this manifests in the Ga saying *mi dieɲtse mina* “I saw it with myself”. Physical vision shifts to mental vision to account for meanings such as “know”, “experience” and “find out” for the verb *na* ‘to see’. This is in line with Sweetser’s (1990) observation that metaphor of knowledge has its source from vision verbs. The data from English, Spanish and Basque (Ibarretxe-Antunano 1999) and Agyekum (2018) and Otoo (2018) for Akan and Ga respectively on the polysemy of vision verbs reveal some degree of cross-linguistic convergence. Sweetser (1990:45) observes that the connection between the sense of vision and knowledge is “fairly common cross-linguistically, if not universal”. The focusing ability of vision sensory modality has also been identified by Sweetser as one of the features that makes it parallel to intellection. The commonality is that our visual sense and thought has the ability to pick out only one stimulus at a time from many. When compared to the auditory sensory modality, vision is still readily focused than hearing. While one can physically move the eye from one object to consciously, it may be difficult and may require a great deal of effort to pick only one auditory stimulus at a time from many.

Vision verbs also have extensions that relates vision to social relationships. Ibarretxe-Antunano (1999) identifies meanings such as “to meet”, “to receive”, “to get on badly”, “to go out with”, and “to accompany/ to escort” (only English) and “to pay a visit” for English, Basque and Spanish. The same polysemous meaning having to do with personal interaction is identified in some Kwa

languages. For instance, the Ewe verb *kpɔ* which refers to physical sight also has a dimension of physical interaction and discussion. This is similar to *hunu* ‘see’ in Akan (Agyekum 2019) and *na* ‘see’ in Ga (Otoo 2018) which extend the vision verb to mean “to consult”. Again, there is another cross-linguistic evidence of the convergence of meaning extension of the vision verb.

2.8.2 Polysemy of Auditory Perception Verbs

Auditory perception verbs have also been cross-linguistically identified in literature to have some meaning extensions. Ibarretxe-Antunano (1999) identifies “to heed/ to pay attention”, “to obey”, “to be told/ to be informed”, “to understand” in English, Basque and Spanish languages. Aside the common extended meanings in the three languages, she also noted additional two extended meanings of the auditory perception verb *aditu* in the Basque language. These meanings are “to be educated” and “to have an agreement”. Another extended meaning of the auditory verb that Ibarretxe-Antunano (1999) identified in her study of perception verbs is “to understand”. This is compatible with other studies (for example Aikhenvald & Storch 2013; Evans & Wilkins 2000) which indicate that hearing as a sensory modality is closely related to knowledge and intellect in some languages.

In Akan, the verb *te* ‘perceive’ covers four out of the five verbs that express sensory perception. The lexical content of the verb is broad that it encompasses ‘hear, smell, feel and taste’. However, the unmarked case which is frequently used is ‘hear’. The multifunctional meaning of the word requires that one must always

go in for the pragmatic context, the right modifiers and collocative words to ensure clarity and precision.

The experiencer verb HEAR sometimes transcends the domain of physical perception to assume other meanings such *to know, to become informed, to find out* etc. In Dongolawi, the verb *gijir* covers both auditory experience and auditory activity (Jakobi & El-Gazuuli 2013). The activity-oriented *gijir* occurs in imperative constructions and this distinguishes it from the experience-oriented form of the verb which occurs in transitive constructions. An example is illustrated below.

7. andi-gi *gijir*

Mine-OBJ hear/smell.2SG

‘Listen to me / listen to my advice / opinion! / take my advice!’

(Jakobi and El-Gazuuli 2013:205)

The hearing verb also provides a means of encoding the source of information in a speech. It indicates whether a speaker’s source of information is primary or whether it is of secondary origin, for example hearsay. The linguistic phenomenon of indicating known as evidentiality.

2.9 The Pragmatics of Perception Verbs

2.9.1 Perception Verbs as Attention Seeking Devices

Sensory perception verbs can have other functions in languages apart from expressing perceptual experiences. Fedriani (2012) noted that perception verbs can be deverbalized to take an imperative form and pragmatically function as attention seeking devices in discourse. When this happens, the verb no longer refers to sensory perception but becomes useful for obtaining the attention of an addressee. The verb “look” in English for instance can be used to call the attention of an addressee. When this happens, there is a shift from the physical domain of perception to cognition which requires an addressee to take note of something. Literature on perception verbs points out that visual perception verbs are more exploited for the purpose of seeking attention. The pragmatic use of the visual perception verbs as attention seeking devices is exemplified below in English and Ewe in examples (8a) and (8b) respectively.

8. a. Look, you’re not to say anything.

b. Kpɔɖa, mega wɔe o
Look, NEG do NEG

‘Look, don’t do it’

(Fedriani 2001: 4)

Ibarretxe-Antunano (1999) in her cross linguistic study of perception verbs in English, Basque and Spanish pointed out that the hearing verb hearing verb also demands attention from the hearer. A further development of this meaning in different contexts indicates that the speaker does not only demand attention but the hearer also heeds to what the speaker is saying. When it happens so, the hearing verb takes the meaning “to obey”. This is illustrated in the examples below,

9. a. Entzum esaten ari natzaizuna
 hear say.HAB be busy AUX
 “listen to what I’m telling you”
- b. Escucha lo que te estoy diciendo
 Listen.IMP it.ACC that you.DAT am saying
 ‘listen to what I’m telling you’

(Ibarretxe-Antunano 1999:64)

From the examples, there is a semantic extension of the hearing verb to mean “obey”. The verb may only take this extended meaning in some contexts of conversation but the verb on its own does not have that meaning.

Otoo (2018) points out that aside the use of the vision verb *na* “to see” in Ga to draw the attention of a hearer to follow a conversation, it can also be used to find out if an addressee understands, realizes or had been able to solve a problem.

This is exemplified in the sentences below.

10. a. O na nɔ nie -kɛɛ?
 2SG see RC 3SG- say
 ‘Do you understand what s/ he said?’
- b. O na naagba lɛ naa?
 2SG PERF see problem DEF mouth
 ‘Have you found solution to the problem’

(Otoo 2018:67)

When the hearing verb means “to heed/ to pay attention”, the speaker demands attention from the hearer. The verb has further acquired the meaning “to obey” which requires that the hearer carries out an instruction from the speaker.

2.9.2 Perception Verbs as Means of Expressing Evidentiality

Languages have the capacity of expressing the evidence on which statements are based. The evidence may indicate whether the speaker saw something himself, heard something himself or whether it is an inference from another person's statement. The aspect of grammar that refers to the source of information is known as evidentiality. Aikhenvald (2004:1) explains evidentiality as “stating the existence of the source of evidence for some information; this includes stating that there is some evidence, and also specifying what type of evidence there is”. Kareem (2008) explains evidentiality as the part of language that tells the hearer how the speaker obtained the information that he or she is sharing. That is, it expresses the speaker's source of information. Evidentiality indicates whether an evidence exists for a statement or not and the kind of evidence that exists.

The phenomenon of evidentiality was brought into the limelight by Franz Boas in 1938, before this pioneering work, not much was known concerning how speaker evidence was encoded in language (Aikhenvald 2004, Kareem 2008, Whitt 2010). Even though every language has a way of making reference to the source of information, Aikhenvald (2004) points out that evidentiality does not exist as a grammatical category in all languages and those that have even those languages that have grammatical evidentiality differ in the number of types of evidence they express. There are various linguistic resources available in languages for expressing evidentiality, one of these resources is the use of perception verbs. Sweetser (1990:39) points out that perception verbs feature prominently in

evidentiality and that per crosslinguistic observation, “evidentials show that direct visual evidence is considered the strongest and the most reliable source of data”. According to Whitt (2010) perception verbs are primary lexical means by which speakers indicate their source of information.

2.10 Evidentiality Types

Evidentiality has been classified into two main categories; these are direct evidentiality and indirect evidentiality (Kareem 2008, Whitt 2010). Direct evidentiality shows that the speaker has directly perceived the action. Direct evidentiality is characterized by visual and auditory evidence, they state that the speaker has seen or heard the action that he or she wants to communicate.

Indirect evidentiality is the type of evidentiality where the speaker usually infers the action from available evidence or quotatives that indicate that the speaker’s evidence is based on the reports of other people. It is observed that a direct evidentiality presents the information with a higher level of certainty than indirect evidentiality. Sensory evidentiality is one of the subclasses of direct evidentiality. According Palmer (1986) cited in Kareem (2008), sensory evidentiality is the type that gives a signal that the speaker’s evidence for the veracity of his or her statement emanates from the speaker’s own sensory experience. Kareem (2008) makes A distinction between visual evidentiality and non- visual evidentiality. In visual evidentiality, there are morphemes that show that the information which a speaker presents in an utterance has been personally

seen by the speaker. The visual evidentiality usually has its information received by the speaker through sight. Non-visual evidentiality includes auditory evidentials which indicates that the speaker's evidence for truth is based on what he or she has perceived with the ears.

Aikhenvald (2004) observed that cross-linguistically, evidential systems may range from two term distinctions to six term distinctions. She notes that “the semantic content of each distinction depends on the type of system (hence, labels may sometimes be misleading). For instance, in a two-term system, ‘eyewitness’ may imply visually-acquired information; it may also refer to visual and auditory information simultaneously (and may also cover information obtained through other senses)”. For instance, Dixon (2003) indicates that “eyewitness” in Jarawara refers to information received through the eyes, information received through the ears as well as other sensory modalities. In Yukaghir and Shipibo-Konibo, the eyewitness term can refer to any of the senses which is appropriate to the context (Maslova 2003, Valenzuela 2003). From the discussion so far, perception plays an important role in the acquisition of evidence and most of the things that people consider as real are the things that that they have perceived with their senses.

CHAPTER THREE

THE SYNTAX OF PERCEPTION VERBS IN TAFI

3.0 Introduction

This chapter examines the syntax of Tafi verbs of perception. A great amount of work has been done over the years (eg. Sweetser 1990, Ibarretxe-Antunano 1999 and Agyekum 2018) to demonstrate that the structure of language in a way reflects the structure of human experiences and for that matter the structure of the world. In cognitive science, syntax provides the cognitive capacity which allows human beings to connect linguistic form with meaning. This supports the school of thought that language is non-arbitrary. The structure of human language plays an important role in how we think and express abstract notions (Carnie 2013). In cognitive grammar and linguistic study of sensory perception, the structures of language reflect an inherent semantic predisposition. With this, directly perceived events and indirectly perceived events are encoded at the levels of lexeme and syntax (Horie 1993). According to Heine (1997), the structure of language reflects our interaction with the world around us, the larger implication of this is that our experiences of the environment is inextricably linked to how linguistic categories are developed and how discourses are built. Grammar therefore gives the true reflection of our basic experiences of movement, perception and actions in the world. A proper analysis of grammar tells much about meaning and cognition (Langacker 2008).

Since the building of discourses and development of linguistic categories and structures are largely dependent on how we experience of our environment, it is imperative to look at the syntax of how perceptual experiences are encoded in this linguistic study. If the main function of human language is to convey meaning, then the structure of language which conveys that intended meaning needs to be analyzed. In this chapter, I discuss the syntactic properties of Tafi verbs of perception using a cognitive-based approach and the descriptive research design. The study argues that there is a strong relationship between the structure of language and the conceptual structure of people and their environmental and cultural experiences.

3.1 Valency of Tafi Perception Verbs

Tafi verbs of perception are generally bivalent (Bobuafor 2013). Following Viberg (1984), sensory perception verbs are generally classified into three groups: *activity*, *experience* and *phenomenon* based on the roles of their grammatical subjects. Viberg's (1984) crosslinguistic observations has shown that activity and experience perception verbs have the perceiver syntactically occurring at the subject position in the clause with the entity that is perceived located at the object position of the clause. The Tafi verbs of perception within the semantic class of activity are shown in table 4 below.

Table 4. *Activity perception verbs in Tafi*

Sensory modality	Activity Verb	Gloss
sight	dí	‘look’
hearing	taato’	‘listen ’
touch	hono	‘touch’
taste	míni dí	‘taste see’
smell	lūku/lōku	‘smell’

The verbs in table 4 above are used to express perceptual activities that the perceiver can intentionally control. There are other verbs that express spontaneous sensory perceptual experiences for which the perceiver has no control. Table 5 provides these verbs.

Table 5. *Experience perception verbs in Tafi*

Sensory modality	Experience Verb	Gloss
Sight	mə	‘see’
Hearing	nú	‘hear’
Touch		‘feel’
Taste		‘taste’
Smell	lūku/lōku	‘smell’

Within the Tafi language and culture, spontaneous auditory, tactile and gustatory experiences are lexically conflated in the verb *nú*. The sentences below illustrate

the Tafi sensory perception verbs in the semantic class of experience and the syntactic positions of the perceivers and the stimuli.

1.a. í-mə kí-kpǎ ní bu-ní ní-m
 1SG-see CM-fish LOC CM-water DEF-inside

‘I saw a fish in the water’

b. À-dzinovæ ní féké à-wuí kílí yí dǐ-yí
 CM-girl DEF lift CM-dress CONJ 3SG look-3SG

‘The girl picked a dress and looked at it’

c. Bú-nú tí-gigà ní bló’ fésrè
 1PL-hear CM-footstep LOC 1PL.POSS window
 ní ke-sí
 DEF CM-back

‘We heard footsteps behind our window in the night’

d. Eyram á-kə bɔ-wá ní kpí ka-ntsi ní mɪ kulí lūku
 Eyram SM-pour CM-medicine LOC put CM-cup DEF inside CONJ smell
 lè dǐ
 3SG.DEP look

‘Eyram poured the medicine into a cup and smelled it’

In the examples above, the perceivers are the subjects of the verbs *mə* ‘see’ *dǐ* ‘look’ *nú* ‘hear’ and *lūku dǐ* ‘smell look’. The perceivers occur as the grammatical subjects whilst the perceived entities or stimuli occur as the grammatical objects which occur within the VP.

The third category of Viberg’s tripartite semantic classification of perception verbs is the source-based copulative or state verbs. In copulative constructions, the perceived entity occupies the subject position in the clause. In

other words, the subject of the clause is the source or the stimulus of perception.

Table 6 below shows the copulative perception verbs in Tafi.

Table 6. Copulative perception verb of Tafi

Sensory modality	Copulative verb	Gloss
Sight	ɲwí	‘appear’
Hearing	yí	‘sound’
Touch	-	-
Smell	lɔ́	‘smell’
Taste	-	-

The data on Tafi copulative constructions as indicated in examples in (2a-c) shows the perceived entities occurring as the subject of the clauses. The perceivers may either be covert or sometimes occur within the verb phrase. The verb may take a complement which is usually an adverbial that describes the perception experience.

