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Inflection and Derivation in Guarijio:

A continuum approach

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"El saber de mis hijos hará mi grandeza"

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Como miembros del comité de evaluación de tesis, certificamos que hemos leído y aprobado la versión final de la tesis realizada por Nancy Maribel Ruvalcaba Garfias, titulada “Inflection and derivation in Guarijio: a continuum approach”.

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ABBREVIATIONS

~	Reduplication	DEON	deontic
1	first person	DES	desiderative
2	second person	DEVRB	deverbal
3	third person	DIM	diminutive
A	Agent	DIR	directional
ACC	Accusative	DS	different subject
ABS	Absolutive	EMPH	emphatic
ADJZ	Adjectivizer	ERG	ergative
ADVZ	Adverbializer	EV	evidential
ANPH	Anaphoric	FEM	femenine
ANT	Anterior	FUT	future
APL	Aplicative	FV	final vowel
BEN	Benefactive	GEN	genitive
CAUS	Causative	HAB	habitual
CL	Classifier	INDEF.PRON	Indefinite pronoun
COM	Commitative	IMP	imperative
COND	conditional	IMPFV	imperfective
DAT	Dative	IMPFT	imperfect
DEM	demonstrative	INST	instrumental
DENOM	Denominal	INTENS	Intensifier

INTERR	Interrogative	PRS	present
ITER	Iterative	PST	past
LOC	Locative	PST.PTCP	past participle
M	Masculine	PURP	purpose
NEG	Negative	R	recipient
NMLZ	Nominalizer	RECP	reciprocrate
NOM	Nominative	REDP	reduplication
NREF	non-referential	REM	remote
NS	non-subject	REFL	reflexive
O	Object	RPT	reportative
OBL	Oblique	S	subject
P	Patient	SEQ	sequential
PASS	passive	SG	singular
PFV	Perfective	SM	subject marker
PL	Plural	SUB	subordinator
POSS	Possesive	STAT	stative
POT	potential future	T	theme
PROG	progressive present	TRVZ	transitivizer
PRON	Pronoun	VBLZ	verbalizer
PROX	Proximate	WIT	witnessed

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INTRODUCTION

This thesis provides a theoretical discussion concerning the three approaches that have been suggested by linguists regarding derivative and inflectional morphology. These approaches refer to the relation between derivation and inflection.

To begin with, the *dichotomy approach* makes a clear-cut distinction between derivation and inflection. Under this approach, a set of criteria have been suggested to identify the morphemes that belong to each category. This approach has failed to enclose those instances in which the morphemes do not fit exclusively to derivation, or inflection. Instead, these morphemes are considered exceptions, or particular cases. As a response to the dichotomy approach's inability to clear up these deviations, two more approaches have been suggested.

Booij (1996) suggests the *tripartition approach*, which provides a solution for those morphemes that do not fit perfectly within the inflectional category. The tripartition approach divides inflection in two different categories (i) contextual inflection, and (ii) inherent inflection. The prototypical inflectional morphemes are classified within the contextual approach, wheares the morphemes that show inconsistency are classified

under the inherent inflection. The main issue with this view is that the derivative affixes that have an inconsistent behavior are not taken into consideration.

The *continuum approach* also provides a solution for those instances that do not fit perfectly within the derivation and inflectional categories. This approach has been suggested by Bybee (1985), Haspelmath (2002), and Bauer (2003). This view does not make clear-cut categories. The approach considers the inflection-derivation relation as a scale with no borderline between them. Inflection is on one end of the scale, while derivation is set on the opposite end. The morpheme's derivational and inflectional overlapping features will only place them along the continuum. This way the terms of exception or particular case are avoided. As a matter of fact, this overlapping will only give us a better understanding of the morphemes' behavior.

The approach that is being used in this thesis is the continuum approach. Four Guarijio's morphemes are being analyzed under this approach (i) the nominalizer *-me*, (ii) the inchoative *-pa/-ba*, (iii) the applicative *-e/-re*, and (iv the verbalizer *-e*. The morphemes that are analyzed have been carefully chosen to give a general view of the morphemes' varying nature. It will be noticed along this paper that these are not the only morphemes of Guarijio that can be analyzed under this approach. On the contrary, I believe that every morpheme in Guarijio, and any other language, can be analyzed under this approach. The morphemes have been chosen based on their varying nature. These affixes show an overlapping behavior due to their semantic and syntactic relevance (see§ 3.1.4.4).

I consider that this approach can provide a better insight into their morphological analysis. Most grammatical descriptions still use the dichotomy approach to describe the morphemes that are found in the world's language. After exploring the morphemes from a continuum scope, I consider that this perspective can give us a deeper analysis of the morphemes that are being analyzed.

Within this paper four major chapters are contained. To begin with, chapter § 1 offers a brief description of the ethnographic information of the Guarijio community and its language. Subsequently § 2 provides a general view of Guarijio's linguistic features. Moreover, § 3 is centered on the theoretical framework. It holds information regarding the basic concepts of morphology and a thorough explanation of the three morphological approaches of the relation between derivation and inflection. The final chapter, §4 holds the core analysis of Guarijio's morphemes.

Previous Studies in Guarijio

Guarijio's language has been described previously by various authors. The well-known work of Wick R. Miller consists of two different linguistic texts (i) *Guarijío de Arechuyvo, Chihuahua* (1993), and (ii) *Guarijío: gramática, textos y vocabulario* (1996). The first text consists of a brief description of the language's phonology, and syntax. In addition to the linguistic description, it contains a lexical inventory of Guarijio. Additional, in 1996 Wick Miller extended his language's study. As it can be inferred by the title, this paper includes an extended grammatical study that includes (i) phonological

features, (ii) Morphological and syntactic description. It also includes 15 discursive texts and an extended versión of the previous lexical inventory.

Another author that spent his linguistics studies on Guarijio was Rolando Félix. His most extensive work in Guarijio is *A Grammar of River Warihío*[1]. This work consists on a general description of the language. It includes an overview of the language's phonology, morphology and syntax. Additionally from this grammatical study, Rolando Félix has two more papers regarding the Guarijio language (i) *Causation in Warihio* (2004), and (ii) *What is Passive? The case of Yaqui and Warihío.*

Isabel Barreras has dedicated plenty of her linguistic investigations to the Guarijio language, (i) *Esbozo grammatical del guarijío de Mesa Colorada* (1991), (ii) *Estructuras resultativas en guarijio* (1996), (iii) *Clasificación semántica de los verbos en guarijío* (1996), (iv) *La lengua guarijío de Mesa Colorada, Sonora: Estudios sociales. Región y etnia makurawe* (1996), (v) *El sistema de posesión en el guarijío de Sonora* (1997) (vi) *Estado actual de los estudios sobre la lengua guarijío* (2001), (vi) *Toponimia y expresiones de de locación en el guarijío de Sonora, and* (vii) *Makeráwe Nawésari: Textos del guarijío de Sonora* (2014).

Another linguist that has spent her linguistic study on the Guarijío language is Ana Aurora Medina. She presented her master's dissertation *Diccionario morfológico: Formación de palabras en el guarijío* (2002). As a result of her academic work, she put together a morphological and lexical dictionary of Guarijío called *Diccionario Léxico-*

[1] Some texts in English use this ortographic variant for *Guarijio.*

morfológico del Guarijío (2011) which, as it may be inferred by its title, contains entries of lexemes and morphemes.

My contribution to the Guarijio language is to provide an insight to the Guarijio's morphology. The affixes in Guarijio, as it can be noticed above, have been described previously. Nevertheless, the approach to its morphology, as many other studies, has a dichotomic inclination. My intention is to describe its morphology through the continuum approach. I believe this perspective can help describe the morphemes more accurately.

Methodology and Fieldwork

The data used in this thesis was gathered through elicitation. The linguistic information that was investigated was very specific, especially with prototypical derivative morphemes. I considered that the best way to obtain these linguistic elements was through elicitation.

The recording was made with a Marantz professional PMD661 recorder. The data was glossed, transcribed, and translated on Word. The translation and glossing was made by me with the help of my collaborator, Antonio Casavantes.

The fieldwork was made in Chihuahua, Chihuahua. The collaborator is a 66 year old man from La Finca, Chihuahua. The speaker is bilingual. His mother tongue is Guarijío and his second language is Spanish.

In addition, second-hand data was also used. My thesis advisor, Manuel Peregrina, provided me with this data. It belongs to the to a larger proyect called *tipología*

intragenética y diversidad tipológica en las lenguas del tarahumara. The proyect was accepted by the *Consejo Nacional de Ciencia y Tecnología* (CB-2013-220328). The text that was glossed, transcibed, and translated is called 'El noviazgo de la abuela' (Grandma's romance).

Apart from these data I also used some data from previous studies (i) Medina (2011), (ii) Félix (2007), and (iii) Miller (1996).

CHAPTER 1

THE GUARIJIO PEOPLE AND THEIR LANGUAGE

This first chapter has the purpose of giving a general insight into the Guarijio's community and language. The sections of this chapter are divided in three main sections. To begin with, §1.1 gives us a brief insight to the Guarijios' history. Subsequently, § 1.2 offers information about the settlements of the Guarijio people. Finally, § 1.3 describes the linguistic family to which Guarijio belongs to.

1.1 History

Barreras (2014) mentions that the historical information of the Guarijio community is, in fact, very scarce. No record of the pre-Columbian social organization of the Guarijíos is available (Yetman, 2002).

The community used to occupy the Chinipas highlands in the state of Chihuahua. This was when the Jesuits first arrived to the territory, in the late sixteenth century. By 1628, the Jesuits had created *Nuestra Señora de Huarojíos* mission in a place called Tajírachi. As a consequence of the Jesuits' efforts to evangelize them, the

Guarijio People rebelled, and escaped to the mountains (Cano de Ávila as in Barreras, 2014:14).