Consider the sentences below.

2. a. Kofi á-ɲwí a-kɔ-mí ànàsí à-à-nyà
 Kofi SM-appear SM-give-1SG like SM-PRS.PROG- be.sick
 ‘Kofi appears sick to me’
- b. Kì-vù ní yí gígàní kudzo
 CM-drum DEF sound strong very
 ‘The drum sounded very loud’

c. Kofi	st	á-sí	ní	à-lɔ̃	mɔɔ
Kofi	say	CM-rice	DEF	SM-smell	good
‘Kofi says the rice smells good’					

3.2 Transitivity of Tafi Perception Verbs

Verbs can be classified based on the transitivity type of the clauses in which they occur. There are verbs which are strictly transitive, strictly intransitive and ambitransitive across languages (Dixon 2010). Generally, the strictly intransitive verbs are those that occur only in intransitive clauses, the strictly transitive verbs occur only in transitive clauses and the ambitransitive verbs can occur in both transitive and intransitive clauses.

Tafi clauses are basically classified as transitive and intransitive (Bobuafor 2013:143). The transitive clauses have the structure SV and the intransitive clauses have the structure AV(D)O. Unlike prototypical transitive events that involve an agent who initiates or instigates an action and a patient who is affected by the action, both activity-oriented events and spontaneous experience events lack prototypical transitivity (Jakobi and El-Gazuuli 2013). Perceptual events are rather associated with the semantic roles of the perceiver (experiencer) and the stimuli or perceived entity (source). In most cases, Tafi perception verbs mandatorily require grammatical objects to complete the meaning expressed by the clause. For instance, within the domain of sensory perception, *mɔ* ‘see’ and *ní* ‘hear’ are always transitive. This means that the verbs require obligatory object NPs. Consider the examples in (3a-d).

3. a. í-mɔ kí-kpǎ ní bu-ní ní-m
 1SG-see CM-fish LOC CM-water DEF-inside
 ‘I saw a fish in the water’
- b. Í-nú ò-tú-tíí
 1SG-hear CM-gun-sound
 ‘I heard a gunshot’
- c. Í-nú be-méméè mí ɔ-tsrí
 1SG-hear PL-ant 1SG.POSS CM-legs
 ‘I felt ants on my legs’
- d. É-nú méèsá ní ò-ní ní-m
 3SG-hear pepper LOC CM-soup DEF-inside
 ‘He tasted pepper in the soup’

The verb *mɔ* ‘see’ can also take object noun phrases in clauses for non-prototypical sensory perception interpretations. Within the domain of social interaction, the verb *mɔ* ‘see’ can mean “visit” or “meet”. This is a common interpretation of the vision verb in some Kwa languages including Akan and Ewe. Similar cross-linguistic observations have been made by Aikhenvald & Storch (2013) and van Putten (2019). The examples shown below do not merely mean visual perception but have interpretations of consultation and private chat.

4. a. Bá-nyinyà ní pétéeé bà-bá-mɔ dɔkità ní
 PL-patient DEF all SM-FUT-see doctor DEF
 kè-múze-m
 CM-afternoon-LOC
 ‘All the patients will see the doctor in the afternoon’
- b. Bu-bá-mɔ bè-kùsì ní flògò gu lo-bá-dɔ
 1PL-FUT-see CM-chief DEF before REL 1PL.DEP-FUT-talk
 ka-dɔ kɔ’ bà-no

CM- talk give CM-person
 ‘We shall meet the chief before we speak to the people’

Another non-perception interpretation of *mɔ* in transitive clauses has to do with physical possession. The verb *mɔ* can be interpreted as “have, get or find”.

Consider the example below.

5. À-nɔnyàno a-dí-mɔ bu-pu ní blɔ ká-bha
 CM-nobody SM-NEG- see CM-weight DEF 1PL.POSS CM-top
 ‘No one has power over us’

3.3 Perception Verbs in Intransitive Clauses

The verbs *mɔ* ‘see’ and *nú* ‘hear’ can behave both transitively and intransitively. Whenever *mɔ* ‘see’ and *nú* ‘hear’ are used intransitively, they have meanings that have to do with cognition. When these ambitransitive verbs are used intransitively, the verbs require only one argument which is the subject NP. Such verbs have “one-place predicates” Bobuafor (2013:180). These types of predicates have only one argument in an intransitive clause. The single argument usually occurs before the verb and it is coded as the subject of the clause. The structure of such clauses is SV. Example of *mɔ* ‘see’ and *nú* ‘hear’ in intransitive constructions is illustrated (6a-b) below:

6. a. í-mɔ
 1SG-see
 ‘I understand/ know’

b. Bu-nú
 1SG-hear

‘We understand/know’

The meanings of *mɔ* ‘see’ and *nú* ‘hear’ in the sentences above have shifted from concrete to abstract, thus from the domain of perception to cognition. These cognitive meanings give an indication that the richest sources of obtaining cognitive information in the Tafi culture is through visible objects and audible sounds. Sweetser (1990) identified the path of semantic change to be prototypically one-way; concrete to abstract or physical to mental although she asserted to the possibility of change in the opposite direction. The cognitive interpretations of the vision and hearing verbs is in line with Akan, another Kwa language where Agyekum (2018) indicated that vision and hearing are the biggest source of obtaining information in the Akan language and culture because a vast number of objects in the physical world have visual and auditory evidence.

The verb *nú* within the sensory domains of tactile and gustatory experiences strictly occur in transitive clauses. An object NP is always required to achieve grammaticality and disambiguate meaning. The following sentences are therefore ungrammatical within the sensory domains of touch and taste.

7. a. *A-dzɪnɔvɔɛ ní é-nú
 CM-girl DEF SM-touch
- b. * í-nú
 1SG-taste

3.4 The Complementation Strategies of Perception Verbs

Cross linguistically, perception verbs belong to a group of predicates that take different types of complements (Schule 2000). The Tafi verbs of perception have different forms of complementation. Some of these are discussed below.

3.4.1 *Complement Clauses*

Complement clauses are the type of clauses that fill the slot of argument in the structure of other clauses. Complement clauses express situations where a notional sentence or predication is syntactically an argument of a predicate (Dixon 2010). Most languages including Tafi have verbs that can take a clause as an argument instead of noun phrase. The complement clauses of Tafi are introduced by the complementizer *si* which occurs as argument of complement-taking verbs (CTVs). Bobuafor (2013:277) classified complement taking verbs into four semantic classes, these are utterance, perception-cognitive, manipulative and modality predicates. The cognitive-perceptive class includes verbs such as *mɔ* ‘see’, *dʒi* ‘look’, *nú* ‘hear’ and *mɔ dzesi* ‘recognize’.

3.4.2 *Vision Verbs + Complementizer*

When vision verbs are followed by complementizer clauses, they can have their meaning shifting from physical perception to cognition. Such clauses do not give any indication that the speaker has physically perceived something with his or her eyes, rather, the verbs assume cognitive meanings which are states of affairs that

are conceived and registered in the mind. Such grammatical constructions where the perception verbs express cognitive meanings instead of direct physical perception are called “mental perception” of propositional content (Usoniene 1999:6) or “Indirectly Perceived Events” Horie (1993:15). Constructions that express mental perception are used to make inferences. With inferences, a conclusion is drawn by the speaker that something had happened or a certain action had occurred based on available circumstances from which reasonable deductions may be drawn. When the vision verbs *mɔ* ‘see’ and *ɲwí* ‘appear’ are followed by a complementizer clause, the verb shifts meaning from physical perception to mental perception. Consider the sentences below.

8. a. *l-mɔ* *sí* *à-nɔnyááno* *à-tí-dɔ* *à-dɔkàsí* *àlíní*
 1SG-see COMP CM-nobody SM-NEG-say CM-teacher that
ki-bui *dzɔgo*
 CM-matter good

‘I realized nobody says anything good about that teacher’

b. *ɔ-mànímà* *ní* *á-mɔ* *sí* *ba-hia* *é-kùsí* *vovɔ*
 CM-villagers DEF SM-see COMP SM-need CM-chief new

‘The village realized they needed to have a new chief’

c. *Á-ɲwí* *sí* *Mansah* *à-dí-dí* *kè-dzí* *ní-m*
 3SG-appear COMP Mansah SM-NEG-go CM-market DET-inside

‘It appears that Mansah did not go to the market’

d. *Á-ɲwí* *sí* *bu-wi* *ba-tã* *ò-bòn*
 3SG-appear COMP CM-sun FUT-shine CM-today

‘It appears that the sun will shine today’

There are other types of perception verb complement clauses that express physical perception of an object or event. These types of complements are used to express direct physical relation with the environment. For example:

9. a. Bɔ-mɔ sí Kofi yí à-à-kpé básíkèlè vovɔ
 1PL-see COMP Kofi be SM-PRS.PROG-ride bicycle new
 ‘We saw that Kofi was riding a new bicycle’

- b. l-mɔ sí Kofi e-hɔnɔ mí ke-plukpa ní
 1SG-see COMP Kofi SM-touch 1SG.POSS CM-book DEF
 ‘I saw that Kofi touched my book’

3.4.3 The Hearing Verb *Nú* + Complementizer Clauses

When the hearing verb is *nú* is immediately followed by a complementizer clause introduced by the complementizer *sí*, the clause does not express physical perception. Such clauses usually have an interpretation of a hearsay.

10. a. Í-nú sí Ama á-vɪ Iɛɛ
 1SG-hear COMP Ama SM-go Accra
 ‘I heard that Ama has travelled to Accra’

- b. Bú-nú sí kòkó bɔ-yà gbigblá tulí zà
 1PL-hear COMP cocoa CM-farm large INDEF own
 blɔ a-kashíshí à-hɔí ní Ahamansu
 1PL.POSS CM-old.father CM-hand LOC Ahamansu
 ‘We heard that our grandfather owned a big cocoa farm at Ahamansu’

c. Í-nú sí bɔ-nya vovɔ ní bù-yí bà-nɔɔ gèlèè
 1.PL-hear COMP CM-disease new DET SM-kill CM-people many
 ní blɔ bé-shèmu
 LOC 3PL.POSS CM-black land
 ‘I heard that the new disease has killed many people in Africa’

From the examples above, the sentential complements introduced by the complementizer *sí* shifts the meaning of the verb *nú* from the domain of physical perception to mean that the speaker is reporting something that he or she has earlier heard.

3.4.4 Perception Verbs with NP Objects

Another complementation strategy of verbs is the occurrence of an object NP after the verb. The object NP together with the verb determines the kind of interpretation that is given to the clause. Depending on the object NP and the context of conversation, perception verbs can have perception meaning or non-perception meaning. See examples are (11a-d) below:

11. a. Bà-mɔ sáfi ní kplɔ ní-ésí.
 3PL-see key DEF table DEF-under
 ‘They saw the key under the table’

b. Bɔ-mɔ ki-bui ní gí ɔ-ɔ-dɔ'
 1PL-see CM-matter DEF REL 2SG-PRS.PROG.say
 ‘We see the matter you are talking about’

- c. Bú-nú o-gùgù kí-vūn ní é-lishí
 1PL-hear CM-sound CM-yesterday LOC CM-night
 ‘We heard a scream last night’
- d. É-tí-nú blɔ bù-nùhù
 3SG-NEG-hear 1PL.POSS CM-language
 ‘He does not understand our language’

In examples (11 a and c), above, the verbs of perception have the interpretation of physical sensory perception. In example (11 b and d), the verbs of perception together with their object NPs have meanings which are outside the scope of physical perception. The VPs *mɔ kibui* ‘see matter’ and *nú bù-nùhù* ‘hear language’ in (11b) and (11d) refer to the cognitive process of understanding. This shows that the object NPs impose some kind semantic restriction on the verbs.

3.5 Clausal Differences Between *Nú* (Perception) and *Nú* (Hearsay)

The verb *nú* is the most polysemous among the Tafi verbs of sensory perception. This section looks at two of the connected meanings of *nú*; auditory perception and a hearsay. A hearsay is a source of information which is based on the reports of other people. The speaker in such cases implies that he or she did not directly witness the event which is described but the information was received from another person. Structurally, the clauses that are hearsays are grammatically marked with the complementizer *sí* which precedes the reported speech. The V +COMP clause structure for hearsay constructions appears to be a crosslinguistic phenomenon. Consider the following structures in English, Ewe and Akan.

English	<i>hear that</i>
	V COMP
Ewe	<i>sè bé</i>
	hear COMP
Akan	<i>Té sé</i>
	hear COMP

van Putten (2019) also made a similar observation in Avatime that when *nú* ‘hear’ is followed by a complement clause, it often gives an indication that the information in the complement clause was obtained through a hearsay. Consider the following clauses in Tafi.

12. a. Í-nú sí bá-ba-dànt suku ɔ-gɔní
 1SG-hear COMP 3PL-FUT-open school CM-week
 gí ɔ-ɔ-ba nt-m
 REL SM-PRS.PROG-COME DEF-inside
 ‘I heard that school will reopen next week’

b. Bú-nú sí bá-bà-ɲa kí-wí ní
 1PL-hear COMP 3PL-FUT-eat CM-festival LOC
 wèlě September ní-m
 moon September DEF-inside
 ‘We heard that the festival will be celebrated in September’

The verb *nú* ‘hear’ followed by complementizer clauses can also refer to physical sensory experience of hearing. The directly perceived events refer to the

states of affair that are immediately perceived through the sensory organs. Horie (1993) describes directly perceived events as partly physical and partly mental processes because they involve receiving sensory stimuli from the external physical situation followed by the transmission of sensory signals to the brain. Example (13) below illustrates physical sensory experiences expressed by NÚ + COMPLEMENTIZER clauses.