Félix (2007) provides and interesting fact regarding the rebellion of the Guarijios against the Jesuits. An incident took place in the 1630's. The Guarijío People killed two missionaries (Félix, 2007:1). Yetman (2002:27-28) adds that this rebellion was made by the Guarijios in alliance with the Guazapares (an neighboring indigenous group). As a consequence of this assault, the Spaniards avenged the Jesuits' deaths. The military killed eight hundred Guarijios and Guazaparez, and captured women and children to send them to the Sinaloa missions (Yetman, 2002:28). As a result, the Guarijios and Guazapares fled to the Chihuahuan mountains (Yetman, 2002).

A century later, in 1767 the Jesuits were expelled from New Spain. This permitted the return of a group of Guarijios to their homeland; this is the group of Guarijios that live on the Sonoran. The Guarijíos settles along the Mayor River in the towns of Álamos and El Quiriego (Barreras, 2014:14).

1.2 Settlements

There are two Guarijio dialects that have been identified, the Guarijio from the mountain range of Chihuahua and the Guarijio from the Sonoran River. According to Miller (1996:21), the dialect spoken on the mountains of Chihuahua is located east from the town of Uruachi, some speakers live north, in the town of Moris; some south, in the town of Chinipas; and some others live on the outskirts of Areychuvo. As stated by Félix

(2007:1), the communities that speak the dialect from the Sonoran River live among *mestizos* in the communities of La Sierra Colorada, Bavícora, and Guajaray.

INEGI (2015) has registered 2,088 speakers of guarijío: 1,022 women, and 1,066 men. No distinction is made between the speakers of each dialect. The Guarijío settlement map is shown below:

Map 1. Guarijios' Settlements (INALI, 2018)[2]

1.3 Genealogical Relationship

Guarijio is a language that belongs to the linguistic family of the Uto-Aztecan languages. It forms part of the Taracahitic branch (Miller, 1996:21). The Uto-Aztecan languages are divided into two groups, the Uto-Aztecan languages of the north and the Uto-Aztecan languages of the south (Campbell, 1997:134):

[2] Instituto nacional de los pueblos indígenas/INALI (2018). Atlas de los pueblos indígenas de México. p.http://atlas.cdi.gob.mx/?page_id=4439.

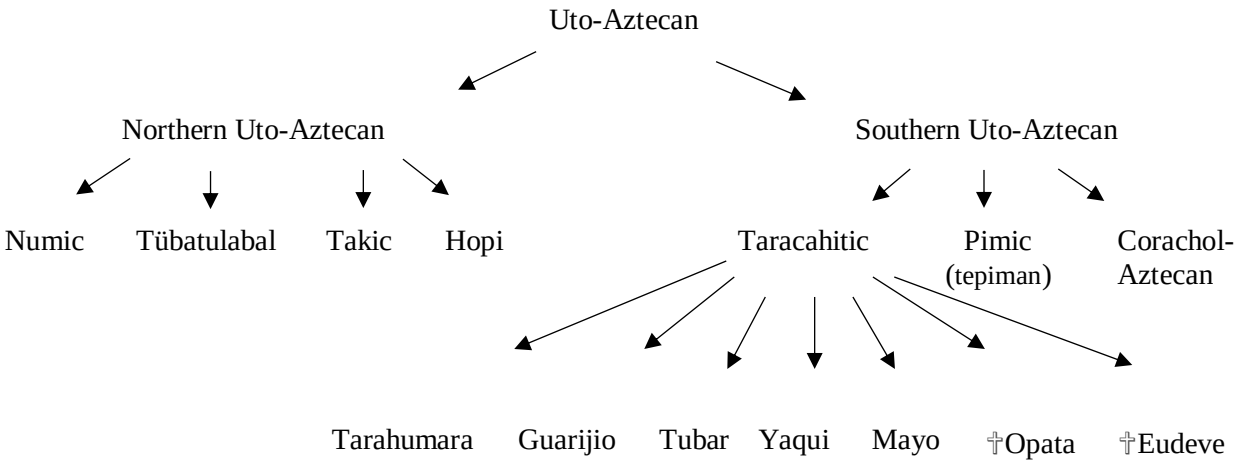


Figure 1. Uto-Aztecan Linguistic Family

Tarahumara and Guarijío form a pair of languages, from the Taracahitic languages, that are very closely related (Miller, 1996:21). "The Tarahumaras live on the mountains, and the canyons east and south from the Guarijios" (Miller 1996:21). "The Guarijios of the mountains live in the *Rancherías de Quince Casas.* There are some *rancherias* north the Mayo River, but most of them live in the mountains, between the river (north) and Loreto (south)" (Miller, 1996:21-22).

CHAPTER 2

GUARIJIO'S MAIN TYPOLOGY FEATURES

In this chapter I provide a general description of the language. I will describe what has been stated concerning its phonology (§2.1), morphological typology (§2.2) and alignment system (§2.3). Each section contains the following information:

i. Phonology §2.1 presents a description of the consonants and vowels inventories, which have been suggested by previous authors.

ii. Typology §2.2 is divided into two main sub-sections. The first one, §2.2.1, focuses on the very well-known morphological typology. In order to describe Guarijio under the indexes of synthesis and fusion (§2.2.1.3), the subsections §2.2.1.1 and §2.2.1.2 will be dedicated to explaining each of the indexes for a better understanding. The second one (§2.2.2) focuses on the morphological marking of Guarijio. In order to do so, §2.2.2.1 – §2.2.2.4 will be dedicated to explaining the types of markings that can be found in the world's languages. Subsequently, in §2.2.2.5 two types of morphological markings are described in Guarijio: (i) marking in possessive phrases, and (ii) marking in simple clauses.

iii. Alignment system §2.3 focuses on two different types of constructions: (i) transitive clauses, and (ii) ditransitive clauses. The former is centered on the

marking of the core arguments of the transitive clause: subject, agent, and patient. The latter focuses on the marking of the core arguments of the ditransitive clause: patient, theme, and receptor. This analysis describes the marking of the noun phrase and the pronominal system in Guarijio.

2.1 Phonology

The phonological inventories of Guarijio proposed by the authors that were consulted for this paper vary slightly. Félix (2007) and Barreras (2014) suggest an inventory of 12 consonants and 5 vowels. As can be seen on the following charts:

	bilabial	alveolar	retroflex	palatal	velar	glottal
Plosive	p	t			k	ʔ
Fricative				tʃ		
Affricate		s				h
Nasal	m	n				
Vibrant		ɾ				
Lateral						
Approximant	w			y	(w)	

Chart 1. Felix (2007) and Barreras' (2014) Consonants Inventory

	front	central	back
Close	i		u
Close-mid	e		o
Open-mid open		a	

Chart 2. Felix (2007) and Barreras' (2014) Vowels Inventory

In contrast to Felix and Barreras, Miller (1996) considers an inventory which includes 16 consonants. The vowel inventory is exactly the same (see chart 2).

	bilabial	alveolar	Retroflex	palatal	velar	Glottal
Plosive	p b	t			k g	ʔ
Affricate				tʃ		
Fricative		s		ts		h
Nasal	m	n				
Vibrant		ɾ				
Lateral		l				
Approximant	w			y	(w)	

Chart 3. Miller's Consonants' Inventory

It is relevant to point out that Felix and Miller studied different variants of Guarijio. Miller (1996) describes the variant spoken in Chihuahua, while Felix (2007) details the variant spoken in Sonora. The main difference between the proposed inventories is that Miller (1996) considers that the plosive sonoran consonants [b], and [g] are part of the language's phonemes, and Félix (2007) does not.

2.2 Typology

The purpose of this chapter is to describe Guarijio's type of morphological marking under a typological perspective. Now it is of relevance to define the concept of typology. The following definitions are made by some of the linguists that make typological studies:

> "The approximately 6,000 languages spoken on this planet differ from one another in many ways. And yet there are limits to this diversity, and within the diversity it is possible to discern certain regular patterns and to formulate certain generalizations.

> Such regularities within cross-linguistic variation and such limits of the observable variation are the subject matter of language typology and the study of universals" (Haspelmath et al., 2001:v).

> "Despite the differences among them there must be certain properties whereby the languages of the world are all recognized as falling into the category of human languages - perhaps an obvious point to make. There must, therefore, be an underlying unity to human languages. There are linguists who are concerned directly with discovering this unity by studying the rich structural variation found in the languages of the world. These linguists are known as *linguistic typologists*, or *typologists* for short" (Jung, 2001:2).

Under Jung's (2001) view, typology and the study of universals are grouped together as one. However, Haspelmath et. al (2001) point out that these are two different kinds of studies. Still, the authors consider that they necessarily converge:

> "Language typology and the study of language universals are concerned with the diversity of human languages from different, but complementary points of view. Language typology tries to uncover the patterns of variation and to identify the different language types that exist. The study of language universals tries to find universally valid, basic principles which hold for all languages" (Haspelmath et al, 2001:v).

To sum it up, typology is concerned with uncovering the linguistic diversity and classifies it in a number of patterns. The parameters for determining the types of languages can be morphological, syntactic, phonetic, or phonological. These

classifications depend on the number of similarities and differences that can be found in a considerable number of languages. The comparative process must be made carefully. Comrie (1988) shows that languages may have similar properties for different reasons: (i) they descend from the same language (linguistic families), (ii) they are, or have been in contact, or (iii) they share a property transmitted by the general characteristics of human language. Not identifying the type of relation between languages has caused historically erroneous conclusions. Comrie (1988) mentions the following instances:

Case 1: Armenian was classified as an Iranian language because its vocabulary holds similarities to this branch. It was erroneously considered to be genetically related to the Iranian family. Naturally, they have always been in contact, and linguistic borrowings took place, thus the current classification is areal.