(13).a. Gí bɔ-nɔvɔɛ ní nú á-sí bàlí a-dɔkàsí
 REL CM-child DEF hear SM-COMP 3PL CM-teacher
 ní a-tí-bà-bá suku ní bá-mɔ sàmí
 DEF SM-NEG-FUT-come school DEF 3PL-see joy

‘When the children heard that their teacher will not come to school, they were happy’

3.6 The Copulative Perception Verbs

3.6.1 *Dwi* ‘Appear’

The verb *ɲwí* ‘appear’ expresses source-based inchoative visual events. The source-based visual perception verb like other copulative verbs has its subjects being the perceived entity. The perceiver in such a clause does not overtly show within the structure of the clause. This verb is considered among perception verbs in the language because it has some properties that are indirectly considered as

perceptions. The verb *ɔwí* ‘appear’ usually grammatically occurs in intransitive structures. Examples are illustrated below:

14. *Á-nyí ní a-ɔwí a-nyínyà*
CM-man DEF SM-appear CM-sick.person
‘The man looked sick’

In the examples (14) above, the subject is the perceived entity. The perceiver does not overtly occur in the structure but can be inferred and sometimes occur in the predicate. The clauses are structurally made up of subject NPs which is the perceived participants or stimuli, the verb may require an adverbial element which describes the perceived entity. Consider the clause structure below.

[Perceived Participant NP] + [Verb]+ (Adverbial Element)

The adverbial component which occurs after verb serves as an evaluative element which completes the meaning expressed by the clause. In some clauses the adverbial element may not be required to make meaning complete.

The Tafi language has other linguistic resources that can express phenomenon-oriented visual perceptions. The data shows that most of such constructions offer an evaluative description of the phenomenon. Positive and negative valences are usually employed to describe how the perceived stimulus object appeals to the perceiver’s sense of vision. Examples are shown in the clauses below;

15. a. á-pĩ bu-dí mɔɔmɔɔ
 be-good SM-look well
 ‘It appears beautiful’

b. Ká-dɪ-pĩ bù-dí
 3SG-NEG-good SM-look
 ‘It appears terrible’

c. Ò-ɲùsìsé ní ɔ-pĩ bù-dí kɔdzɔ
 CM-sky DEF SM-good 3SG-look very
 ‘The sky looks very beautiful’

The phenomenon-oriented verb *ɲwí* can also show something has become visible to the apprehension of the mind. The verb in this case shifts from physical perception into cognition. The verb in such a clause takes a complementizer clause as a complement. Consider example (15) below.

16. a. á-ɲwí sí Kofi i-yém yɔ' kɔdzɔ
 3SG-show COMP Kofi CM-stomach cool very
 ‘It appears Kofi is very kind’

b. Á-ɲwí sí á-nyí ní è-dé Mador
 3SG-appear COMP CM-male DEF SM-come.from Mador
 ‘It appears it the man comes from Mador’

c. Á-ɲwí sí bá-bà-ɲa kì-wí ní gígã ní
 3SG-appear COMP 3PL-FUT-eat CM-day LOC year DEM
 ‘It appears that the festival will be celebrated in this year’

3.6.2 *The Source-Based Auditory Perception Verb Yí*

The verb *yí* expresses a source-based auditory perception. The verb is grammatically encoded in intransitive constructions where the perceived entity is the subject of the clause. An adverbial element may be required to describe the perceived auditory emission. Examples of are illustrated in the sentences below.

17.a. Kí-vù ní yí
 CM-drum DEF sound

‘The drum sounded’

b. Ɔ-dzí ní yí gígànt
 CM-song DEF sound strong

‘The song sounded loud’

c. Ɔ-dzí ní yí mɔɔmɔɔ
 CM-song DEF sound good

‘The song sounds nice’

3.6.3 *Yí in Serial Verb Constructions*

The auditory source-based verb *yí* co-occurs with other verbs in serial verb constructions. The subject of such structures is the perception stimuli and the serial verb *yí ba* ‘sounds to reach’ expresses the phenomenon-oriented descriptions. The verbal components express the perception of a sound as coming from a source to reach the perceiver. Consider the sentences below.

18. a. Ónùgí bé-é-bhò kí-vù ní Agorme
 if 3PL-PRS.PROG-beat CM-drum LOC Agorme
 ki-yí ba’ Mador.

SM-sound come Mador

‘When they are playing a drum at Agorme, the sound reaches Mador’

b. ónúgí ɔ-ɔ-dɔ kà-dɔ gígàní ke-bá-yí á-bà
 if 2SG-PRS.PROG-speak CM-matter strong SM-FUT-sound SM-come
 mí bú-vù nu-m
 1SG.POSS CM-room DEF-inside

‘If you speak loudly, it sounds in my room’

c. Sɔlumí ɔ-dá ní ó-yi ɔ-ba blɔ bo-pá ní-m
 church CM-bell DEF SM-sound SM-come 1PL.POSS CM-house DEF-inside

‘The church bell reaches our house’

3.6.4 The Source-Based Olfactory Verb *lɔ́*

Source-based olfactory is expressed by the verb *lɔ́*. In source-based olfactory constructions, the subject of the clause is the stimulus of perception. The verb *lɔ́* may be followed by an adverbial element that describes the kind of smell emitted by the stimulus. The structure of such clauses is:

Subject NP + Verb + (Adverbial Element)

The subject and verb are obligatory elements of such clauses whilst the adjective is an optional element. The descriptions of the adjectival elements are usually evaluative as they use positive and negative valence to describe how the perceived stimulus object appeals to the perceiver’s olfactory. The perceiver is usually covert in such expressions. Structurally, the perceived object occupies the subject position of such clauses. Consider the following examples.

19. a. $\dot{A}l\check{s}$ $tsu\acute{i}n\acute{i}tsu\acute{i}n\acute{i}$
 3SG-smell bad
 ‘it smells terrible’

b. \grave{o} -sefufu $n\acute{i}$ $\text{ɔ-}\text{ɔ-l}\check{s}$ $h\grave{u}h\grave{u}h\grave{u}$
 CM-flower DEF SM-PRS.PROG-smell good
 ‘The flower smells good’

3.7 Activity Perception Verbs in Imperative Constructions

The perception verbs that express perceptual activity can occur in imperative constructions. In imperative constructions, perception verbs do not follow the prototypical structure of a simple clause where the subject occurs at the initial position and may be cross referenced on the verb. Imperative constructions may usually have covert subjects with the verb fronting the clause. The verbs of perception that feature in imperative constructions are *dí* ‘look’, *tààtɔ* ‘listen’, *hunɔ* ‘touch’, *mini dí* ‘taste to see’ and *lũku dí* ‘smell to see’.

20 a. $\dot{D}i$ $k\grave{e}$ -tsúkú $n\acute{i}$ $m\acute{o}m\acute{o}$ $\text{ɔ-b}\text{ɔ-m}\text{ɔ}$
 Look CM-pot DEF well 2SG-FUT-see
 $s\acute{i}$ $k\grave{a}$ -tá
 COMP SM-crack
 ‘Look carefully at the pot and you will see a crack’

b. $T\grave{a}\grave{a}t\text{ɔ}$ $\text{ɔ-dz}\acute{i}$ $n\acute{i}$ $m\acute{o}m\acute{o}$, $\text{ɔ-b}\text{ɔ-n}\acute{u}$ $k\acute{i}$ -vù
 listen CM-song DEF well 2SG-FUT-hear CM-drum
 ‘Listen carefully to the music, you will hear a drum’

c. láhœ yí a-hóí mɔɔmɔɔ, ɔ-bɔ-mɔ á-nɔ ní
 touch 3SG.POSS CM-hand well 2SG-FUT-see CM-person DEF
 ‘Feel his hands carefully and you will know who he is’

d. lūku ò-séyùyù ní mɔɔmɔɔ kò ɔ-bɔ-mɔ
 smell CM-fruit DEF well then 2SG-FUT-see
 sí ɔ-lɔ̃ tsyɔ́mò
 COMP SM-smell be.rotten
 ‘Smell the fruit carefully and you will see that it is rotten’

e. mìnì ò-ní ní ò-dí bɔ-mœ di-kú
 lick CM-soup DEF SM-look CM-salt NEG-reach
 e-lí-zi
 3SG- be- extreme
 ‘Taste the soup, it is not salty’

When Tafi verbs of perception occur in imperative constructions, they can lexicalize to function as discourse markers. One of such discourse marking devices is attention getting. When the verb is used in the imperative form as an attention getter, the speaker implies that there is something to discuss for which he or she requires the interlocutor’s attention. The verb *dí* ‘look’ and *nú* ‘listen’ can function as attention getters.

21.a. Đí í-nú wɔ e-kúsí dī
 look 1SG-hear 2SG CM-chief look
 í-she dí wɔ
 1SG-grow surpass2SG
 ‘Look, I’m older than you’

b. Ðí, à-nov̄ é-tí-dí è-shishé à-mi
look CM-child SM-NEG-look CM-elder CM-face
‘Look, children must not disrespect their parents’
A child does not look in an adult’s face (literal meaning)

c. Nú, álàsí ò-bú ò-shìshé-àli
hear be.necessary 2SG-respect CM-elder-PL
‘listen, you must respect our elders’

d. Nò-nú á-nonyààno à-bá suku kí-vū
2PL-hear CM-everybody SM-come school CM-tomorrow
‘Listen, everybody must come to school tomorrow’

In spoken discourse, the attention getter precedes the main clause and it is usually followed by a pause before the main clause. The break between the attention getter and the main clause is indicated by the comma which separates the two clauses in example (21 a- d).

3.8 Nominalization of Tafi Perception Verbs

It is possible to derive nouns from verbs in Tafi. Bobuafor (2013) identifies three processes by which nominals are derived in Tafi. These are nominalization resulting from verbs and their compliments, nominals derived from verbs through prefixation and nominals derived from reduplication. The type of nominalization that occurs with Tafi verbs of perception is the reduplication of the first syllable

and prefixation with the noun class. The examples below show the derived noun forms with their prefixes.

Table 7. Nominalization of perception verbs

Verb	Nominalized Form	Gloss
mɔ 'to see'	kumɔmɔ	sight
dʒi 'to look'	tídʒídʒi	hearing
nú 'to hear'	Tínúnú	listening
hɔnɔ 'to touch'	tíhɔhɔnɔ	touch
míni dʒi 'taste see'	tímímínidʒi	taste
lɔku dʒi 'smell see'	kílɔlɔkùdʒi	Smell

Nominals can also be derived from the stem of transitive verbs and their object nouns and prefixed with a¹ which is the prefix of the noun class which contains almost all the human nouns. Before the addition of the prefix, there is an inversion of the Verb Object (VO) structure which becomes Object Verb (OV) (Bobuafor 2013). This is illustrated in the nominals that emerge from the verbs phrases as shown below.

Table 8. Nominal derivation from perception VPs

Verb phrase	Nominal	Gloss
dʒi kɔdɔ 'look thing'	adɔdʒi	Spectator
nú kibuí 'hear matter'	Èbuinú	Listener
míni dɔ dʒi 'taste thing'	ádómínidʒi	Taster

3.9 Serialization of Perception Verbs in Tafi

Tafi Serial Verb Constructions comprise two or more verbs without any overt marker of dependency such as coordination or subordination. These verbs share at least one argument with the same tense and mood. The serial verb constructions in Tafi can occur in various sentence types with different illocutionary functions including imperatives, declaratives, and interrogatives (Bobuafor 2013). The perception verbs of Tafi can occur one after the other in verb serializations and they can also co-occur with other verbs to form a single predicate.

3.9.1 Serializations Involving *Đi* 'To Look'

The verb *đi* often occurs in serial verb constructions, it often occupies the final position when in the company of other verbs of perception ((V) + V + *đi*). The reversed order (*đi* + V + (V)) is not admitted in the language.

The vision verb *đi* 'look' collocates with olfactory and gustatory activity verbs *lũku* and *mini* respectively in serial verb constructions. When *đi* occurs with the olfactory verb, the meaning suggests a deliberate activity of sensing the smell of a source of stimuli. When *đi* occurs with the taste verb, the meaning suggests an intentional act of touching with the tongue with the intention of detecting the taste of the sources of stimuli.

3.9.2 *Lũku + dǐ* ‘smell + look’

Lũku / *l̩kɔ* is the Tafi verb for both the experience and the activity of smelling. The verb *dǐ* also refers to a visual perception that is intentionally controlled by the perceiver. The perception verbs *lũku* ‘smell’ and *dǐ* ‘look’ occur serially in Tafi clauses. This is exemplified in (22 a-b) below:

- 22.a. À-kɔ bɔ-wá túlí àkpɪ kɔpú ní-m
 3SG-pour CM-medicine INDF LOC cup DEF-inside
 kɪlí é-lũkù é-dǐ
 and 3SG-smell SM-look
 ‘She poured some medicine into the cup and smelled it’

- b. A-sí dǐ a-sí bòdòbòdò ní à-bɔ gíla
 3SG-say look SM-COMP bread DEF SM-be.good REL
 bà-tã kɪsò é-lũku e-dǐ
 3PL.DEP-chew so 3SG-smell SM-look
 ‘She wanted to know if the bread was good to eat so she smelled it’

3.9.3 *Mini + dǐ* ‘lick + look’

The perception verbs *mini* ‘lick’ and *dǐ* ‘look’ can also co-occur in serial verb constructions. The *dǐ* component of the SVC gives an indication that the perceiver intentionally perceives with the tongue for the purpose of discovering the taste of the perceived object. This is shown in example (23 a-b) below.

- 23.a. Flògò gɪ Mary à-kɔ mí kókó ní é-míni i-dǐ
 Before REL Mary SM-give1SG porridge DEF 3SG-taste SM-look
 ‘Before Mary gave me the porridge, she tasted it’

- b. Kofi á-pĩ a-sí dǐ sí bɔ-wá ní
 Kofi SM-want SM-COMP look COMP CM-medicine DEF
 Vé dza kulí é-míni e-dǐ
 be.bitter UFP CONJ 3SG-taste SM-look
 ‘Kofi wanted to know if the medicine was bitter, so he tasted it’

The composite verbs *lũku dǐ* ‘smell see’ and *mini dǐ* ‘lick see’ are considered as serial verbs because they show the characteristics of verb serialization in Tafi (Bobuafor 2013). When the *dǐ* occurs in perception-based serial verb constructions, the verb always occurs in the final position. This is akin to observations made by Jakobi and El-Gazuuli (2013) in Dongolawi. The Tafi visual perception verb *dǐ* when structurally occurs after the taste verb *mini* ‘to lick’ and activity olfactory verb *lũku* ‘to smell’ presents an opportunity for getting insight about the kind of taste and the kind of smell respectively. Thus, the cognitive activities of finding out or ascertaining are expressed by the verb *dǐ* ‘look’. This shows that in the Tafi culture, knowledge and insight gaining is closely associated with the sense of vision. This is in line with the observations of Agyekum (2019) and Sweetser (1990) that the metaphor of knowledge is based on the primary source of vision as the source of data.