Case 2: Uralic languages were classified within the same genetic family as the Turkish languages because of their similarities in patterns of word order. However, these patterns were not shared because of genetic relationship or language contact. They are only related because of their typological characteristics.

As mentioned above, the study of universals intersects with the study of typology. To find the universal patterns that are similar among the world's languages, it is necessary to compare them, just as it is necessary on typology studies. Therefore, both studies require the analysis of a significant number of languages to compare. Both studies are in search of similarities between languages. The distinction relies on the fact that

typology also looks for a classification by determining the differences between languages.

This chapter is divided into two sections: classical morphological typology (§2.2.1), and head-marking vs. dependent-marking (§2.2.2). Each of these sections is divided in subsections. Classical morphological typology (§2.2.1) is divided in three subsections: the theoretical explanation of the index of synthesis (§2.2.1.1), the theoretical explanation of the index of fusion (§2.2.1.2), and (iii) the Guarijios analysis under the index of synthesis and the index of fusion (2.2.1.3). The section of head-marking and dependent-marking (§2.2.2) is also divided in five subsections: The classification of languages regarding their type of marking (§2.2.2.1-2.2.2.4), and the Guarijio's analysis of morphological marking in simple clauses and possessive constructions (§2.2.2.5).

2.2.1 Morphological Typology

The classification of languages based on their morphology has been made since the nineteenth century considering the differences within the internal structure of the word (Aikhenvald, 2007: 3). Morphological typology makes a distinction between two parameters:

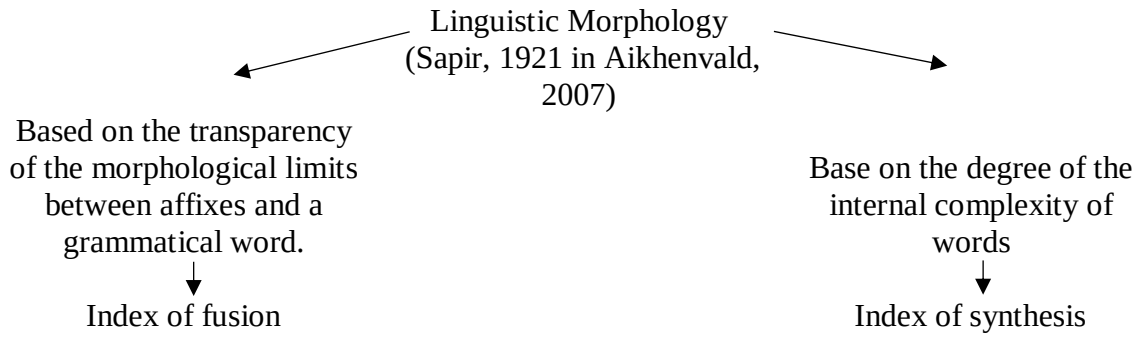


Figure 2. Linguistic Morphology's Parameters

The two types of morphological indexes will be explained in the following sections.

2.2.1.1 Index of Synthesis

To give a better explanation of the index of synthesis Whaley (1997:128) considers that it should be conceptualized as a continuum. On one of the ends of the continuum we can find the isolated languages, whereas on the other end we can find the synthetic languages. The author defined the isolated languages as those that are characterized by the fact of having monomorphematic words. On the other hand he describes synthetic language as those in which a complete clause can be formed by adding affixes to the root. The following illustration shows the index of synthesis under the continuum view:

Figure 3. Index of Synthesis. Adapted material from Whaley (1997)

An example of an isolated language is Vietnamese:

(1a) chị ây quên
s/he ANPH forget
'She (or he) forgets', or 'She (or he) has forgotten', or 'She (or he) will forget'

(Aikhenvald, 2007: 3)

Aikhenvald (2007: 3) mentions that the word order is very rigid. We can also observe that there is no tense marker either. Actually, the interpretations of the same construction may be present, past, or future. The author points out that tense is only interpreted depending on the context. Even in those instances where tense appears in the construction, there is no bounded morpheme. In this constructions time is expressed by a free form:

(1b) chị ây **đã** quên
s/he ANPH ANT forget
'She (or he) has forgotten'

(Aikhenvald, 2007: 3)

Aikhenvald (2007) mentions that the aspectual marker 'anterior' means that what has been expressed happened before the enunciation. However, Whaley (1997:129) considers that there is no language that is totally isolated. For instance, in Vietnamese we may find lexicalized composition (Aikhenvald, 2007: 3):

(2)
a. hôm nay (day now) 'today'
b. hôm kia (day that) 'day before yesterday'
c. hôm kía (day that; more remote that kia) 'two days before yesterday'

We may observe on examples (2a) and (2b) that Vietnamese has a tonal system. Whaley (1997:130) mentions that even though it seems tempting to conclude that isolated languages are also tonal languages, it is possible that we are taking a precipitated deduction. Other isolated languages that also have a tonal system are Yay and Mandarin Chinese. The issue relies in the fact that Vietnamese, Yay and Mandarin Chinese are languages that are in contact, this could be product of an areal classification, and not a characteristic of isolated languages. Moreover, Whaley (1997) considers that isolated languages have the following characteristics: they have serial verbs and their word order is very rigid.

On the other end of the continuum we find the synthetic languages. Whaley (1997:131) describes them as languages that have a very abundant morphology in word construction. The following example is Barawana (Arawakan Language from Venezuela):

(3) **nu**-khniiiani **hme**-muduka-**na-ka** bi babuka Varela abi
1P-people 3P-kill-PFV-SEQ you around Varela with
'My people shot at you because of Varela

(Aikhenvald, 1995 in Whaley, 2007:131)

The author points out that synthetic languages tend to mark tense, aspect, mode, Agreement, valency changes, etc. In the example above (3) we may observe pronominal and aspect markers.

It is relevant to point out that there are languages that are positioned on the limits of this end of the continuum. These languages are called polysynthetic languages. Their

characteristic is to form complete clauses with affixation and incorporation (Whaley, 2007:131), for instance Tiwa (Tanoan Language, New Mexico):

(4) ti-khwian-mu-ban
1SG-dog-see-PST
'I saw a dog'

(Whaley, 2007: 131).

Incorporation can be observed in the union of the two roots *khwian* 'dog' y *mu* 'see'. Whaley (1997:131) mentions that incorporation is formed in a very similar way as composition but they are different processes. While composition is a lexicogenetic mechanism, i.e. it creates new lexemes; nominal incorporation is a syntactic mechanism, it's a productive process and it does not produce new conceptual references. The mechanism of nominal incorporation consists in the fact that one of arguments of the clause is combined with the verb to form a predicate (Jung, 2001: 187).

Another characteristic of polysynthetic languages is that they have very complex agreement systems (Whaley, 2007:132). The following example of Tiwa (Nuevo México) illustrated this feature:

(5) 'u-ide **tow**-keuap-wia-ban
child-A **1S:C:A**-shoe-give-PST
'I gave the shoes to the child.

(Whaley, 2007:132).

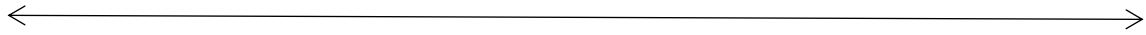
The *portmanteau* morpheme *tow-* agrees with three grammatical features of the subject. Whaley (1997) describes it the following way: (i) first the agreement morpheme of subject 1S, (ii) the same morpheme refers to the classification of the direct object based

on animacy and number (in this case A), and (iii) it agrees with the classification of the indirect object (in this case A). This characteristic has as a consequence that if any of the arguments has a different class the accumulative morpheme will change.

In the following chapter I will define the morphological characteristics that are typologically classified under the index of fusion.

2.2.1.2 Index of Fusion

As the index of synthesis, the index of fusion may be represented by a continuum scale (Whaley, 1997:133). As Figure 4 shows, on one of the ends we are able to find the prototypical agglutinative languages, whereas on the other end we are able to find the prototypical fusional languages:



Agglutinative Fusional

Figure 4. Index of fusion. Adapted material of Whaley (1997)

Whaley (1997:133) mentions that the characteristic of the morphemes of an agglutinative language is that they are easily segmentable. In a language of this type each morpheme corresponds to a single meaning. Therefore, it is relatively easy to tell morphemes apart. An example of agglutinative languages is Swahili (Niger-Congo Language of Tanzania):

(6) unyoya u- me- kat -w -a
feather 11SM-PFV[3]-cut-PASS-FV
'A feather has been cut.'

(Yusuf, 2014:10).

[3] The original text contains the abbreviation for *perfect* as PERF. It has been modified in this text to homogenize the abbreviations of the document.