The series of verbs shown in the examples above function as a single predicate. Also, the verbs do not overtly occur with any conjunction to show coordination or subordination and they also constitute a single clause.

From the examples in (23) above, the clauses have no conjunctions that occur between the two verbs that form SVCs. The two verbs that make up each of the clauses have the properties of a single verb clause and there cannot be a sentence pause between the verbal components.

Another property of verb serialization in Tafi that is exhibited by perception serial verbs is that the verbs cannot be independently negated in SVCs as shown in example (24).

24. a. Ama è-dì-mini ko'ko' ní è-dí
 Ama SM-NEG-taste porridge DEF SM-look
 flògò gí à-kpí síkli
 before REL SM-add sugar
 ‘Ama did not taste the koko before she added another sugar’

b. Ì-dì-lūku bɔ-mɔní ní e-dí
 1SG-NEG-smell CM-milk DEF SM-look
 pɔ í-nyí sí bɔ-pĩ
 CONJ 1SG-know COMP 3SG- be good
 ‘I did not smell the milk but I’m sure it is wholesome’

From the examples illustrated above, the negative marker occurs with the VP₁ (*tú* and *lūku* in (24a) and (24b) respectively, but the scope of the negative marker covers the entire clause. This is in line with one of the general the properties of serial verbs which indicates that verbs cannot be independently negated.

Another characteristic of the perception verbs that occur in SVCs is that these verbs can also independently occur in mono-verbal clauses.

25. a. Kofi é-féké kà-ntsí kulí
 Kofi SM-lift CM-cup CONJ
 yí e-dí-alí
 3SG SM-look-3SG.INDEP
 ‘Kofi lifted the cup and looked at it’

b. À-dzràmuà ní é-míní yí ò-tsé
 CM-cat DEF SM-lick 3SG.POSS CM-tail
 ‘The cat licked its tail’

c. Ɔ-nyó’ lūku wó’ hãã
 SM-smoke smell 2SG Q
 ‘Do you smell smoke?’

3.10 Perception Verbs as Information Source

Perception verbs have been identified as one of the grammatical resources that languages employ to indicate the source of information. This group of verbs is known as ‘evidential perception verbs’ (Whitt 2010:26). Any evidential use of perception verbs usually contains deictic meaning. This means that apart from their regular perception meaning, perception verbs also contain evidential meaning based on their context of use (Whitt 2010, De Haan 2001). The evidence may point out whether the speaker saw something himself, heard something himself or whether he or she infers from another person’s statement. The Tafi perception verbs can signal evidential meaning in different patterns of complementation. Some of these forms of complementation are illustrated in example (26).

26. a. *í-mɔ* *sí* *á-dɔ̀ɔ̀bóe*
 1SG-SEE COMP 3SG-falldown
 ‘I saw that he fell down’
- b. *í-mɔ* *bú-vū* *ní* *e-e-tã*
 1SG-SEE CM-house DEF SM-PRS.PROG-burn
 ‘I see the house burning’
- c. *Í-nú* *òtú-tíí* *ní* *à-yàkpá* *ní-m*
 1SG-hear CM-gun sound LOC CM-bush DEF-inside
 ‘I heard a gunshot in the bush’
- d. *Bú-nú* *sí* *Kofi* *á-lulá* *yí* *sìkà*
 1PL-hear COMP Kofi SM-lose 3SG.POSS money
 ‘We heard that Kofi has lost his money’

From examples (26 a, b and c) *mɔ* ‘see’ *nú* ‘hear’ in addition to their perception meaning also indicate the source of information, thus a direct visual and auditory evidence. Direct evidentials denote that the action was perceived by seeing or hearing the action involved. In (26d), *ní* indicates that the speaker’s source of information is a hearsay. The verb *nú* in hearsay evidentials takes a complementizer clause introduced by the complementizer *sí* as an argument that immediately follows the verb.

3.11 The Degree of Visual Versus Auditory Implications in

Complementizer Clauses

The verbs *mɔ* ‘see’ and *nú* ‘hear’ can both occur with complementizer clauses introduced by the complementizer *sí*. The two sensory perception verbs however may have varying degrees of implication. In such complementizer clauses, there

appears to be a diminishing degree of factivity with the sense of hearing compared to the sense of vision. Consider the following examples:

27. a. l-mɔ sí Kofi á-á-pui bɔ̀dɔ̀bɔ̀dɔ̀
 1SG-see COMP Kofi SM-PRS.PROG-burn bread
 ‘I saw that Kofi was baking bread’
- b. I-nú sí Kofi á-á-pui bɔ̀dɔ̀bɔ̀dɔ̀
 1SG-hear COMP Kofi SM-PRS.PROG.burn bread
 ‘I heard that Kofi was baking bread’
- c. Bɔ-mɔ sí Ama à-à-ví bɔ-yá-m
 1PL-see COMP Ama SM-PRS.PROG-go CM-farm-inside
 ‘We saw that Ama was going to the farm’
- d. Bu-nú sí Ama à-à-ví bɔ-yá-m
 1PL-see COMP Ama SM-PROG-go CM-farm-inside
 ‘We heard that Ama was going to the farm’

In example (27a), the sense of vision denoted by the verb *mɔ* ‘see’ provides a relatively more authentic and reliable statement compared to the sense of hearing (*nú*) in (27b). This further substantiates my earlier assertion that within the culture of the Tafi people, vision is the most reliable source of obtaining information from the world. By seeing things in their concrete terms, one can generally give objective comments about them. The sense of hearing seems to have a weaker implication compared to the sense of vision in the Tafi language. In some contexts, the evidential *nú* can pragmatically function as a dubitation marker. Dubitation

markers in discourse give the indication that the information that is provided cannot be adequately substantiated by the speaker.

3.12 The Grammatical Properties of *Nú*

The perceptual experiences of hearing, touch and taste is lexicalized in the verb *nú*. The multiplicity of meaning of the verb raises an interesting question concerning how speakers of Tafi disambiguate the meaning of the three sensory modalities.

3.12.1 *The Perception Objects of Nú*

The verb *nú* is basically transitive within the domain of sensory perception, the perception object and the context of interaction helps to disambiguate meaning and ascribe the appropriate meaning to the verb.

28. a. Bú-nú kɪ-buí ní kɪ-vūn
 1PL-hear CM-matter DEF CM-yesterday
 ‘We heard the news yesterday’

b. Í-nú kɪ-fúvùvù ní mí-ɔ-tsɾɪ ní-m
 1SG-hear CM-heat LOC 1SG.POSS-CM-leg DEF-inside
 ‘I felt the heat on my legs’

c. Í-nú bɔ-mædɔ ní ɔ-dútsú ní-m
 1SG-hear CM- salt LOC CM-stew DEF-inside
 ‘I tasted salt in the stew’

The object NPs of *nú* place a semantic restriction on the verb. From the examples, the object NPs *kibui* ‘matter’, *kifívùvù* ‘heat’ and *bòmɛɛɔ* ‘salt’ disambiguate the meaning of *nú* and situate the verb in its appropriate context of sensory perception.

However, within the domain of cognition, the verb *nú* can occur in transitive and intransitive clauses. For transitive clauses, the object NPs are usually abstract entities.

29. a. Í-nú

1SG-hear

‘I agree/ I accept’

b. Í-nú Tíyingbè

1SG-hear Ewe

‘I speak Ewe/ I understand Ewe’

3.13 Negation of Tafi Verbs of Perception

The verbal prefixes *tu/tí* and *du/di* are used to express negation in the present and non-present forms respectively in Tafi depending on the ATR value of the first vowel in the verb. (Bobuafor 2013:215). Sentential negation in Tafi is preverbal. The sentences below illustrate the negation of Tafi perception verbs.

30.a. l-dí-mə ke-plukpá ní

1SG-NEG-see CM-book DET

‘I did not see the book’

b. I-dí- nú kí-vù
 1SG-NEG-hear CM-drum
 ‘I did not hear the drum’

c. Í-di-mini kí-dɔŋàŋà ní dǐ
 1SG-NEG-lick CM-food DEF see
 ‘I did not taste the food’

d. A-dzinovɔɛ nt e-di-tàbɔtɔ ní ɔ-dzi
 CM-woman.small DEF SM-NEG-listen LOC CM-song
 ‘The girls did not listen to the song’

e. A-dzi ní yɪ a-nyí ní é-tí-nú bu-tɔ
 CM-woman DEF 3SG.POSS CM-man DEF SM-NEG-hear CM-ear
 ‘The woman’s son is stubborn’

The verbs of perception can also be negated to express cognitive-related meanings. In example (31 a -c) below, the preverbal negator *ti-* and *di* negate the various perception verbs to result in negated experiences of cognition.

31. a. É-tí-nú blɔ bù-nùhù
 3SG-NEG-hear 1PL.POSS CM-language
 ‘He does not understand our language’

b. Á-kpùkpùdzi kpã yí-e-nú á-tí -á-mɔ kɪ-dɔ.
 CM-soothsayer false 3SG-SM-be 3SG-NEG-SM-see CM-thing
 ‘He is a false prophet, he does not see the future’

- c. Bɔ-dɪ-mɔ sí súbha a-bà-dɔ
 1PL-NEG-see COMP rain SM-FUT-fall
 ‘We didn’t realize that it was going to rain’

3.14 Grammaticalization of *Ɖí* ‘Look’

This section will explore the grammaticalization phenomenon which can be displayed by the verbs of perception and cognition (Bobuafor 2013, Rhee 2016). In Tafi, the verb *Ɖí* ‘look’ has grammaticalized to a form that has experiential meaning (Bobuafor 2013). The grammaticalized form does not refer to the perceptual activity physical sight but establishes a strong connection between physical vision and mental vision. If one experiences something, it means the person has perceived with the eye. Consider the sentences below.

32. a. ɔ-tɪ-dɪ lɛɛ Ɖí
 2SG-PERF-go Accra see
 ‘Have you gone to Accra before?’
- b. Éé í-tɪ-dí Íɛɛ Ɖí
 yes 1SG-PERF-go Accra see
 Yes, I have been to Accra before.
- c. ɔ-tí-tã é-blɪdzà ò-Ɖí hãã
 2SG-PERF-eat CM-snake SM-see Q
 ‘Have you eaten snake before?’

d. Oo í-tí-tã é-blidzà i-dí
no 1SG-NEG-eat CM-snake SM-see

‘No, I have not eaten snake before’

In the example (32 a-d) above, *dí* is not the usual lexical item which denotes visual perceptual activity. It is a grammatical marker that usually occurs at clause final positions to give an indication that the speaker has experienced a situation.

3.15 Chapter summary

This chapter has presented some syntactic properties of Tafi sensory perception verbs. The study identified some clausal structures in which perception verbs occur. These are transitive, intransitive, complementizer clauses and SVCs. Within the domain of sensory experience, *mɔ* ‘see’ and *nú* ‘see’ can occur in intransitive constructions to result in mental /cognitive perception of propositional content. In complementizer clauses, vision verbs shift from physical perception to mental perception. When the hearing verb *nú* ‘hear’ is followed by a complementizer, the clause results in a hearsay or a reported speech. In SVCs, *dí* ‘look’ can co-occur with other verbs to express a deliberate perceptual activity. The verb *nú* as a lexical conflation of the sensory experiences of hearing, touch, taste can disambiguate meaning with the perception object NP.

CHAPTER FOUR

THE SEMANTICS OF TAFI VERBS OF PERCEPTION

4.0 Introduction

Following Viberg (1984), this chapter presents a detailed description of how meaning is packaged in the verbs that describe perceptual experiences in the Tafi language. Viberg's semantic division of perception verbs into three classes *activity*, *experience* and *copulative* will be tested in Tafi to see how the basic senses of vision, hearing, touch, taste and smell are encoded in Tafi verbs. The chapter will further explore the perception meanings and other non-prototypical meaning extensions of the Tafi verbs of perception. This aspect of the study is relevant within the domain of cognitive semantics as it looks at how physical sensory experience reflects within the domain of metaphorical and abstract concepts. (Ibarretxe-Antunano 1999). The typological observations made in Viberg (1984) provides a useful guide for the analysis.

4.1 Physical Perception Verbs of Tafi

There are specific verbs in Tafi for each of the five sensory modalities. This means that Tafi lexically differentiates the five sensory modalities unlike its sister language Avatime that has all the sensory modalities expressed by only two verbs; *mɔ* 'see' and *nú* 'perceive' where *mɔ* is used for visual perception and *nú* for non-visual sensory modalities. The table 9 below accounts for the verbs that express

sight, hearing, smell, touch and taste sensory modalities in Tafi. The distribution follows Viberg’s classification of basic perception verbs into three semantic fields; activity-oriented, experience-oriented and phenomenon-oriented physical perception based on the semantic role of their subjects.

Table 9. The basic paradigm of Tafi verbs of perception

Sensory modality	Activity	Experience	Phenomenon
sight	dí	mò	ɲwí
hearing	taato’(nú)	nú	yi
touch	hũno	nú	-
taste	mínì dí	nú	-
smell	lũku/lòku	lũku /lòku	lõ

4.1.1 Activity Perception Verbs

Activity verbs refers to “an unbounded process that is consciously controlled by the human agent” (Viberg 1984: 123). In this category, the senses receive an expression that is dependent on the will of the person concerned (Ibarretxe-Antunano 1999). Gisborn (1996) posits that the verbs in this class can be subjected to what he calls “deliberately test”. His assumption is that because activity verbs can be controlled by the human agent, English perception verbs in that semantic

class can occur with the adverb ‘deliberately’ whereas non-activity verbs cannot occur with the adverb ‘deliberately’. The activity perception verbs in Tafi across the five basic senses are illustrated in example (1) below.

1. a. À-dzinovæ ní e-féké à-wuí kílí
 CM-girl DEF SM-lift CM-dress CONJ
 í dí-yí
 3SG look-3SG
 ‘The girl picked a dress and looked at it’
- b. Á-nyínovæ ní táátó ní è-buí ní radio
 CM -boy DEF listen DET CM-matter LOC radio
 ní ká-bhā
 DEF CM-top
 ‘The boy listened to the news on radio’
- c. l-mə sí Kofi í-honə mí ke-plukpá ní
 1SG-see COMP Kofi SM-touch 1SG.POSS CM-book DEF
 ‘I saw that Kofi touched my book’
- d. À-kə bə-wá túlí àkpí kəpú ní-m
 3SG-pour CM-medicine INDEF into cup DEF-inside
 kílí é-lūku búlí é-dí
 CONJ 3SG-smell 3SG.INDEP SM-look
- e. Í-míni kókó ní é-dí
 1.SG-lick porridge DEF SM-look
 ‘I tasted the porridge’

The sentences in example (1) show a situation where the stimuli are consciously controlled by the subject. Conscious perception through the various sensory receptors is expressed by the verbs *dí* ‘to look’, *tààtɔ* ‘to listen’, *lũku* ‘to smell’, *hũnɔ* ‘to touch’ and *míni dí* ‘to taste’.