It is possible to separate each morpheme and to identify a single meaning to all of them:

u-	subject marker: class 11 nouns ‘of mass’ (Inalienable)
me-	perfect
-w	passive
-a	final vowel (there is no grammatical gloss)
kat	verbal base ‘to cut’

Chart 4. Morphological Analysis

On the other end of the index of fusion we may find the fusional languages. Whaley (1997) and Aikhenvald (2007) define fusional languages as those in which it is not easy to find the morphematic limits. This characteristic is due to the fact that these morphemes tend to unite or merge in a single form. In other words, the same affix may have more than one meaning. This type of morphemes is called *accumulative morphemes* or *portmanteau morphemes.* The following examples are from Modern Hebrew:

(7)

a.	šamar-ti	b.	ʔe-šmor
	Guard.PST-1SG.PST		1SG.FUT-guard.FUT
	‘I guarded’		‘I will guard’

(Orin Gensler in Bickel y Nichols, 2013b)

In the examples above we may observe that both the root and the affix have a complex morphology. The affixes have one form for the grammatical morphemes number, person, and tense:

-ti	Tense: past Number: singular person: 1st
ɾe-	Tense: future Number: singular Person: 1st

2.2.1.3 Morphological Typology in Guarijio

Throughout this chapter I will describe Guarijio under the index of synthesis (see chapter 2.2.1) and the index of fusion (see chapter 2.2.2). First I will analyze the language under de index of synthesis. The following examples in Guarijio can help us describe its behavior:

(8)

a. ihí kučala kuʔu netere-ma iʔka lo~loa-me
DEM.PROX spoon stick need-FUT DEM.PROX.NS ITER~mix.food-NMLZ

koʔ~ká-yame
PL~eat-NMLZ
'This stick-spoon will be needed for food mixing'

b. Ihí hosé wiči-re=ma iʔka eskalera-či
DEM.PROX Joseph to.fall.down-REM.PST=CIT DEM.PROX.NS ladder-LOC

oa=ma kahpo-re seka-la waʔa matala-či, ehpío
only=CIT break-REM.PST hand-ABS there palm-LOC today

waʔama koʔkore-na
there.in.a.specific.place to.hurt-PROG.PRS
'Joseph fell down from the ladder, he only broke (in) the palm of his hand and today it hurts'

c. ahpó novia-wa peníri-me ine-ré
3.SG.S girlfriend-POSS to.be.pretty-ADJVZ to.be-PAS.REM
'(someone's) girlfriend very pretty'

If we take a look at the previous examples we may notice that Guarijio presents a very rich morphology. In examples (8a-c) we can observe various types of morphemes:

i) Bounded affixes: tense: *-re* 'remote past' *-ma* 'present' and, *-na* 'progressive present' (which includes aspect); non-nuclear case markers: *-či* 'locative', and *-wa* 'genitive' class changing derivation: *-me* 'deverbal adjectivizer' *-me* deverbal nominalizer; and absolutive marker *-la*.

ii) Clitics: *=ma 'citative or reportative'* and pronominal clitics: *=ne* '1SG.S.

We may also observe that the language has Reduplication as 'plural' in (8a). Reduplication in verbs can refer to three different meanings: iterative, durative, or plural. It is also used as plural in nouns.

Therefore we may conclude that Guarijio is a synthetic language:

Figure 5. Guarijio under the Index of Synthesis

The previous Illustration does not pretend to show the exact spot where Guarijio is positioned along the continuum. The representation's sole purpose is to visually reflect the language's tendency.

Since Guarijio shows that it does have a complex morphological system, we are able to analyze it under the index of fusion. The following examples show the behavior of the language:

(9)

a. ihí ihpedro koči-pa-re-ma waika ihuan
DEM.PROX Peter to.sleep-INCH-REM.PST=CIT that.time John

iʔka pawí toʔe-ru-či
DEM.PROX.NS water to.pour.on.someone-WIT.PST-LOC

'Peter started to fall asleep where they baptized John (lit. Peter started to fall asleep where they poured water on John)'

b. ihí ihuana=ga ahpo tepu-ri-či waʔa tono-či
DEM.PROX huana=EMPH 3SG.NS to.cut-NMLZ-LOC there foot-LOC

tahtci-na-ga=bogo waʔiká mačena-ra=ga=bogo nati
to.press-TRVZ-PST=RPT then come.out-REM.PST=EMPH=RPT thing

pehsoni
pus

'Juana pressed the wound on her foot and pus came out' lit:'Juana pressed on the cut on her foot and then a thing, pus came out.'

c. ihí huan=ga wehči=má=boga íhpe-re waʔama
DEM.PROX john=EMPH floor=CIT=that.one to.lie-REM.PST there

koči-pa-re eʔego
to.sleep-INCH-PAS.REM then

'John laid there on the floor and then fell asleep'

We are able to observe that the morphematic segmentation in Guarijio is very clear, i.e. we can see that regularly each morpheme corresponds to a single meaning. For instance in example (9a) we may clearly see the limits between the witnessed past *-ru,* and the locative *-či* in toʔe- 'to pour on someone', and the inchoative aspect *-pa,* and the remote past *-re* in *kočі-* 'to sleep' (which may also be observed in 9a). Likewise, we can see in example (9b) that the nominalizer *-ri,* and the locative have very clear frontiers *-či* in *tepu-* to cut; or the transitivizer *-na,* and the past *-ga* in tahtci- 'to press'. However, it is

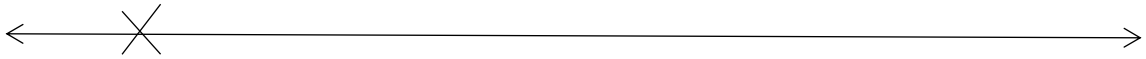
relevant to remind ourselves that, typologically, languages are not strictly classified, this is why we may observe their behavior within a continuum. Therefore, in some occasions we might find some characteristics of a language that does not fit perfectly in a prototypical fusional language or a prototypical agglutinative language. For instance, in Guarijio even though we find morphemes that are easily segmentable and their morphematic limits are easy to identify, we can also find morphemes that do not necessarily comply with these features:

(10) Ihí huani=ma čani-na koʔkore-na-ne sula-či

DEM.PROX John=CIT decir-**PROG.PRS** to.hurt-**PROG.PRS**-APL heart-LOC

'John says that his chest is hurting'

The suffix *-na* is a single form with two functions 'present tense' and 'progressive aspect'. This does not imply that Guarijio is a fusional language. This fact only shows that languages do not find strictly classified dichotomically into agglutinative o fusional languages. This is precisely what is shown through a continuum view of morphological typology. Nevertheless, because of the general characteristics of Guarijio we are able to conclude that its tendency under the index of fusion is agglutinative, due to the fact that the majority of its morphemes are easily segmentable and most of them have only one meaning. The following illustration shows the language's inclination within this index:



Guarijío

Agglutinative Fusional

Figure 6. Guarijio under the Index of Fusion

In conclusion we may describe Guarijio as a synthetic language under the index of synthesis and an agglutinative language under de index of fusion.

2.2.2 Head-marking vs. Dependent-marking

In addition to the classical morphological typology (see chapter 2.1) languages can also be classified based on the morphological connection between their constituents. Whaley (1997:141) introduces two relevant concepts for this analysis: agreement and government.

The concept of government refers to the syntactic relationship between two constituents that are reflected by the obligatory marking of the dependent constituent (Whaley, 2007: 140). For instance in Greek:

(11)

a.	ana skē:ptr-ō (DAT)	'upon a staff'
b.	apo tou hipp-ou (GEN)	'from a horse'
c.	en Spart-ē (DAT)	'in Sparta'
d.	eis basil-ea (ACC)	'to the king'

(Whaley, 2007:140)

The head of the prepositional phrase is the preposition. The preposition determines the marking of the dependent constituent (Whaley, 2007:140). Example (11a)

shows that *ana* ‘upon’ governs the dependent *skē:ptr-* ‘staff’ and assigns it the dative marking *-ō.* The same happens with examples (11b-d). It is relevant to notice that the preposition doesn’t present any morpheme.

The second concept, agreement, refers to the instances in which the syntactic constituents are marked to correspond to with the head of the construction. The difference between government and agreement is that while agreement does show a morpheme, the head government does not, for example in Spanish:

(12)

a.	La niñ-a enferm-a	The sick girl
b.	El perr-o suci-o	The dirty dog (masc.)
c.	Las tigres-as rayad-as	The striped lioness
d.	Los alumn-os ric-os	The rich students (masc.)

Adapted Material from Whaley (1997)

On the previous examples we may observe that both the adjective and the article change to agree with the head noun of the nominal phrase. For instance, in (12c) both the article and the adjective agree with the noun *tigres-a-s* regarding number *-s* ‘plural’ and gender *-a* ‘feminine. The same can be observed in example (12a) where the adjective *enferm-a-Ø* ‘dirty-feminine:singluar’ and the article *la* ‘feminine singular’ agree with the head noun *niñ-a-Ø ‘child-feminine-singular’.* In consequence if we change the head noun of the clause (12d), which is *almun-o-s* ‘student-masc-plural, to *alumn-a-Ø* ‘student-feminine-singular’ the dependents will necessarily change to agree with the head noun:

(12e) La alumn-**a** ric-**a** The rich girl

As we have seen before, the terms of agreement and government are highly relevant when we talk about constituents' marking. "If the morphological marking of a dependent is determined by a head, but does not reflect any semantic or grammatical features of the head, it is considered government. It the morphological marking does reflect such properties, it is a case of agreement" (Whaley, 2007:140). The following illustration sums it up:

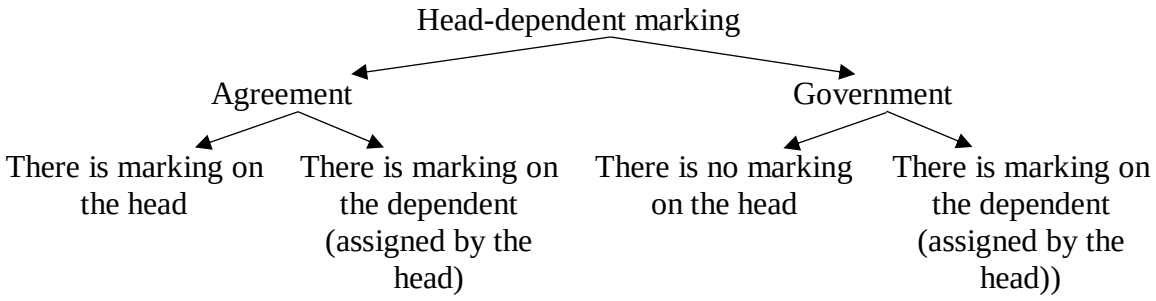


Figure 7. Head-dependent Marking

On the following subsections of this chapter I will explain the morphosyntactic marking that can be observed in the world's languages.

2.2.2.1 Head-marking

This type of marking is known for keeping the grammatical morphemes of the phrase on the head. For instance in Fiji (Dixon, 1988) cited in Bickel & Nichols (2013a) we can see this type of behavior:

(13) a mata-**i** Jone
ART eye-POSS John
'John's eye'

The possessive morpheme *-i* is added on the possessed noun *mata-* ‘eye’, i.e. the head of the possessive construction. This type of marking does not show government due to the fact that the dependent constituents do not have any morpheme assigned by the head of the construction. There is no agreement either precisely because, even though there is a morpheme on the head, the constituents do not agree with the head.

2.2.2.2 Dependent-marking

Another possible type of marking is the dependent-marking, i.e. that some languages have grammatical markers on the dependents of the phrase. For instance on the central/east Arrernte (Australia) we are able to see this kind of behavior:

(14) oždi-l kid hehe-r
boy-ERG girl:ABS hit-PST
‘The boy hit the girl’

(Aikhenvald y Dixon, 2002)

Arrernte shows an ergative marker *-l* and a *-Ø* for the absolutive. As we are able to observe, the grammatical markers are added to the arguments of the clause, i.e. to the dependents. The head-verb of the clause does not have any markers that agree with the arguments of the clause. This is a clear example of government where the head assigns the morphological markers of the constituents of the clause. In the example (14) the verb hit determines how many arguments the clause should have and the grammatical function of each of them: *ožd**i-l* ‘boy’ as agent, and *kid* ‘girl’ as patient.

2.2.2.3 Head and dependent-marking

There are also some languages that have markers both on the head and on the dependents. Cu'pik (Alaska) presents this type of marking:

(15) (Arna-m) (kaugpii-t) tangrr-ai.
woman-ERG.SG walrus-ABS.PL see-ind.3SG.A.3PL.O
(The woman)/she saw (the walruses)/them.

(Aikhenvald y Dixon, 2002)

The independent constituents have an ergative case morphology. The agent *arna-* 'woman' has an ergative marker *-m*, and patient *kaugpii-* 'walrus' has the absolutive morpheme *-t*. In addition, the verb has agreement markers: *-ai* establishes that the third person singular (in this case woman) is the subject and the third person plural (in these cases the walruses) is the object of the clause. It is relevant to observe that the marker *-ai* is a portmanteau affix, therefore if any of its arguments change the morpheme will also change.

2.2.2.4 No marking or zero marking

The final possibility is the type where no markers take place, i.e. neither the head nor the dependents present any morphology that represent their relationship. In these instances the language will use other linguistic resources, such as the word order or free forms, to show this relationship. An example of this is Thai:

(16) Daang hGaróo Dam.
Dang laugh Dam
'Dang laughed at Dam'

(Nichols y Bickel, 2013c)

As it may be observed, there are no markers that express the function of the arguments within the clause. And there is no marker on the verb either.

2.2.2.5 Guarijio's Morphological Marking

In order to decide the tendency of Guarijio's morphological marking, I will describe the grammatical characteristic of two different type of constructions: (i) possessive constructions (§2.2.5.1), and (ii) simple clauses (§2.2.5.2).

2.2.2.5.1 Guarijio's Marking in Possessive Constructions

The possessive constructions in examples (17a-b) show that the marker of possession is added to the head of the possessive construction. Alienable nouns are marked with the classifier *-wa*. If the nouns are inalienable the marker is optional (Miller, 1996:253). The following examples show alienable and inalienable nouns:

(17)

a. ahpo yee-**wa**
3.SG.NS mom-POSS
'his/her mom'

b. amo mačira-**wa**
2.SG.NS machete-POSS
'your machete'

c. maria sula-la
Mary heart-ABS
'Mary's heart'

d. noʔo bosina-**wa**-la
1.SG.NS speaker-POSS-ABS
'my speaker'

Guarijio has three possible ways of marking for possession: the possessive marker *-wa* (see examples 17a-b), the absolutive marker *-la* (see example 17c), and the combination of the possessive morpheme *-wa* and the absolutive morpheme *-la* (see example 17d). It may be observed that the three possibilities present a head-marking construction, i.e. the morpheme is added to the possessed noun. As shown in section 2.2.2 this is no case of agreement or government since the dependent does not present any mark. On the other hand there are some possessive constructions that show no possessive marker, for instance:

(18)

a. kaʔté tuʔrúbo-ga iʔká noʔó tehimá=go
NEG:IMP splash-IMP PRON.DEM 1.SG.NS wife=EMPH
'¡Don't splash my wife!'

(Miller, 1996:253)

b. kaʔté tuʔrúbo-ga iʔká noʔó tehimá-**wa**=go
NEG:IMP splash-IMP PRON.DEM 1.SG.NS wife-POSS=EMPH
'¡Don't splash my wife!'

(Miller, 1996:253)

c. noʔó tamé-la=ni koʔkoré-na
1SG.NS tooth-ABS=1SG hurt-PRS
'My tooth hurts'

(Miller, 1996:253)

d. noʔó tamé-**wa**-la=ni koʔkoré-na
1SG.NS tooth-POSS-ABS=1SG hurt-PRS
'My tooth hurts'

(Miller, 1996:253)

In examples (18a) y (18c) we can observe that there is no possessive morpheme *-wa,* whereas their equivalents (18b) y (18d) do show this morpheme. Miller (1996:153)

suggests that the possessive affix is optional for possessive inalienable nouns. In Guarijio body parts and family terms are inalienable.

In conclusion the possessive constructions have a tendency to mark the head. However it must be pointed out that there are two types of possessive constructions: (i) alienable possessive constructions where the affix is added to the head of the phrase, and (ii) inalienable possessive constructions which have an optional head-marking.

2.2.2.5.2 Guarijio's Marking in Simple Clauses

In this section I will analyze the morphological marking of Guarijio in simple clauses. The following examples show the resources used by the language to express simple clauses:

(19)

a. Naʔawera te~temú**=ne** pié oʔorume iʔka,
every.day HAB~to.dream=1.SG.S one woman DEM.PROX.NS

kaʔi ni=ga ahka tetewa-ri iʔka
NEG 1SG=EMPH some.place ver- IMPFT DEM.PROX.NS

oʔorume
woman

'Every day I dream a women, I have never seen that woman (anywhere).'

b. sa~sawe-ma**=ne** kahpe iʔká selaso-či
ITER~shake.out-FUT=1SG.S coffee PRON.DEM.PROX sieve-LOC
'I'm going to strain this coffee on the sieve'

c. kahpona-ré=**mu** kuú
Break-PFV=2SG.S stick
'You broke the stick'

(Félix, 2007:115)

The constructions shown in (19 a-c) show no affixes attached to the head-verb or to the dependents. However it is relevant to mention that there is a clitic of first and second person that may be attached to the verb. This means that the clitic is attached to the head of the clause. However the following example shows a different behavior:

(20) tamó weikaóba upa-re waʔa-tepa
1PL.NS then bring-PFV here-up
'Then **she** brought us here'
´luego ella nos trajo aquí'

Félix (2007:89)

The third person in Guarijio is unmarked, i.e. that in these constructions there is no third person clitic. Something that needs to be pointed out is that a clitic is not precisely a bounded morpheme. The nature of the clitic is that it has the possibility of movement in the clause. Actually, the pronouns in Guarijio may occur as a second-position clitic or as a free pronoun, for instance:

(21)

a. **ahpó** novia-wa peníri-me ine-ré
3.SG.S girlfriend-POSS pretty-ADJVZ to.be-PAS.REM
'The woman was very pretty'

b. aʔčigo **ni=ga** koʔko-nare pie lulče
muy 1SG.S=EMPH comer-DESD one dulce
'I want to eat a candy (so much)'

c. **remé** iʔá-**bola** piʔarí wagasí
1.PL.S to.look.for-FUT.COND:PL tomorrow cow
'Tomorrow we need to look for the cows[4]'

(Miller, 1996:142)

[4] The translation does not seem to express the condition construction. However, I have kept the author's sense even though it does not seem to be completely adequate.

The previous examples show that the pronouns can occur both as a clitic, and as a free form. However, example (21c) shows an interesting behavior, and is only proper to conditional constructions. The morpheme is in the head of the construction and this time it is a suffix *-bola* 'conditional:future:plural'. It has been stated previously that the head of the clause, the verb, does not show any morphology that refers to the arguments of the clause. However in this specific example it is shown that a conditional future morpheme also contains *number*. If we pay attention to example (21c) the verbal morpehem *–bola* 'conditional:future:plural' agrees in number with the pronoun *remé* 'first person plural'. Actually, the suffix that is used in conditional future construction for singular is *-mela/ -mera.*

Up to this point I have only considered the pronouns for subject, even though we may find the free form *tamó* 'first person plural non-subject' on example (20). Nevertheless, what seems relevant is to be able to say if there are any markers concerning the direct object. Even though, there are no morphological affixes, we may find a non-subject clitic of first person singular:

(22) waní **noʔ=**wewe-rú
John 1SG.NS=hit.PFV.EV
'John hit me'

(Félix, 2007:30)

The following chart shows the behavior of pronominal clitics in Guarijio:

Pronouns with subject function			Pronouns with non-subject function	
	Pronoun (free form)	Clitic (bounded)	pronoun	Clitic
1sg	neé	=ne	noʔo	no'=
2sg	muú	=mu	amó	

3sg	Apoé/puú (Ahpoé var. Chihuahua)	=Ø	Ø, ahpo	
1pl	temé (remé var. chihuahua)	=teme	tamó	
2pl	emé	=eme	amó	
3pl	aapóe	=Ø	Ø, ahpo	

Chart 5. Pronominal Clitics in Guarijio. Adapted material from Felix (2007)

So far, I have only focused on construction with pronominal referents. It is relevant to analyze those constructions that do not have pronominal referents, for instance:

(23)

a. ihí mulina kiluča-ni kaʔé moʔenari aʔči
DEM.PROX windmill to.creak-PRS.PROG NEG slowly/low very
'The windmill doesn't creak very low'

b. Ihí oórume poči-wa-re arí
DEM.PROX woman to.fill-TRVZ-REM.PST bule.of.water
'The woman filled the bule with water.'

c. ihí Marie=ga iʔto-ra=ma amo mačira-wa
DEM.PROX Mary=EMPH take- REM.PST=RPT 2.SG.NS machete-POSS

kuʔu netemí
wood hacer-LOC
'Mary took your machete to make wood'

This type of constructions does not present any marking on the dependents and do not show any marking on the head either. Therefore, Guarijio relies on the word order to determine the role of the arguments within the simple clause.