4.1.2 Experience Perception Verbs

This class of perception verbs refer to situations where stimuli is not consciously controlled by the subject. Viberg (1984:123) refers to it as “a state” or “inchoative achievement” that the subject does not control. The verbs that express the various sensory experiences are *mɔ* ‘see’, *nú* ‘hear/touch/taste’ and *lũkù* ‘smell’. *Nú* is quite generic within the domain of experience. Even though it expresses three different sensory experiences, meaning is usually disambiguated by the syntactic composition and the context within which the verb is used. Example (2) below shows sentences that illustrate the use of the experience verbs.

2. a. *Í-mɔ ke-kpã ní bu-ní ní-m*
 1SG-see CM-fish LOC CM-water DEF-inside
 ‘I saw a fish in the water’

b. *Í-nú ò-tú-tíyí ní à-yàkpá ní-m*
 1SG-hear CM-gun-sound LOC CM-bush DET-inside
 ‘I heard a gunshot in the bush’

c. *Í-nú be-méméè ní mí ɔ-tsɾè*
 1SG-hear PL-ant LOC 1SG.POSS CM-legs
 ‘I felt ants on my legs’

d. Ɔ-nyɔ́ lūkù wɔ́ hãã
 CM-smoke smell 2SG Q
 ‘Do you smell smoke?’

e. É-nú méèsá ní ò-ní ní-m
 3SG-hear pepper LOC CM-soup DET-inside
 ‘He tasted pepper in the soup’

The examples above show a conflation of three sensory modalities: auditory, tactile and gustatory into a single verb *nú* within the domain of experience following the Vibergian paradigm of semantic classification of perception verbs. Sensory conflation is a common phenomenon in African cultures. In Ewe for instance, one can ‘hear’ pepper in the soup and ‘hear’ the smell of fresh bread. The conflation of the senses of hearing and smell is known as “audio-olfactory synesthesia” (van Putten 2019:3).

4.1.3 Source-based copulative

In source-based copulative constructions, the subject of the verb is the stimuli of perception. The verbs in this category are also described as phenomenon-based. The sensory modalities of sight, hearing and smell are the only domains that have verbs for source-based expressions. The sense of touch has no specific verb for source-based expressions but uses descriptions to describe the phenomenon. In the case of the sensory modality of taste, negative and positive valence is used to describe the stimuli. Consider the source-based perception verbs in the sentences below.

3. a. Kofi á-ŋwí a'-kɔ'-mí ànàsí à-à-nyà
 Kofi SM-appear SM-give-1SG.POSS like SM-PRS.PROG- be.sick
 'Kofi appears sick to me'
- b. Kì-vù ní yí
 CM-drum DEF sound
 'The drum sounded'
- c. Mí-ádá sí á-sí ní á-lɔ̃ mɔɔ
 1SG.POSS-sister say CM-rice DEF SM-smell good
 'My sister says the rice smells good'

4.2 The vision verbs in Tafi

As shown in Table 4.1, Tafi shows lexical distinction between *activity*, *experience* and *copulative* verbs that express visual perception. The verbs *dí* 'look' denotes the visual perception that is intentionally controlled by the perceiver. The agent is usually an animate entity in this class of verbs. The vision verb *mɔ̃* expresses automatic visual perception for which the perceiver does not have any control. The copulative verb *ŋwí* 'appear' expresses a situation where the agent is the stimuli of perception.

The verb *dí* 'look' expresses an intentional visual activity is illustrated in example (4) below.

4. a. Kofi i-dí à-nyí ní
 Kofi SM-look CM-man DEF
 'Kofi looked at the man'

- b. À-dzinovæ ní e-féké à-wuí kílí yí dí-í
 CM-girl DEF SM-lift. CM-dress CONJ 3SG look-3SG

‘The girl picked a dress and looked at it’

The verb *dí* in the examples above expresses situations where a human agent makes a deliberate effort to perceive something with the eyes. The visual perception in this case is controlled by the perceiver. There are other instances of visual perception where something enters the agent’s scope of vision without his or her control. Consider the following sentences in example (5) below.

5. a. l-mə kí-kpǎ ní bu-ní ní-m
 1SG-see CM-fish LOC CM-water DEF-inside

‘I saw a fish in the water’

- b. Í-mə kí-fú bù-bùì tìlí ní à-yàkpá ní-m
 1SG-see CM-fire CM-bright INDEF LOC CM-bush DEF-inside
 ‘I saw a bright light in the bush’

The verb *mə* ‘see’ in example (5) expresses passive visual perception over which the agent has no control. The perceived object enters the agent’s scope of vision and the experiencer receives the sensory impression involuntarily.

In source-based copulative expressions, the perceiver is omitted in English constructions. An example is “The food looks stale”. The verb *ɲwí* ‘appear’ expresses copulative constructions within the sensory domain of vision in Tafi. An example is shown below.

6. a. Á-nyí ní a-ɲwí a-nyínyà
 CM-man DEF SM-appear CM-sick.person
 ‘The man looked sick’

Apart from the use of *ɲwí*, there are other linguistic resources available in Tafi that can express phenomenon-oriented descriptions. For instance, the phrase *pɛ bùdɪ* ‘good to look at’ expresses a situation where something seems pleasant to the eyes.

- b. Ò-ɲùsìsè ní pĩ bù dɪ kudzɔ
 CM-sky DET good 3SG look very
 ‘The sky looks very beautiful’

4.3 Non-Prototypical Perception Meanings of Vision Verbs

The next two sub-sections will discuss non-perception interpretations of the vision verbs *dɪ* ‘look’ and *mɔ̀* ‘see’. The phenomenon-based vision verb *ɲwí* is not considered in this discussion because the source-based verb appears to be relatively less productive in terms metaphorical connections within the domain of cognition.

4.4.1 Semantic Extensions of *Dɪ* ‘Look’

The verb *dɪ* ‘look’ which expresses controlled vision extends its scope of meaning from physical perception to assume other meanings outside the domain of physical perception. The verb *dɪ* generally occurs in expressions that have to do with superintendence. This comprises the acts of nourishing and supervision and other environmental influences that contribute to individual development. The verb *dɪ* in

this regard can assume meanings such as “to take care of” and “to look after” and “to oversee” among others.

a. *dí* ‘look’ → ‘to take care of something’

The vision verb *dí* semantically extends its scope to generally mean provision of care. The sentences below illustrate the use of the verb to indicate provision of care (to supervise, to look after or to nurture).

7. a. *É-é-dí* *bɔ-pá* *ní* *ká-bhà*
 3SG-PRS.PROG-look CM-house DEF CM-top
 ‘S/he takes care of the house’

b. *Á-nyí* *ní* *i-dí* *mí* *bè-yíalé* *ní* *ká-bhà*
 CM-man DET SM-look 1SG.POSS CM-children DEF CM- top
 ‘The man looks after many children’

4.4.2 Non-Perception Meanings of *Mɔ* ‘See’

The vision verb *mɔ* ‘see’ can change its use from the scope of physical perception to abstract domains. This results in the extension of the verb from visual experiences to cover cognitive experiences. Some meanings of *mɔ* ‘see’ are:

- a. to discern/ understand
- b. spiritual discernment
- c. to suspect someone or something

a. *Mɔ̃* ‘See’ → ‘discern/ understand’

The vision verb *mɔ̃* ‘see’ can mean ‘to understand’ to indicate that a hearer has grasped a message or information put across by the speaker. In this type of usage, the verb may or may not require a direct object. Consider the transitive and intransitive usages in example (8) below.

8. a. *Í-mɔ̃*

1SG- see
‘I understand/ I follow/I know’

b. *Í-mɔ̃* *ki-búí* *ní* *gí* *ɔ̃-ɔ̃-dɔ̃*
1SG-see CM-matter DEM REL SM-2SG.PRS.PROG-say
I see what you mean
‘I understand what you mean’

Vision verbs extend their meaning to cover mental realizations in Tafi. The verb *mɔ̃* ‘see’ which expresses visual experiences also means ‘to understand’. This appears like a cross-cultural phenomenon because in many languages including some Kwa languages. The cognitive phenomenon of understanding is linked to both visual and auditory sensory perceptions. For instance, in Ewe, the vision and auditory verbs of perception *kpɔ̃* ‘see’ and *se* ‘hear’ both refer to the cognitive process of understanding. Agyekum (2019) also pointed out that in Akan, vision is generally connected to intellect, therefore the vision verb *húnu* ‘to see’ also means ‘to understand’. According to Ibarretxe-Antunano (2008), semantic extension of perception verbs is not an illogical and arbitrary process. They are motivated and grounded in how a group of people conceive and experience the world. This motivation which is described in terms of certain properties are shaped

by the culture within which individuals find themselves. Since human beings find themselves in different cultures, the properties that apply to a sense in one culture may not apply to the same sense in another culture. She therefore debunks the idea of associating one sensory perception with a particular cognitive capability. For instance, instead of assuming that UNDERSTANDING IS VISION, the relationship can be formulated on a more generic and abstract level as UNDERSTANDING IS PERCEPTION.

b. *Mɔ* ‘see’ → ‘to discern spiritually’

The vision verb *mɔ* ‘see’ can be used to mean spiritual discernment and clairvoyance. This suggests that the vision verb can be used to express things which happen in the spiritual realm and be used to predict what will happen in the future.

Consider the example below.

9. *Á*-kpùkpùdzi kpã yí-e-nú á-ti mɔ kɪ-dɔ.
CM-soothsayer false 3SG-SM-be 3SG-NEG-see CM-thing
He is a false prophet, he cannot predict the future.

c. *Mɔ* ‘See’ → ‘to express suspicion’

The verb *mɔ* can also be used in communicative interactions to express situations where a speaker makes an assertion that something is true even though the speaker has no proof.

Example (10) below shows *mɔ* in the expression of suspicion.

10. l-mɔ	sí	Kofi	e-hɔnɔ	mí	ke-plukpá
1SG-see	COMP	Kofi	SM-touch	1SG.POSS	CM-book
‘I suspect Kofi has stolen the book’					

4.4.3 The Pragmatics of *Ɔi* ‘Look’

The vision verb *Ɔi* ‘look’ also performs some functions within conversational contexts. It can be used to warn a hearer or entreat a hearer to thread with caution. It can also be used to call the attention of a listener in a conversation.

a. *Ɔi* ‘Look’ → ‘as a warning device’

The verb *Ɔi* ‘look’ occurs in constructions in a form of an interjection that is used to advise or warn a listener to thread with caution. The expression that is used in this regard is *Ɔi mɔɔ*.

11. Ɔi	mɔɔ
look	well
‘be careful’	

The basis for the correlation between vision *Ɔi mɔɔ* (looking well) and caution may be in sync with Sweetser’s (1990: 32) claim that “guarding or keeping control often involves visual monitoring of the controlled entity; and the limited domain of physical vision is further analogous to the domain of personal influence or control”. This suggests that alertness and vigilance can be personally controlled,

and that physical vision plays a crucial role in observing caution or being watchful. In Ewe, a Kwa language from which an overwhelming majority of Tafi loanwords emerge, the expression *kpɔ nyuie* which also literally means “look well” (same literal meaning as the Tafi expression) is used for warning or asking a person to thread with caution. In Akan, the expression that is used for cautioning someone is *hwè yíe* which again have the literal meaning “look well”. The expressions used for cautioning in the aforementioned Kwa languages suggest common properties that are shared between the domains of physical vision and the intellect. Cross-culturally, threading with caution is conceptualized in Tafi, Ewe and Akan as a kind of visual attention that requires visual and mental monitoring of stimuli.

b. *Di ‘Look’* → ‘as an attention seeking device’

Attention-getters are devices that are employed by speakers usually at the beginning of speeches or statements with the purpose of grabbing the attention of the hearer or audience. The vision verb *dí* ‘look’ functions in conversations among Tafi speakers as an attention getter. There appears to be a strong correlation between physical vision and the ability to focus visual and mental attention. In expressions that involve the use of the verb *dí* ‘look’ as an attention getter, the vision verb *dí* ‘look’ usually occurs at the beginning of a statement and its pragmatic function is to entreat a listener to pay attention. Semantically, the meaning of the verb extends from physical domain of visual perception to mean

that the listener needs to give his or her attention to the speaker. Examples of *dí* ‘look’ as an attention getter is illustrated in the sentences below.

12. a. *Đí, àlàsí ò-bù bà-nò shishè*
 look be necessary SM-respect PL-person old
 ‘Look, you must respect the elders’

b. *Đí, tɪ-bití*
 look NEG-do
 ‘look, don’t do it’

The use of *dí* in the sentences above is used to call the attention of an interlocutor and not a call for visual activity. In English translations that involve the vision verb *see* (which is translated as *mò* in Tafi) as an attention getting device, it was observed that the respondents kept using *dí* ‘look’ instead of the experience verb *mò* ‘see’. It becomes clear that *mò* ‘see’ does not feature pragmatically as an attention getting device, so for instance, the English sentences “*see*, you must be quiet” and “*look*, you must be quiet” have the same translation in the Tafi language.

13. *Đí àlàsí ó-zà kí-dzεε*
 look be necessary SM-be CM-without noise
 ‘see/look, you must be quiet’

4.4.4 The Semantics of *Đi* ‘Look’ in Perception-Based Serial Verb Constructions

The activity vision verb *dí* ‘look’ occurs in serial verb constructions. It collocates with the olfactory verb *lũku* ‘to smell’ and the gustatory verb *míni* ‘to taste’. The addition of *dí* to the verbs affects their basic meaning. The semantics of *dí* in the

two perception-based serial verb constructions *lũku d̩i* ‘smell to see’ and *mini d̩i* ‘taste to see’ is discussed in the next two sub-sections beneath.

a. *Lũku + d̩i (smell see)* → ‘smell to find out’

When *d̩i* ‘look’ forms a composite part of multi verb constructions, it adds the meaning “to find out” to other verbs in the series. The serial verb expression *lũku d̩i* expresses situations where a human agent deliberately perceives something with the nose by means of olfactory nerves with the intention of finding out the kind of smell of something emits.