To sum up, Guarijio has a tendency to non-marking of the arguments. We may only find a pronominal clitic mainly with the function of subject on the verb. As I have mentioned before the pronominal clitic is not obligatory because it can occur as a free form.

2.2.3 Summary

Taking into consideration the classical morphological typology, we can conclude that Guarijio is an agglutinative and synthetic language. Nevertheless we should always remember that these are considered tendencies and not strict, dichotomic classifications.

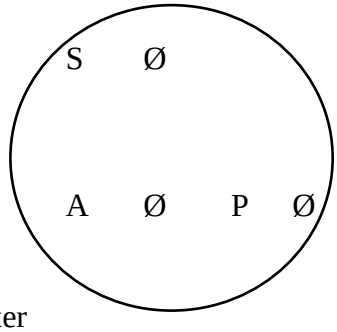
Considering the marking of Guarijio we may find that it is not easily classified. In the possessive constructions we have seen that even though alienable constructions are head-marked, inalienable constructions are optionally marked. We may conclude that in these constructions there is a tendency to mark the head. However we find constructions where there is no possessive marker.

Simple clauses have a tendency to non-marking since the only instance in which an argument is attached to the head of the clause (the verb) is when a pronominal clitic occurs. There is no affix that is attached to the head or to the dependent of the simple clause. The isolated case of the conditional future (see chapter 2.2.5.2) only reinforces the fact that languages have certain typological tendencies but are not strictly classified.

2.3 Alignment System

This section focuses on the description of Guarijio based on its alignment system. The first thing that must be noted is that Guarijio's arguments in the nominal phrase show a neutral alignment system. The nouns show no morphological marker that specifies their syntactic function. The following examples show this feature:

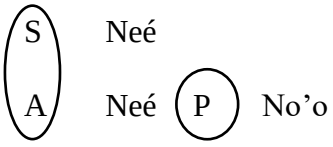
(24) **S**
mehka **pare** noʔnoá[5]-wa=ga
far.away father to.go-POSS=EMPH
"My father went far away"



(25) **A** **O**
ihí **oórume** poči-wa-re **arí**
DEM.PROX woman to.be.filled-CAUS-REM.PST bule.of.water
"The woman filled the bule of water"

Nevertheless, we may find that the pronominal system has a different behavior. The subject of the intransitive clause (S) and subject of the transitive clause (A) occur with the same pronominal form, whereas the object (P) changes its form. In other words, Guarijio has a nominative/accusative alignment system in its pronouns. This can be attested with the following examples:

(26) **S**
Neé umá-re tapaná
1SG.S run-PFV yesterday
"I ran yesterday"



(27) **A**
Neé wewé-ru waní
1SG.S hit-PFV.EV John
" I hit John"

(28) **O**
Waní **no'ó** wewé-ru
John 1SG.NS hit-PFV.EV
"John hit me"

(Félix, 2007:76-77)

[5] Medina (2010) registers it as a reduplicated verb: come and go. Moreover, she restricts it to subjects in plural.

This can also be observed with the rest of the pronouns as it may be observed in the following chart:

S/A	neé	*1sg*	temé	*1pl*	**P**	noʔo	*1sg*	tamó	*1pl*
	muú	*2sg*	remé	*2pl*		amó	*2sg*	amó	*2pl*
	apoé/puú	*3sg*	aapóe	*3pl*		Ø, ahpo	*3sg*	Ø, ahpo	*3pl*

Chart 6. Guarijio's Pronominal System. Adapted material from Félix (2007)

It should also be mentioned that in Guarijio the pronouns can be both free and bounded. In other words, they can occur as clitics, attached to the verb. The alignment system in Guarijio's clitics is also nominative/accusative. Nevertheless, this is only true for the first and second person. The following examples show this with the first person:

(29) **S**

naʔawera te~temú**=ne** pié oʔ

every.day HAB~to.dream=1.SG.S one woman

'Every day I dream a women'

(S) =ne

(A) =ne (P) noʔ=

(30) **A**

sa~sawe-ma**=ne** kahpe iʔká selaso-či

ITER~shake.out-FUT=1SG.S coffee DEM.PROX sieve-LOC

'I'm going to strain this coffee on the sieve'

(31) **O**

Tasi wasi-me **noʔ=**nure-na=mu ihkopisi

a.lot to.cook-NMLZ 1SG.NS=to.order-TRVZ=2SG.S pinole

'You order me to cook pinole, all the time'

As we may observe, the subject of an intransitive clause and the subject of a transitive noun have the same form *=ne*. However the object from the transitive clause changes to *noʔ=*. It is also relevant to notice that the position of the clitic changes

depending on its syntactic function. The clitic for S and A is postverbal whereas the clitic for P is preverbal.

CHAPTER 3

THEORETICAL FRAMEWORK

This chapter focuses on central concepts and theories that are relevant to this investigation. First, the concept of *morphology* is defined (§3.1). Subsequently, the basic concepts that will constantly be used in this paper will be discussed and described thoroughly as follows: in (§3.1.1) the concepts of *word, word-form* and *lexeme*; in (§3.1.2) the notions of *affix, base, stem* and *root;* in (3.1.3) the concept of *morpheme* and *allomorphs*; in section (§3.1.4) the definition of inflection and a set of subsections that define the types of inflectional categories that are typically found in the world's languages; in section (§3.1.5) derivation and the following subsections are used to describe the kind of derivation that we may find throughout the world's languages; finally, in (§3.2) the core theoretical discussion: the three morphological views regarding inflection and derivation and a reflection regarding these approaches which are (§3.2.1) dichotomy approach, (§3.2.2) tripartition approach and (§3.2.3) continuum approach.

3.1 Morphology

As stated by Aronoff & Fudeman (2011), and Bauer (2003), morphology is a term borrowed from the biological sciences which stands for the study of shapes. Based on this fact, Bauer (2003:4) defines morphology as the study of shapes of words. However, he specifies that this does not apply to phonological shape since meaning is relevant to morphological shape. The following definitions of morphology have been proposed by various linguists:

"Morphology is the study of the internal structure of words" (Haspelmath & Sims, 2010:1).

"By extension, the term 'morphology' is used not only for the study of shapes of words but also for the collection of units which are used in changing the forms of words" (Bauer, 2003:4).

"Morphology in linguistics has to do with how words are shaped, and how the shapes of words may be systematically adjusted in order to accomplish communicative tasks. You can also think of morphology as the study of how meaningful units combine to shapes" (Payne, 2006:8).

"Morphology refers to the mental system involved in word formation or to the branch of linguistics that deals with words, their internal structure, and how they are formed" (Aronoff and Fudeman, 2011:1).

To sum it up, morphology refers to the shape of words, specifically shapes with meaning. Morphology is the study of the internal structure of word forms or word

formation. In order to analyze these forms, morphology focuses on the identification and description of these internal structures.

In the following chapters I will describe the basic concepts that are relevant to the study of morphology.

3.1.1 Word, Word-form and Lexeme

To understand morphology, the first concept that needs to be discussed is *word*. Linguists have tried to define the characteristics of word, and in attempting to do so, they have found themselves in some trouble. The main issue addressed by Aikhenvald and Dixon (2002:1) concerns the usage of *word* as a linguistic unit for all languages, if so, then it would be relevant to decide which set of criteria should be factored into it.

They also mention that most of the texts that have been written about the concept *word* are centralized in European languages. The issues come into light when we try to apply the same concept to other languages around the world, especially languages with a different morphological typology (Aikhenvald and Dixon, 2002:3).

Haspelmath (2002:148) considers that our own conceptions about word are motivated by our understanding of written language. The blank spaces between written words give us the illusion of clear and concrete boundaries between word-forms. Sapir (as in Aikhenvald and Dixon, 2002, and Bauer, 1983) reported that even speakers that don't have a written tradition are able to make a 'word by word' division while dictating a sentence. Nevertheless, we might find some inconsistencies within writing that reflect some uncertainty while trying to find these boundaries. For instance, the spelling of some

compounds such as *flowerpot*, *flower-pot*, or *flower pot* (Haspelmath, 2002:148). Haspelmath also mentions the problematic found in Spanish's object pronouns. When the object pronoun precedes the verb it is written separately *(lo hacemos)*. In contrast, when the object pronoun follows the verb, it is written together *(hacerlo)*. In brief, Haspelmath (2002:149) asserts that there is arbitrariness in the identification of word-form boundaries on written languages.