14. a. À-kò b̩-wá túlí àkpí k̩pú ní-m
 3SG-pour CM-medicine INDEF into cup DEF-inside
 k̩lí é-lũku b̩lí é-d̩í
 CONJ 3SG-smell 3SG.INDEP SM-look
 ‘She poured some medicine into the cup and smelled it’

The *d̩i* ‘look’ component of the serial verb in the example above implies that the perceiver undertakes a deliberate olfactory activity in order to obtain some knowledge, for example, whether the percept object is wholesome or it has gone bad. The expression and its associated meaning suggest that the eye is regarded as the medium by which knowledge is obtained. This confirms other cross-cultural and crosslinguistic observations (for instance Sweetser 1990, Agyekum 2018) that have established correlations between physical senses and mental states or

activities. In Akan, the eye has been identified as having more extensions than any of the sensory organs because visible objects and auditory sounds are the richest sources by which information and concepts are formed (Agyekum 2019). Sweetser (1990) observed that there are significant similarities in our general linguistic treatment of vision and intellection. The *dí* ‘look’ part of the composite verbs reveals the metaphorical correlation between vision and intellect which has been predicted by Sweetser (1990: 37) in her assertion that “the objective, intellectual side of our mental life seems to be regularly linked with the sense of vision” although she noted that other senses can also assume intellectual meanings as well.

b. *Mínì + dí ‘taste see’*  *‘to taste to find out’*

A combination of gustatory and vision verbs of perception also occur serially in Tafi. The composite verb *mínì dí* ‘taste to see’ expresses a deliberate gustatory activity where a human agent touches something with the tongue (tastes something) with the intention of finding out how the thing tastes.

15. a. *Á-nyí ní è-mínì bù-lù ní i-đi*
 CM-man DEF SM-lick CM-drink DEF SM-look

‘The man tasted the wine’

b. *Mi-áđá é-mínì kókó gí*
 1SG.POSS-sister SM-lick porridge REL
è-hú ní i-đi
 SM-prepare DEF SM-look

‘My sister tasted the porridge that she prepared’

4.5 The auditory perception verbs of Tafi

The verb that expresses the auditory sensory mechanism in Tafi is *nú* (Bobuafor 2013). The dynamic system of the sensory perception of hearing in Tafi is lexically encoded in the verb forms *tààtɔ/ taatɔ nú* ‘listen’, *nú* ‘hear’ and *yi* ‘to emit sound’ for *activity*, *experience* and the *copulative* dynamic systems respectively. When the human agent controls the auditory action, the verb form is *tààtɔ/ tààtɔnú* ‘listen’. The form of the verb that expresses a hearing experience which the human agent does not control is *nú* ‘hear’. The copulative form of the hearing verb is *yi*.

The sentences in example (16) below illustrate the three forms of the hearing verb:

16. a. *Á-nyínovɔɛ ní a-tààtɔ ní è-buí ní radio ní ká-bhà*
 CM-boy DEF SM-listen DEF CM-matter LOC radio DEF CM-top
 ‘The boy listened to the news on radio’
- b. *Í-nú òtú-tíyí ní à-yàkpá ní-m*
 1SG-hear gun-sound LOC CM-bush DET-inside
 ‘I heard a gunshot in the bush’
- c. *Wɔ-à-dɔém mí yí gɔgàní fààɔ*
 2SG.POSS-CM-voice LOC sound strong too.much
 ‘Your voice sounds too loud’

4.5.1 Non-Perception Meanings of the Auditory Verb *Nú* ‘hear’

The sense of hearing functions significantly in linguistic communication. As a major communicative pathway, it serves as a major means by which people exert their intellectual and emotional influence on one another. Sweetser (1990:41)

captures the function of hearing that “as linguistically capable beings, we have no need to constantly resort to physical pushes and pulls to influence other speakers of our language; we can do so in a far more sophisticated and effective manner via the vocal organs and the auditory sense-channel”.

Various meanings have been assigned to auditory verbs outside the domain of perception across languages. In Tafi, the verb *nú* has other meanings aside the activity or experience of perceiving sound with the ear. Some polysemous realizations of *nu* are:

- (a) to understand
- (b) to take notice (of what someone has said) / to accept/ to agree
- (c) The ability to speak a language

a. *Nú* → ‘to understand’

The verb *nú* can mean ‘to understand’ to indicate that the hearer has grasped the speaker’s message. It is used by speakers in conversations (in interrogative sentences) to find out if a hearer understands what a speaker is putting across. A listener can also use *nú* in a conversation to indicate that he or she understands what a speaker has said.

17. a. *Í-nú* *íli-esí*
1SG-hear 3SG.INDEP-under
‘I understand it’

b. Ó-nú ílǐ-esí hǎã
 2SG-hear 3SG.INDEP-under Q
 ‘Do you understand?’

b. *Nú* → ‘To Accept / To Agree’

The auditory verb *nú* ‘hear’ can have its meaning extended to mean “to agree/ to accept”. This is used in conversations to express an affirmative response to an opinion or statement expressed by an interlocutor. It is used by the hearer in a conversation to indicate affirmation and confirmation. It is used to express sympathy and show that one shares the feeling or the opinion of a speaker.

18.a. Í-nú
 1SG-hear
 ‘I agree/ I accept’

b. Ɔ-dɔ í-nú
 2SG-say 1SG-hear
 ‘You have said it and I agree/ accept/ have taken notice (of what you have said)’

c. *Nú* → ‘The Ability to Speak a Language’

The auditory verb of perception *nú* can also be used to indicate one’s ability to speak a language. The ability to understand and express oneself in a language is connected to the sense of auditory perception. This appears to be a cross-cultural phenomenon as other Kwa languages such as Ewe and Akan also use the hearing verb to refer to the ability to comprehend and express oneself in a language.

19. a. Í-nú Tíyingbèè
 1SG-hear Ewe
 ‘I can understand/ speak Ewe’

b. E-tí-nú blɔ bù-nùhù
 3SG-NEG-hear 1PL.POSS CM-language
 ‘He does not understand our language’

4.5.2 *The Pragmatics of Nú ‘Hear’*

The verb *nú* has so far been discussed as the verb that basically expresses auditory perception in Tafi. It has earlier been noted that the verb also semantically extends to cover two other sensory domains which taste and touch. The discussion further looked at some meanings that the verb has outside the domain of perception. This section looks at some functions that the verb *nú* ‘hear’ can perform within interactional context. The verb *nú* ‘hear’ has been identified to pragmatically perform two functions among others, these are: for demanding attention and for marking evidentiality (indicating the source of information).

a. Nú as an Attention Getter

The verb *nú* can be employed by speakers usually at the beginning of speeches or statements for the purpose of grabbing the attention of the hearer or audience. Consider the example below.

20. a. Nú àlàsí ɔ’zà kí-dzɛɛ
 listen be.necessary SM-be CM-without noise
 ‘Listen, you must be quiet’

- b. Nú àlàsí ò-bu bà-nɔɔ shishè
 look be.necessary SM-respect PL-person old
 ‘Listen, you must respect the elders’

b. Nú as an Evidential Marker

Perception auditory verb is used in Tafi to give evidential signals. Evidentiality as a linguistic phenomenon indicates the speaker’s source of information. The evidence may point out whether the speaker saw something himself, heard something himself or whether he or she infers from another person’s statement. In the Tafi language, the perception verbs that mark evidentiality are deictic in nature, this means that in addition to their prototypical perception meaning, perception verbs may also contain evidential meaning in some contexts of usage. Examples are illustrated in the sentences below.

21. a. Í-nú yí à-à-kolá à-dzí ní
 1SG-hear 3SG.INDEP SM-PRS.PROG-insult CM-woman DEF
 ‘I heard him insulting the woman’

- b. Bú-nú sí Kofi á-líla yí sika
 1PL-hear COMP Kofi SM-lose 3SG.POSS money
 ‘We heard that Kofi has lost his money’

- c. Í-nú kɪ-buí ní radio kà-bhà
 1SG-hear CM-matter LOC radio CM-top
 ‘I heard the news on radio’

Example (21) above shows the various sources of information in the sentences. In Examples (21a) and (21c), the use of the verb *nú* ‘hear’ gives the indication that the speakers perceived the insult and news respectively with their own ears. The source of the speakers’ information is through hearing. In example (21b), *nú* ‘hear’ shows that the source of the speaker’s information is a hearsay or a report from what someone else has said.

4.5.3 Nú as Lexical Conflation of the Senses of Hearing, Touch and Taste

Within the domain of experience, the senses of hearing, touch and taste are lexically conflated in a single verb form *nú*. The conflation of the three senses in one verb form hints of a synesthetic relationship between the senses of hearing, touch and taste in the Tafi culture. *Nú* in its basic sense appears to refer to the sense of hearing. It is possible that meaning is transferred from the prototypical sense of hearing to the sensory modalities of touch and taste and by extension ‘feeling’ in general. This assertion is based on the evidence that it is only within the sensory domain of hearing that the verb *nú* occurs activity verb and experience verb. Viberg (1984) observes that meaning extension from one sensory modality to another sense follows a certain hierarchy. The interpretation given to the hierarchy is that a verb having a basic meaning assigned to a higher sensory modality (to the left) can get its meaning extended to cover all or some of the sensory modalities to the right which are lower in the hierarchy. According to the hierarchy, a verb which originally refers to ‘sight’ can have its meaning extended to cover ‘hearing’ and

the verb which originally refers to ‘hearing’ can extend its meaning to cover ‘touch’, ‘taste’ and so on. Sweetser (1990) also observed similar trend of meaning extension in Indo European languages.

In Tafi, *nú* extends from the sense of hearing to cover the sensory domains of touch and taste. Meaning is however differentiated by the other grammatical elements within the various constructions in which *nú* occurs. When the verb *nú* means “hear”, the percept object is usually [+ sound], when *nú* means ‘the feeling touch’, the percept object is usually [+ sensation] and when *nú* means “the feeling of taste”, the percept object is usually [+ edible]. The sensory hierarchy of *nú* ‘to perceive’ is diagrammatically represented below.

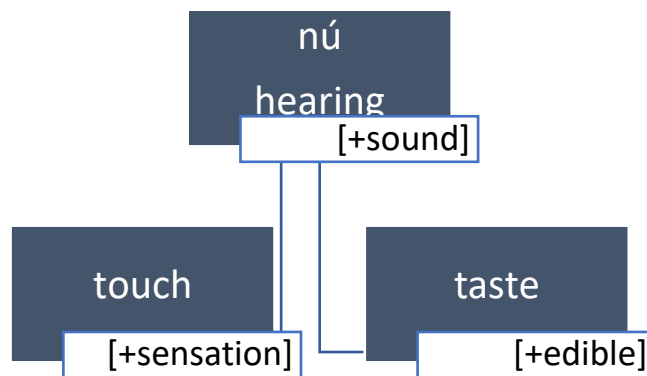


Figure 4. The sensory hierarchy of *nú* verbs

From figure 4, the verb *nú* in its basic sense and usage refers to the sense of hearing. The meaning however extends to from the sense of hearing to cover the sensory domains of touch and taste. The sentences below illustrate *nú* as a lexical conflation

4.6 The Tafi Verb of Taste

The verbs that express taste in Tafi are *mini dǐ* and *nú* for the domains of *activity* and *experience* respectively in accordance with the Vibergian paradigm of basic verbs of sensory perception. This shows that within the sensory domain of taste, Tafi only lexically accounts for verbs that express intentionally-controlled gustatory and non-controlled or automatic gustatory. The forms of the verb are illustrated in the sentences that follow.

23.a. Í-míni kókó ní i-dǐ
 1.SG-lick porridge DEF SM-look

‘I tasted the porridge’

b. É-nú méèsá ní ò-ní ní-m
 3SG-hear pepper LOC CM-soup DEF-inside

‘He tasted pepper in the soup’

The verbs *zà* and *kú* are also closely associated with the sense of taste. They occur in copular constructions to evaluate the percept object as having a sweet or a bitter taste respectively.

4.6.1 Semantic Extensions of Taste Verbs in Tafi

Universally, the sensory perception of taste seems to be linked to personal likes and dislikes (Sweetser 1990, Agyekum 2018). According to Ibarretxe-Antunano (2009), the connection between taste and personal likes and dislikes is possible

because taste is usually associated with fine discrimination. The verb *zà* generally occurs in expressions that indicate a person's implicit preference for something. In the Tafi language, the taste verb expresses situations where something suits the speaker's liking, desire and yearning. It is used to express an event or something that a speaker finds interesting and enjoyable.

24. a. *kí-dɔŋà* ní zà mí bù-lí
 CM-food DEF sit well 1SG.POSS CM-liking
 'I enjoyed the meal'

b. *Kí-búí* gí ló' dɔ ní zà mí-bù-lí
 CM-matter REL 1PL.DEP say DEF sit well 1SG.POSS-CM-liking
 'I like the matter which we discussed'

In Example 24, the preference for *the meal* and *the matter* respectively are lexicalized in the same verb form *zà* in Tafi. The data on Tafi taste verbs as shown in the examples above confirm the crosslinguistic observations of Sweetser (1990), Ibarretxe-Antunano (2009), Agyekum (2018) that personal likes and dislikes are associated with the sense of taste.

4.7 Expression of the Sense of Touch in Tafi

The sense of touch is lexically expressed in two verb forms in Tafi: controlled tactile activity and uncontrolled tactile experience. When the touch verb refers to an activity which is intentionally controlled by the agent, it takes the form *hũnɔ*. The touch verb is lexically represented by *nú* when it refers to an experience which

is not controlled by the human agent. Even though the tactile verb is lexically realized as *nú* (like the senses of hearing and taste) for expressing uncontrolled experiences of feeling as a result of touch, the sensory modality of touch is conventionally distinguished by the percept object within the grammatical construction.

Examples are illustrated in the sentences below:

25.a. Í-nú be-méméè mí ɔ-tsrí
 1SG PL-ant 1SG.POSS CM-leg
 ‘I felt ants on my leg’

b. Kofi nú ki-klēgboyi ní yí-tsrè. è-sí
 Kofi hear CM-stone.small DEF 3SG.POSS-foot CM-under
 ‘Kofi felt pebble under his foot’


4.7.1 Non-Perception Meaning of the Tañ Touch Verb

An inextricable link has been established between the semantic field of tactile perception and that of emotion (Sweetser 1990, Ibarretxe-Antunano 2006). Sweetser (1990) within the cognitive semantic model relates emotion to the physical sense of touch. She observes that the link is not only peculiar to English language but cuts across a lot of languages. Ibarretxe-Antunano (2006), accounts for the meaning of the tactile verbs in English, Basque and Spanish as well and explains the polysemous structures and the semantic packaging of the extended meanings of the touch verb in the three languages. Four major extended meanings were realized across the languages, these are “to partake of food or drink”, “to

affect”, “to reach”, “to deal with”. The semantic extensions reveal the conceptual link between the domain of tactile perception and different experiential domains. Aside these physical meanings conveyed by the touch verb as in “Don’t touch anything in the room”, the verb also carries meanings which are emotional like “the appeal touched her heart”. The mappings point out that the tactile sense is conceptualized the same way in the three languages, perhaps this possibility exists because they are all entrenched in the same western culture.

As already noted, the Tafi verbs of perception show systematic metaphorical links. The verb *nú* which is used to express ‘feeling’ of any kind is the same verb that that expresses tactile sensation in the Tafi language. The touch verb extends its meaning beyond tactile sensation. Some meaning extensions of the touch verb in Tafi are:

- (a) to be emotionally affected
- (b) to have sexual relation
- (c) to steal
- (d) to partake of food
- (e) To reach/ to achieve


a. *Hũnɔ*  “To be Emotionally Affected”

The semantic field of tactile perception has often been connected to emotions (Sweetser 1990, Ibarretxe-Antunano, Agyekium 2018). Sweetser (1990) justifies the correlation between physical touch and our internal emotional state that

physical pain naturally causes people to be unhappy emotionally whereas physical pleasure or wellbeing puts people in a cheerful emotional state. The touch verb *hũnɔ* in Tafi is used in expressions to refer to a state of someone being emotionally moved.

26. a. Yí kà-dɔ hũnɔ mɪ-è-dzì
 3SG.POSS CM-speech touch 1SG.POSS-CM-heart
 ‘Her appeal touched my heart’

b. À-dzɪ shìshéé ní kì-búí ní kì-hũnɔ-m
 CM-woman old DEF CM-matter DET SM-touch-1SG
 ‘The old lady’s story is very touching’

b. *Hũnɔ*  “To Partake of Something”

The touch verb *hũnɔ* semantically extends to mean participation in an activity. The concept that is formed here implies that the agent’s body parts comes into contact with something. For instance, when a person partakes of food or drink, there is a physical touch of the food or water.

27. a. Anéé yí é-hũnɔ kí-dɔŋàŋà ní
 Who be SM-touch CM-food DEF
 Who touched the food?
 ‘Who has eaten the food?’

b. Eyram é-dí-hũnɔ bù-lù
 Eyram SM-NEG-touch CM-drink
 ‘Eyram did not touch the drink’
 ‘Eyram did not partake of the drink’

c. *Hɔnɔ* → “To have Sexual Intercourse”

The touch verb *hɔnɔ* can be used figuratively to refer to sexual relationships especially inordinate sexual relationships. When the touch verb is used in this manner, the speaker’s intention is to sound euphemistic. In this case the meaning of the verb is determined by the context of the usage. For example:

28. a. A-nyí ní é-hɔnɔ a-dzínúvɛ ní
 CM-man DEF SM-touch CM-girl DEF
 ‘The man touched the girl’
 ‘The man had sexual intercourse with the girl’

In the sentence above, the verb *hɔnɔ* ‘touch’ denotes coitus. The syntactic-semantic as well as the context of use helps to make the usage clearer. The pragmatic structures usually indicate that the speaker is not talking about a mere physical contact.

d. *Hɔnɔ* → “To Steal”

The touch verb can also be used in context to mean that someone has illegally taken something without the consent of the owner. The touch verb when used to mean to steal” enables the speaker to make use of indirection in speech.

29. a. À-nɔ-tíí é-hɔnɔ mí síká
 CM-person-INDEF SM-touch 1SG.POSS money
 ‘Someone has touched my money’
 ‘Someone has stolen my money’

- b. Í-mɔ́ sí Kofi é-hɔ́nɔ́ mí kè-plukpá ní
 1SG-see COMP Kofi SM-touch 1SG.POSS CM-book DEF
 I suspect Kofi touched the book
 ‘I suspect that Kofi has stolen my book’

4.8 Expression of the Sense of Smell in Tafi

The sense of smell is lexically expressed by the Tafi verbs *lũku/lɔkɔ* for olfactory activity and olfactory experience and *lɔ́* for expressing copulative constructions. Olfactory experience and activity are lexically encoded in the same verb. The verbs *lũku* and *lɔ́kɔ* are used interchangeably.

30. a. Eyram á-kɔ́ bɔ-wá ní kpí ka-ntsi ní-m kílí lũku
 Eyram SM-pour CM-medicine LOC put CM-cup DEF-inside CONJ smell
 i-dí
 SM-look
 ‘Eyram poured the medicine into a cup and smelled it’
- b. Á-sí ní à-lɔ́ mɔ́
 CM-rice DEF SM-smell good
 ‘The rice smells good’

Generally, the sense of smell is considered as a weaker source domain for metaphorical extensions when compared to other sensory modalities (Viberg 1984, Sweetser 1990). Agyekum (2019) attributes the paltry and less-deeper metaphorical connections of the sense of touch to the fact that very few items can be smelled of

in the physical world. It is also considered more subjective among the senses because two people may have different evaluations if they smell the same object.

4.9 Chapter Summary

This chapter has presented a basic paradigm of Tafi verbs of perception. Following Viberg (1984), the study compartmentalized the verbs that express perceptual experiences and activities in Tafi into three semantic fields: activity, experience and copulative. The basic verb *nú* 'hear' which expresses auditory perception semantically extends to cover the sensory domains of touch and taste. The lexicalization pattern of *nú* (hearing, touch and taste) verbs in the *experience* domain points to a synesthetic relationship between the senses of hearing, touch and taste in the Tafi culture.

The chapter points out that the Tafi verbs that express perception extend to cover non-perceptual experiences and activities. The study revealed some pragmatic functions of perception verbs. The vision verb *dí* and the hearing verb *nú* are attention getting devices and evidential markers within the context of conversations.

CHAPTER FIVE

SUMMARY AND CONCLUSIONS

5.0 Introduction

The primary purpose of this study was to provide a detailed semantic and syntactic description of Tafi perception verbs using the cognitive semantics framework. The study looked at how the various sensory modalities are encoded in Tafi verbs and various syntactic structures in which the verbs occur. Some semantic and pragmatic information that the verbs convey were also examined. All things considered, the study sought to provide answers to the following questions.

1. How are the basic senses of vision, hearing, touch, taste and smell encoded in Tafi verbs?
2. What grammatical resources are available in Tafi for disambiguating senses which are lexically conflated in a single verb?
3. What semantic and pragmatic information do the basic perception verbs of Tafi have?

5.1. The Basic paradigm of Tafi Perception Verbs

The study shows that Tafi lexically differentiates the five basic sensory modalities. The only exception is the semantic domain of sensory experience where

spontaneous sensory of experiences of hearing, touch and taste are lexically conflated in the verb *nú*.

Syntactically, within the semantic class of *activity* and *experience*, the perceiver occurs at the subject position in Tafi clauses with the perceived entity (stimuli) located at the object position of the clause. In Tafi copulative constructions, the stimulus of perception is syntactically the subject of the verb. In some cases, the perceiver does not overtly show within the structure of the clause.

5.2 Transitivity of *Mɔ* ‘see’ and *Nú* ‘hear’

The study revealed that the sensory perception verbs *mɔ* ‘see’ and *nú* ‘hear’ are ambitransitive. That means they can occur in both transitive and intransitive constructions. When *mɔ* ‘see’ and *nú* ‘hear’ occur in intransitive constructions, the two verbs usually have their meaning shifted from physical vision to mental vision, that is from domain of sensory perception to the domain of cognition. When used transitively, *mɔ* ‘see’ and *nú* ‘hear’ may either have perception meaning or result in a transfield polysemy where physical perception is realized as mental /cognitive perception. When *mɔ* ‘see’ and *nú* ‘hear’ are used intransitively, the meaning always refers to mental perception. The data shows that cognitive information is received through the senses of vision and hearing in the Tafi culture. The verb *nú* is only realized in transitive clauses when it refers to the sensory domains of tactile and gustatory experiences. An object NP may usually be required after *nú* to differentiate the various sensory domains.

5.3 Complementizer Clauses

5.3.1 *Mɔ* 'See' / *Dwi* 'Appear'+ Complementizer Clause

The complementizer clauses of Tafi are introduced by the complementizer *sí* which occurs as argument of complement-taking verbs (CTVs). Structurally, the vision verbs *mɔ* 'see' and *ɲwí* 'appear' can be followed by complementizer clauses. The study shows that complementizer clauses of Tafi usually place semantic restriction on the sensory perception verbs by moving them from concrete domains to abstract domains. This phenomenon is known as "Mental Perception" of propositional content (Usoniene 1999:6) or "Indirectly Perceived Events" Horie (1993:15). According to the study, complementizer clauses that express mental perception can also pragmatically function as linguistic resources for making inferences. Inferences are used to make reasonable deductions based on circumstances available to the speaker. Some complementizer clauses may however have meanings related to physical sensory perception in some contexts.

5.3.2 *Nú* + Complementizer Clause

The verb *nú* takes a complementizer clause as a core argument. In this case, the complementizer *sí* introduces the complementizer clause and the verb *nú* may no longer express physical perceptual experience. When the verb *nú* is followed by a complementizer clause, an indication is usually given that the information contained in the complement clause is obtained through a hearsay. The structure of the VP in hearsay clauses is *Nú* + COMP clause. The structure appears to be a cross-

linguistic phenomenon as observed in Avatime (van Putten 2019) Ewe, Akan and English languages.

5.4 Visual and Auditory Effects in Complementizer Clauses

It was found out that *mɔ* ‘see’ and *nú* ‘hear’ have different degrees of implication when they occur in complementizer clauses. Comparatively, the information expressed by *mɔ* ‘see’ in complementizer clauses appear to present a relatively more reliable and authentic information than the hearing verb *nú* under the same circumstance. Thus, the impact of the hearing verb in complementizer clauses is weaker than that of the vision verb. This suggests that although the sensory domains of vision and hearing are connected to intellection, vision is the most reliable means by which information is obtained within the Tafi culture.

5.5 NP Object of Perception Verbs

It has been shown that the NP object of perception verbs distinguishes perception meaning from non-perception of the verbs. Depending on the NP object, perception verbs can extend their meaning beyond the scope of physical sensory perception. The vision verb *mɔ* ‘see’ for instance can take an abstract NP object as in *mɔ kibui* ‘see matter’, meaning is extended from the domain of physical perception to an abstract domain of cognition. *Mɔ* ‘see’ + NP object (concrete noun) structures however result in a sensory perception meaning of the verb. The hearing verb *nú*

in most cases can only take perception signals which are abstract. Some examples of these abstract perception signals are *kibui* ‘matter’, *ogùgù* ‘sound’, *òtùtíyí* ‘gunshot’ which may refer to physical sensory perception.

According to the study, Tafi lexically conflates the sensory experiences of hearing, taste and touch in the verb *nú*. The interesting question that arises is how speakers of the language are able to disambiguate meaning between the three sensory modalities. The study reveals that meaning is disambiguated by the semantic features of the percept object. For instance, in cases when *nú* refers to the sensory domain of hearing, the NP object is usually an abstract perception signal with the semantic feature [+ sound]. Within the sensory domain of touch, the percept object of *nú* has the semantic feature [+ sensation] and when *nú* refers to the sense of taste the percept object has the semantic feature of [+ edible].

5.6 Serialization of Perception Verbs

The study has shown that perception verbs occur serially in Tafi clauses. The verb of visual activity *dí* ‘look’ is one of the sensory perception verbs that occur in Tafi SVCs. It often occupies the final position in a series of perception verbs and it is structurally represented as ((v) + v + *dí*). The occurrence of *dí* ‘look’ in SVC final position gives an indication of a deliberate perceptual activity with the purpose of obtaining some information or knowledge. The verb expresses a cognitive activity of ascertaining or finding out something. The study therefore also associates the cognitive process of obtaining knowledge to the sense of sight in the Tafi culture.

5.7 Grammaticalization of the verb *dí*

It was found out that the Tafi verb *dí* 'look' has grammaticalized into a form that occurs at clause final position and indicates that the subject of a clause has experienced a situation. This grammaticalized form does not refer to physical sight but establishes a strong connection between physical vision and mental vision. If one experiences something, it means the person has perceived with the eye. Visual data therefore moves a person from the state of ignorance to a state of realization of self-knowledge and experience.

5.8 Non-Prototypical Meaning of Perception Verbs

The verbs of sensory perception extend their scope of meaning from physical perception to assume other meanings outside the domain of physical perception. The study shows that the sensory modalities of vision, hearing and touch are more productive in terms of meaning extension in Tafi than the senses of smell and taste. The verb *nú* is the most polysemous among the Tafi verbs of sensory perception.

5.9 The Pragmatics of perception Verbs

The study again shows that the verbs of sensory perception perform some functions within the context of social interaction. Some of these functions have been identified within the sensory domains of vision and hearing. The vision verb *dí* and the hearing verb *nú* are attention getting devices and evidential markers within the

context of conversations. This gives an indication that the richest sources of obtaining information in the Tafi culture is through the senses of vision and hearing.

5.9.1 The Pragmatics of the Vision Verbs Ðí and Mɔ

Some pragmatic functions of the vision verbs *qí* and *mɔ* have been identified in Tafi. The verb *qí* occurs in interjections that are used for issuing warning. This agrees with Sweetser (1990) that deliberate visual monitoring has been associated with the act of guarding keeping control. The Tafi data shows that the act of taking caution takes the form of visual attention that requires visual and mental monitoring of stimuli.

The vision verb *qí* ‘look’ is used among Tafi speakers to grab the attention of a listener in a conversation. The verb is usually used at the beginning of statements and its main pragmatic effect is to entreat a listener to pay attention. The visual experience verb *mɔ* ‘see’ appears nonfunctional as an attention seeker as only *qí* occurs in translated texts on the use of vision verbs as attention getters.

5.9.2 The pragmatics of Nú

Within interactional context, the verb *nú* has been identified to perform some pragmatic functions. *Nú* occurs in Tafi conversations to demand the attention of an

addressee. The study shows that for mental attention to be attained, a physical act of attentiveness is first required. The act of hearing with the ear denoted by the verb *nú* therefore translates into mental alertness.