Aikhenvald and Dixon (2002:10) mention that many attempts to establish criteria to identify *word* as a linguistic unit fail to be both sufficient and necessary. Some of these criteria and their rebuttals are the following:

a) A unit with a particular definition formed by a particular group of sounds that has a particular grammatical use (Lyons[6], as cited in Aikhenvald and Dixon, 2002:10). Lyons' refutation to Meillet's meaning (as cited in Aikhenvald and Dixon, 2002:11) is self-evident as some phrases (*the new book*) as well as some affixes (*un-* or *-able)* fit into this criterion.
b) Bloomfield's definition for word is "minimum free form". However, Matthew (as cited in Aikhenvald and Dixon, 2002:11) points out that words like *my* and *the* could hardly appear on their own.
c) It is quite simple to identify a word's boundaries in languages that have clear and regular phonological marking (Chao, as in Aikihenvald and Dixon, 2002:11). Nevertheless, the authors consider the main problem with this criterion is that it

[6] Based on Meillet.

only applies to this type of languages. It would hardly apply to languages that are polysynthetic and agglutinative.

On the whole, Haspelmath (2002:149) considers that there might not be a completely clear way of finding the boundaries of word-forms. Instead, he suggests that there is a continuum from a compound to a phrase and from a function word-form to an affix. In fact, he describes the clitics as an intermediate category within the word-form/affix spectrum. Taking this into consideration, the word-form/affix continuum may be illustrated in the following way:

Figure 8. Word-form/affix Continuum. Adapted from Haspelmath (2002:149)

The use of *word* as a linguistic unit clearly presents an issue. Linguists generally prefer to use the more thorough concepts of word-form and lexemes.

To illustrate *lexeme,* look at the problem that arises when we have the following forms *eat, ate, eaten* and *eating.* We might arrive at two different conclusions. We could conclude that we have four different words, or instead come to the realization that we are looking at different forms of the word *eat.* Here is where the concept of *lexeme* comes up. Haspelmath and Sims (2010) describe it as "a word in an abstract sense" (p.15). They consider that the lexeme is the one that encloses the core meaning of word-forms. Considering the example above, the lexeme for *eat, ate, eaten* and *eating* is EAT. The

authors insist in the fact that the lexeme is an abstract unit, it does not have a phonological feature. Because of the fact that we are dealing with a semantic core, we are able to say that lexemes are the ones that form the mental lexicon. "The semantic features of words thus define the overall network structure or the mental lexicon, i.e. its organization into *semantic fields*" (Givón, 2001:44).

In contrast with the *lexeme*, a *word-form* "is a word in a concrete sense" (Haspelmath and Sims, 2010:15). By its concreteness the authors refer to the word-forms' capability of being phonetically produced. Bauer (1983) describes *word-form* as "the particular shape that a word has on a particular occasion" (p.12). As Haspelmath and Sims (2010:16) mention, the *word-form* already includes a grammatical meaning, for example, *eats* (third person, present). Therefore, *word-forms* are the inflected words of *lexemes* (Aikhenvald, 2002:7). Moreover, the group of *word-forms* that are part of a *lexeme* is called a *paradigm* (Haspelmath, 2002:14). For instance, in Spanish the paradigm for the lexeme SOÑAR 'to dream' includes grammatical meaning (TAM, aspect, person and number).

	present	*past/imperfective*	*past/perfective*
1 SG	sueñ-o	soñ-aba	soñ-é
2 SG	sueñ-as	soñ-abas	soñ-aste
3 SG	sueñ-a	soñ-aba	soñ-ó
1 PL	soñ-amos	soñ-abamos	soñ-amos
2 PL	sueñ-an	soñ-aban	soñ-aron
3 PL	sueñ-an	soñ-aban	soñ-aron

Chart 7. TAM, Person and Number in Spanish Verbs

All things considered, in the above example *eat, ate, eaten* and *eating* are four word-forms of the lexeme EAT.

3.1.2 Affix, Base, Stem and Root

There are four essential concepts to the study of morphology: affix, stem, base and root. Affixes are short morphemes regularly with abstract meaning that are attached to larger morphemes (base) with a concrete definition (Haspelmath & Sims, 2010:19). Bauer (2003:24) mentions that the most common mechanism to build new words in the world's languages is affixation. The following examples of affixation are from Guarijío:

(32)

a.	čaʔpi-**ma** grab-FUT	Future
b.	čaʔpi-**ru** grab-WIT.PST	Witnessed past
c.	čaʔpi-**re** grab-REM.PST	Remote past

The lexeme for all these word-forms is čaʔpi 'grab'. Each word-form has a different affix that has an abstract, grammatical meaning involving tense and aspect, *-ma* (future), *-ru* (witnessed past), and *-re* (remote past). Affixes can be divided into four types, depending on their position:

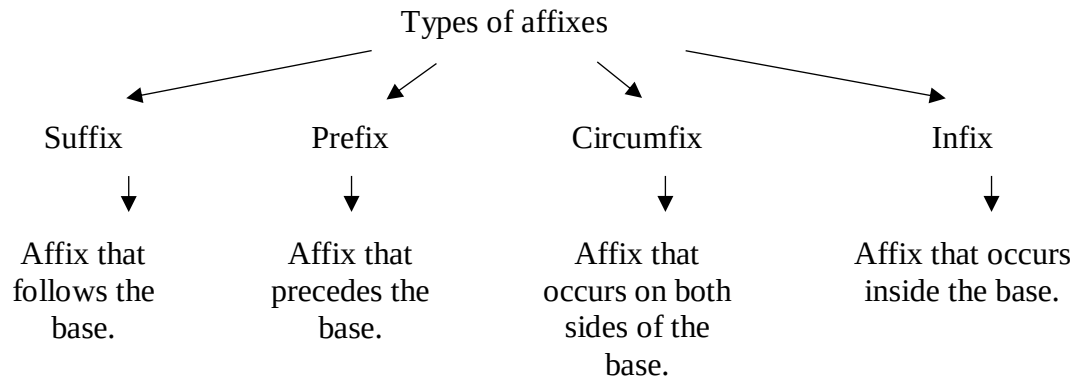


Figure 9. Types of Affixes. Adapted material from Haspelmath and Sims (2010)

The four types of affixes addressed in Figure 9 are shown below:

(33) Nuaulu, Indonesia

api-**a**
thing-**PL**
'Things'

Bolton (as in Dryer, 2013b)

(34) Nuaulu, Indonesia

we-topi
1SG.POSS-hat
'My hat'

Bolton (as in Dryer, 2013b)

(35) German, Germany

ge-film-**t**
PST-FILM-**PST**
'Filmed'

Bauer (2003:28)

(36) Chrau, Vietnam

v<**an**>oh
<**ADVZ**>know
'wise'

Bauer (2003:29)

In (33) suffixation is exemplified in the language Naulu from Indonesia; (34) illustrates prefixation, also in the Naulu language; (35), in German, shows how circumfixation behaves; finally, (36) demonstrates infixation.

According to Bauer (2003) suffixes are the most common type of affixes among the world's languages. The author mentions that suffixation can be the only type of affixation in some languages, for instance, in Basque. On the other hand, there are very few languages that only present prefixes as their only morphological process, for instance, Thai. Moreover, circumfixation and inffixation do not occur exclusively in other languages, i.e. there must exist another type of affixation for them to take place.

Bauer (1983) and Haspelmath (2002) define the term *root* as a form that can no longer be analyzed. This means that it can no longer be broken into different morphemes. For instance the word-form *uncertainties* has a series of morphemes attached to the root *certain:*

(37) *uncertainties*

un-	certain	-ti	-es
NEG-	root-	-NMLZ	-PL

Bauer (1983:20) describes the root as the part of a word-form left by removing the inflectional and derivational affixes.

The *stem* is the form that is left when only the inflectional morphemes have been removed, it can have derivational morphology and/or more than one root (compounds) within its composition, or lack morphological complexity altogether (Bauer, 1983:20). The following examples of Guarijio show all these instances:

(38)		***word-form***	***two roots***	***stem***
a.	**Compound**	čahpako-na wash.feet-PRS 'washing feet'	čahpa+pako hill+wash	čahpako 'to wash feet'

(Medina 2011:16)

		word-form	***verbal base***	***derived verb***	***stem***
b.	**Derived verb**	eerá-ta-ni blood-VBLZ-PRS 'bleed'	eerá- 'blood'	eerá-na 'to bleed'	eerá-na

Félix (2007:33)

		word-form	***stem***
c.	**non-complex morphology**	čoi-ná=ne to.be.sad- PRS=1SG.S 'I am sad'	čoi- 'to be sad'

Medina (2011:27)

Bauer (1983:21) defines a *base* as "any form to which affixes of any kind can be added." To illustrate this, observe the analysis of the word *pseudointellectuals:*

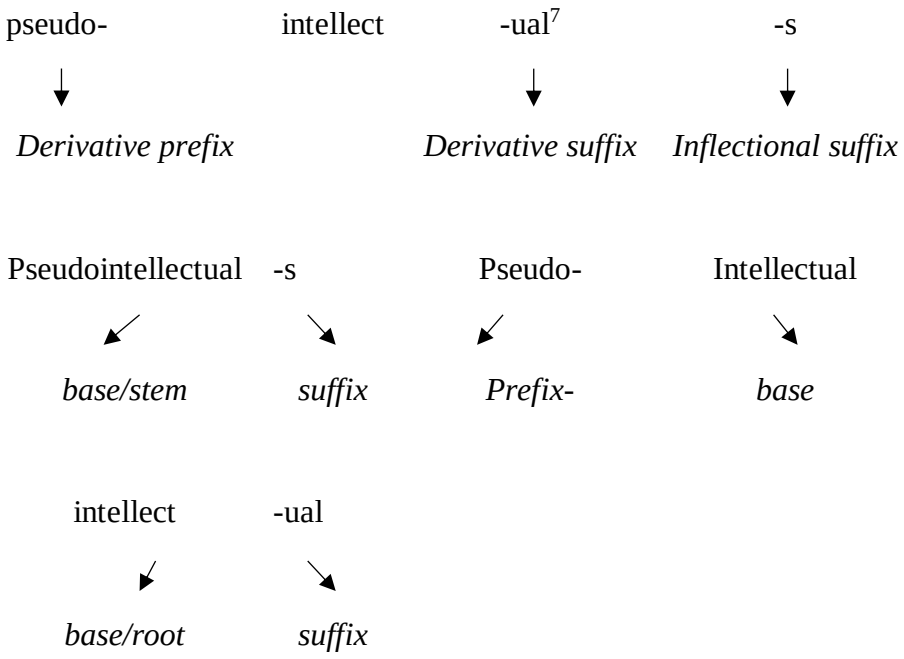


Figure 10. Morphological Analysis

Bauer (1983:21) points out that roots and stems are also bases, but there are some bases that are neither roots nor stems. In the process of breaking morphemes one by one we can