The verb *nú* is used in Tafi to give evidential signals, as a linguistic phenomenon that indicates the speaker's source of information. The evidential marker in Tafi is deictic in nature. This means that in addition to their prototypical meaning, the verb can also in the context of usage indicate the source of information. Hearsay clauses which structurally take the form *Nú* + COMP can also signal indirect evidential meaning. This form of evidence is not directly witnessed by the speaker. Direct auditory evidence is also indicated by the verb *nú* in cases where the speaker receives the information by hearing the action involved.

5.10 Auditory perception as the basic form of Nú

The lexical conflation of *nú* across the sensory domains of hearing, touch and taste in Tafi establishes a synesthetic link among sensory domains. Viberg (1984:136) points out that "it is possible in most cases to establish a basic or prototypical meaning connected to one of the sense modalities". The study establishes hearing as the basic meaning assigned to the verb *nú*.

5.11 Possible Directions for Future Research

This study aimed at providing a detailed syntactic and semantic account of verbs that express sensory experiences. There are many linguistic aspects of the phenomenon that researchers can consider in the future for investigation. Future studies may look at other grammatical categories such as the adverbs that qualify perceptual experiences and actions. Another viable aspect for consideration is a crosslinguistic comparison of the Tafi paradigm of perception verbs to another Kwa language.

APPENDIX A

GRAMMAR OF PERCEPTION QUESTIONNAIRE

(Norcliffe et al. 2010)

1. Controlled activities

1.1 'want to know' frames (first person)

1.1.1 I went for a walk yesterday and saw something in the grass. It was a necklace. I wanted to know if it was valuable. I picked it up **and looked at it**.

1.1.2 My baby brother's heart was beating very fast. I wanted to know if he was sick. I put my head on his chest **and listened to it**.

1.1.3 My brother caught a baby rabbit yesterday and put it in a basket. I wanted to know how soft it was. I reached into the basket and **felt it**.

1.1.4 Yesterday I accidentally left the milk in the sun. I wanted to know if it was still good to drink. I poured some into a cup **and smelled it**.

1.1.5 Yesterday I made a pot of tea for my father. I wanted to know if it was sweet enough. Before I gave it to him, **I tasted it**.

1.2 'want to know' frames (third person)

1.2.1 John went for a walk yesterday and saw something in the grass. It was a necklace. He wanted to know if it was valuable. He picked it up **and looked at it**.

1.2.2 Mary's baby brother's heart was beating very fast. She wanted to know if he was sick. She put his head on his chest **and listened to it**.

1.2.3 Mary's brother caught a baby rabbit yesterday and put it in a basket. She wanted to know how soft it was. She reached into the basket and **felt it**.

1.2.4 Yesterday John accidentally left the milk in the sun. He wanted to know if it was still good to drink. He poured some into a cup **and smelled it**.

1.2.5 Yesterday Mary made a pot of tea for her father. She wanted to know if it was sweet enough. Before she gave it to him, **she tasted it**.

2. Non-controlled experiences

2.1 'Suddenly'-frames; first person statements and second person questions

2.1.1 My friend and I were sitting by the river when suddenly I saw a fish in the water.

I asked my friend: **“Did you see the fish?”**

2.1.2 Last night I was almost asleep when **suddenly I heard a scream**. Today I asked my

mother: **“Did you hear a scream last night?”**

2.1.3 My sister and I were sitting in the grass. **Suddenly I felt ants on my legs**. I asked

my sister: **“Do you feel ants on your legs?”**

2.1.4 I was cooking yesterday with my mother when **suddenly I smelled smoke**. I asked

my mother: **“Do you smell smoke?”**

2.1.5 My mother and I were eating soup. **Suddenly I tasted a piece of pepper**. I asked

my mother: **“Did you taste pepper in the soup?”**

2.2 'Suddenly'-frames; third person

2.2.1 John was sitting by the river when **suddenly he saw a fish in the water**.

2.2.2 Last night John was almost asleep when **suddenly he heard a scream**.

2.2.3 Mary was sitting in the grass when **suddenly she felt ants on her face**.

2.2.4 Mary was cooking yesterday when **suddenly she smelled smoke**.

2.2.5 John was eating a bowl of soup when **suddenly he tasted a piece of pepper**.

2.4 Third person questions

2.4.1 **Did he see the fish?**

2.4.2 **Did he hear the scream last night?**

2.4.3 **Did he feel ants on his legs?**

2.4.4 **Does he smell smoke?**

2.4.5 **Did he taste the pepper in the soup?**

3. Phenomenon-oriented descriptions

3.1 Positive valence; first person oriented

3.1.1 I was walking outside at night. There was a full moon in the sky. **It looked very beautiful.**

3.1.2 I went outside today. A bird was singing in the tree. **It sounded very beautiful.**

3.1.3 My mother gave me a new blanket. **It felt very cuddly.**

3.1.4 My mother had cooked a stew. She gave me some. **It smelled delicious.**

3.1.5 My mother had baked some bread. She gave me some. **It tasted delicious.**

3.2 Positive valence; third person oriented

3.2.1 John was walking outside at night. There was a full moon in the sky. **It looked very beautiful.**

3.2.2 Mary went outside today. A bird was singing in the tree. **It sounded very beautiful.**

3.2.3 Mary's mother gave her a new blanket. **It felt very cuddly.**

3.2.4 Mary's mother had cooked a stew. She gave some to Mary. **It smelled delicious.**

3.2.5 Mary had baked some bread. She gave some to John to eat. **It tasted delicious.**

Negative valence – third person oriented

3.5.1 There was an old dog in the village. John was scared of him. **He looked very ugly.**

3.5.2 John was at a party. A group of musicians was playing music. **The music sounded terrible.**

3.5.3 John got up in the night to get some water and accidentally stood on a centipede. **It felt horrible under his bare foot.**

3.5.4 John found a dead pig in the forest. It was covered with flies **and smelled disgusting.**

3.5.5 John was making soup. He accidentally put too much salt in it. **It tasted terrible** and he threw it away.

3.9 Property – third person oriented

3.9.1 Mary was sitting by the river. **The water looked very clear.** She could see the

stones on the bottom.

3.9.2 John could hear his parents in the room next door. **Their voices sounded very quiet** but he knew they were having an argument.

3.9.3 It was a sunny day and the little girl was playing outside with no shoes on. **The ground felt warm under her feet.**

3.9.4 Mary picked a flower and gave it to John. **It smelled very sweet.**

3.9.5 John was feeling sick. Mary gave him some tea. **It tasted bitter.**

3.11 Inferential

3.11.1 When my mother came home this afternoon **she looked sick**. (but she told me later that she felt fine).

3.11.2 This morning I talked with my sister. **She sounded sad** (but she told me later she was fine)

3.11.3 I picked a fruit. **It felt ripe, so I cut it open** (but actually it was still green)

3.11.4 I was thirsty and wanted to drink some water from the river. **It smelled safe** (but actually it made me sick)

3.11.5 I was hungry. I found some bread in the kitchen and I ate it. **It tasted old** (but my mother said that she had baked it this morning).

3.12 Phenomenon-oriented with overt experiencers

3.12.1 John and I were arguing about the colour of his shirt. **It looked red to me but John thought it looked orange.**

3.12.2 My sister and I were talking about my aunt. **She looked sick to my sister, but I thought she looked fine.**

3.12.3 My friend and I were talking about the music at the party. **It sounded loud to me but my mother thought it sounded too quiet.**

3.12.4 There was a bird singing outside our house. **It sounded beautiful to my mother but I thought it sounded unpleasant.**

3.12.5 My sister and I were thinking about swimming in the river. We put our feet in the water first because we wanted to know what it felt like. **It felt warm to**

me but my sister thought it felt cold.

3.12.6 My friend and I were talking about my new scarf. **It felt very soft to her but I thought it felt scratchy.**

3.12.7 I had just cooked some rice. **It smelled burnt to me but my brother said it smelled good.**

3.12.8 My mother had just cooked some meat. **It smelled delicious to my brother but I thought it smelled yucky.**

3.12.9 My sister and I were eating bread. **It tasted fresh to her but I thought it tasted stale.**

3.12.10 My mother prepared a special tea for my brother and me. **It tasted delicious to me but my brother thought it tasted terrible.**

Supplementary questions

1.3 'want to know' frames (third person)

1.3.1 John accidentally knocked a pot off the table. He wanted to know if it was cracked. He picked it up **and looked at it.**

1.3.2 There was a bird singing outside somewhere. He wanted to find it. John went outside **and listened to it.**

1.3.3 John's mother was weaving cloth. He wanted to know how soft it was. John leaned over **and felt a piece of it.**

1.3.4 John noticed a piece of fruit lying under the table. He wanted to know if it was rotten. He picked it up **and smelled it.**

1.3.5 John was cooking soup. He wanted to know if it needed more salt. **He tasted it.**

1.4 Imperative frames

1.4.1 **Look carefully at that pot.** Do you see the crack?

1.4.2 **Listen carefully to the music.** Do you hear the guitar?

1.4.3 **Feel his hand carefully.** Do you know who it is?

1.4.4 **Smell the fruit carefully.** Is it rotten?

1.4.5 **Taste the soup. Is it too salty?**

1.5 'Persuade' frames

- 1.5.1 **John persuaded his friend to look at the pot.**
- 1.5.2 **John persuaded his friend to listen to the music.**
- 1.5.3 **John persuaded his friend to feel the baby rabbit.**
- 1.5.4 **John persuaded his friend to smell the fruit.**
- 1.5.5 **John persuaded his friend to taste the soup.**

1.6 Why-frames

- 1.6.1 **Why did John look at the pot?** (Because he wanted to know if it was cracked)
- 1.6.2 **Why did John listen to the bird?** (Because he wanted to know where it was)
- 1.6.3 **Why did John feel the cloth?** (Because he wanted to know if it was soft)
- 1.6.4 **Why did John smell the fruit?** (Because he wanted to know if it was rotten)
- 1.6.5 **Why did John taste the soup?** (Because he wanted to know if it needed more salt)

'Suddenly'-frames; third person

- 2.3.1 John was walking through the forest. **Suddenly he saw a bright light in the distance.**
- 2.3.2 John was walking through the forest. **Suddenly he heard a noise in the trees.**
- 2.3.3 John was walking through the forest. **Suddenly he felt an insect on his arm.**
- 2.3.4 John was walking through the forest. **Suddenly he smelled smoke.**
- 2.3.5 John was eating a bowl of soup. **Suddenly he tasted a piece of hot pepper.**

Positive valence; first person oriented

- 3.3.1 My mother made me a new dress. I tried it on. **It looked very beautiful.**
- 3.3.2 I was at a party. There were some musicians playing music there. **The music sounded very beautiful.**
- 3.3.3 My mother had finished making a blanket. I picked it up. **It felt very cuddly.**
- 3.3.4 Mary had just baked a cake. She gave some to me. **It smelled delicious.**

3.3.5 Mary had just finished cooking soup. She gave some to me. **It tasted delicious.**

3.4 Positive valence; third person oriented

3.4.1 Mary made her sister a new dress. She tried it on. **It looked very beautiful.**

3.4.2 Mary was at a party. There were some musicians playing music there. **The music sounded very beautiful.**

3.4.3 Mary had finished making a blanket. John picked it up. **It felt very cuddly.**

3.4.4 Mary had just baked a cake. She gave some to John. **It smelled delicious.**

3.4.5 Mary had just finished cooking soup. She gave some to John to eat. **It tasted delicious.**

3.6 Negative valence – first person oriented

3.6.1 There was an old dog in the village. **I was scared of him. He looked very ugly.**

3.6.2 I was at a party. A group of musicians was playing music. **The music sounded terrible.**

3.6.3 I got up in the night to get some water and accidentally stood on a centipede. **It felt horrible under my bare foot.**

3.6.4 I found a dead pig in the forest. It was covered with flies **and smelled disgusting.**

3.6.5 I was making soup. I accidentally put too much salt in it. **It tasted terrible.**

Negative valence – first person oriented

3.7.1 I picked some flowers but accidentally left them in the sun all day. They wilted **and looked very ugly.** I threw them away.

3.7.2 My sister tried to sing for me but she had a sore throat. **She sounded terrible.**

3.7.3 A sick dog walked into our house yesterday. It vomited in our kitchen. I had to clean it up. **It smelled disgusting.**

3.7.4 I found a dead rat in my house. I had to pick it up and throw it outside. **It felt horrible.**

3.7.5 I tried to make bread yesterday. I baked it too long and it burnt. **It tasted terrible and I had to throw it away.**

3.8 Negative valence – third person oriented

3.8.1 Mary picked some flowers but accidentally left them in the sun all day. They wilted **and looked very ugly**. She threw them away.

3.8.2 Mary's sister tried to sing for her but she had a sore throat. **She sounded terrible**.

3.8.3 A sick dog walked into Mary's house yesterday. It vomited in the kitchen. She had to clean it up. **It smelled disgusting**.

3.8.4 Mary found a dead rat in her house. She had to pick it up and throw it outside. **It felt horrible**.

3.8.5 Mary tried to make bread yesterday. She baked it too long and it burnt. **It tasted terrible** and she had to throw it away.

3.10 Property – first person oriented

3.10.1 Yesterday I walked to the river. **The water looked very clear**. I could see fish under the surface.

3.10.2 My friends were practicing a song in front of me. **Their voices sounded very quiet**. I told them to sing louder.

3.10.3 It was very hot today. In the afternoon I sat down outside and took off my shoes. **The ground felt warm under my feet**.

3.10.4 My little sister picked a ripe fruit from the garden and gave it to me. **It smelled very sweet**.

3.10.5 I had a bad cough. The doctor gave me a special herb. **It tasted bitter**.

4.1 Contrasting modalities (experiencer-based)

4.1.1 My sister was hiding somewhere outside. **I heard her but I couldn't see her**.

4.1.2 Somebody kicked a ball at me. **I didn't hear it, but I felt it** (it hit me on the head!).

4.1.3 I was sick. My mother put some medicine in my mouth. **I felt it on my tongue**

but I didn't taste it.

4.1.4 I was in the forest and knew there was a wild pig close by. **I didn't hear it, but**

I could smell it.

4.1.5 My friend asked me if I could smell the pepper in the soup. **I told him I**

couldn't smell it but I could taste it.

4.2 Contrasting modalities (phenomenon-oriented)

4.2.1 **The woman looked old but she didn't sound old** (e.g. when she spoke).

4.2.3 **The fruit felt ripe but it didn't taste ripe.**

4.2.4 **The vegetable tasted fresh but it didn't feel fresh.**

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