[7] This may be a case of allomorphy of the morpheme -al.

observe this clearly. Consider the above analysis of *pseudointellectual* where it actually fits both, as the word-form that only leaves the inflectional morpheme *-s* out (stem), and the word-form to which a morpheme *-s* can be added (base). It is possible to analyze *intellect* in a similar way, it can be classified as a *root* considering that it can no longer be morphologically analyzed or broken down, and it can be considered a *base* because it's a word-form to which a morpheme *-al* can be added. Nevertheless, in the analysis *intellectual* doesn't work as a stem because *pseudo-* is a derivative prefix, and it doesn't work as a root either because it can still be morphologically analyzed *intellect-ual*. Bauer (1983:21) considers that the base is the only concept that can be used for derivational analysis. To sum up, we may say that roots and stems are bases with specific characteristics.

3.1.3 Morphemes and Allomorphs

Aronoff and Fudeman (2011:2) describe morphemes as part of the internal structure of a word. These units are indivisible meaningful parts. Bauer (1983) describes morphemes as "the basic units of analysis recognized by morphology" (p.13). For instance, if we make a morphological analysis of the word-form *rearrangements*, we can conclude that the word-form has four morphemes: *re-arrange-ment-s*. Within these morphemes we may find different types of morphemes. The root *arrange* is a morpheme in itself because it is no longer morphological analyzable. This lexical morpheme is characterized by having the core meaning of the word-form. Moreover, the morphemes *re-* and *-ment* are derivative morphemes that have a more or less concrete meaning. The morpheme *re-* means 'to repeat' and *-ment* can be analyzed as 'thing with a certain

characteristic'. Finally, the morpheme *-s* has a more abstract and grammatical definition, 'plural'.

Another aspect that needs to be taken into consideration, while analyzing morphemes, is the fact that "there are many cases in which a single semantic unit has multiple surface representations" (Bybee, 1985:6). This variation is called *allomorphy*. Here is where the concept *morph* comes up. Aronoff and Fudeman (2011:2) define the concept of *morph* as the phonological realization of a morpheme. An example of allomorphy is the possessive marker for first person in Turkish:

(39)

a.	ev	'house'	ev-im	'my house'
b.	köy	'village'	köy-üm	'my village'
c.	yol	'way'	yol-um	'my way'
d.	ad	'name'	ad-ım	'my way'
e.	baba	'father'	baba-m	'my father'

(Haspelmath, 2002:26)

As can be observed above, the possessive morpheme has five allomorphs: -im, -üm, -um, -ım, and -m. Haspelmath (2001) points out that even roots may have allomorphs. For instance, in Guarijio the root ečapóa 'beard, mustache' may be produced as hečapóa, ehčapóa, or hešahpóa (Medina, 2011:35).

Bloomfield (1935:211) addresses a couple of very important considerations concerning allomorphy. The first is that sometimes allomorphy is caused by morphophonological restrictions. The author provides the example of plural forms in English *-s, -z, and -ez.* These forms are conditioned by the last phoneme of the root where the affix is attached. The phoneme before -ez is always a fricative. This might be a case of dissimilation, in other words, since the sounds are similar an [e] is added to break the fricative sound. On the other hand, -s goes through a voicing process when the last phoneme is a voiced consonant, i.e. the affix assimilates the consonant and becomes a -z.

The author also mentions that other factors can cause allomorphy, nonetheless. The example he uses is an allomorphy produced in German for a plural morpheme. Nouns are grammatically divided into three genders: masculine, feminine and neuter. Each of this group of nouns uses a different morph of the same morpheme to pluralize. Masculine and neuter nouns add *-e* (Söhn-e 'sons' and Jahr-e 'years'), while feminine nouns use *-en* (Frau-en 'women'). In addition to these factors, Bauer (2003:16) also considers that there might be lexically conditioned allomorphs. Haspelmath & Sims (2010:26) states that lexical conditioning refers to the selection of a suppletive allomorph due to other features of the base such as semantic characteristics.

Haspelmath (2002:23) considers convenient to decide which the underlying form of the morpheme is. Therefore, the phonological use would be considered the surface representation. To decide which underlying form is appropriate, we should speak in terms of phonological rules and productivity.

3.1.4 Inflection

The next graph makes the distinction between the two branches of morphology:

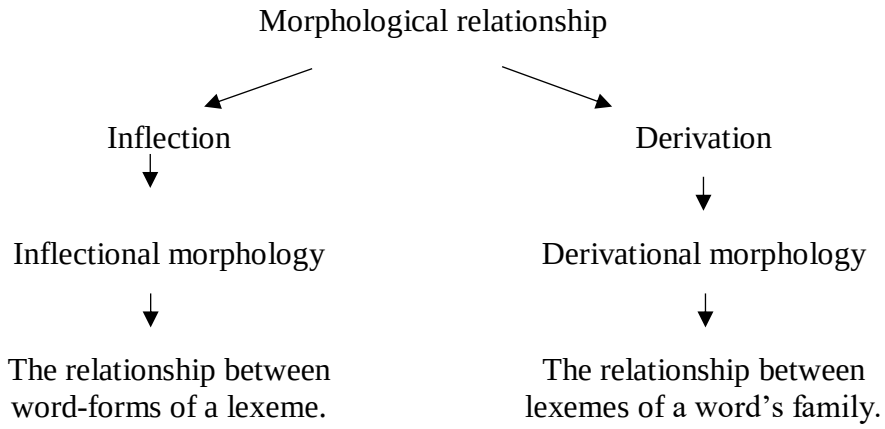


Figure 10. Kinds of morphological relationship (Haspelmath & Sims, 2010)

Throughout this chapter I will only centralize in inflection (derivation will be discussed in section 3.1.5).

Thomas Payne (1997) defines inflection operations in the following way: "Inflectional operations are those which are required by the syntactic environment in which a root appears. Inflectional operations do no normally alter the basic meaning of the concept expressed; rather, they ground the concept expressed by a root according to place, time participant reference, etc. That is, they specify *when* the event or situation took place, *who* or *what* were the participants or possessors, and sometimes *where, how*, or *whether* an event or situation really took place" (p.26). In other words, inflection is the branch of morphology that is centered in morphosyntax.

Due to the fact that in this branch we should be centralized in morphosyntax, it is essential to define it. As Payne (2006:8) mentions, the word morphosyntax is a hybrid word that is formed by *morphology* and *syntax*. However, the knowledge of each discipline on its own, will not provide the complete notion of morphosyntax. What should be considered is the relation between morphology and syntax. "Syntactic structure certainly affects morphology, and morphology is one very important way that syntactic structure is revealed" (Payne, 2006:9).

"Different languages vary quite dramatically in the amount of inflectional complexity that their words exhibit" (Haspelmath, 2002:82). This depends on their typological morphology. For instance, agglutinative and fusional languages will be richer in morphology than isolated languages. "Despite all this diversity, the types of inflectional values that we find across languages are surprisingly uniform" (Haspelmath and Sims, 2010:82). Throughout the following chapters I will be describing the type of morphemes that can be presented on different word classes.

3.1.4.1 Nominal Inflection

As it may be implied by its name, nominal inflection refers to the morphological processes that take place in nouns. The most common categories for nominal inflection in world's languages are (i) gender, (ii) case, (iii) determiners, (iv) class, and (v) number. In the following sections I will describe these categories thoroughly.

3.1.4.1.1 Number

Nouns tend to have morphological morphemes for number. Payne (1997:96) mentions that there are different morphological systems for number:

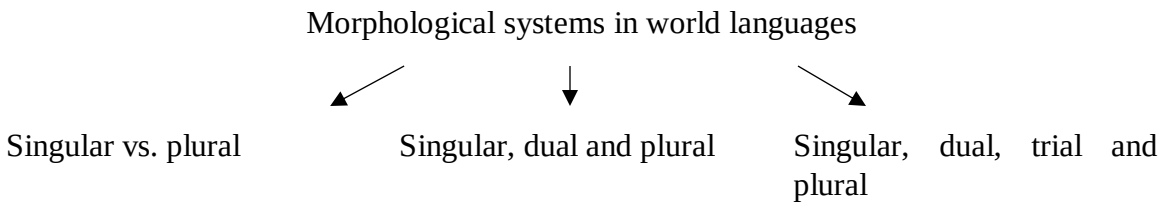


Figure 11. Morphological System for Number

Payne (1997:96) points out that the third classification (shown on figure 11) is very rare in languages around the world. The most common classification is the one that distinguishes between singular and plural. Givón (1984) adds that "most commonly, the unmarked stem codes the singular, and the morphologically-marked form codes the *plural* (or *dual*)" (p.63).

It is also important to question ourselves if there is any nominal classification regarding to number. "Some languages only mark certain classes of nouns, e.g., animated nouns, for number; while other nouns are left unmarked, or are marked only optionally. Other languages only indicate plurality of nouns that are highly topical" (Payne, 1997:96).

3.1.4.1.2 Case

Case morphemes are based on the alignment system of languages. There are five basic types of alignment systems.

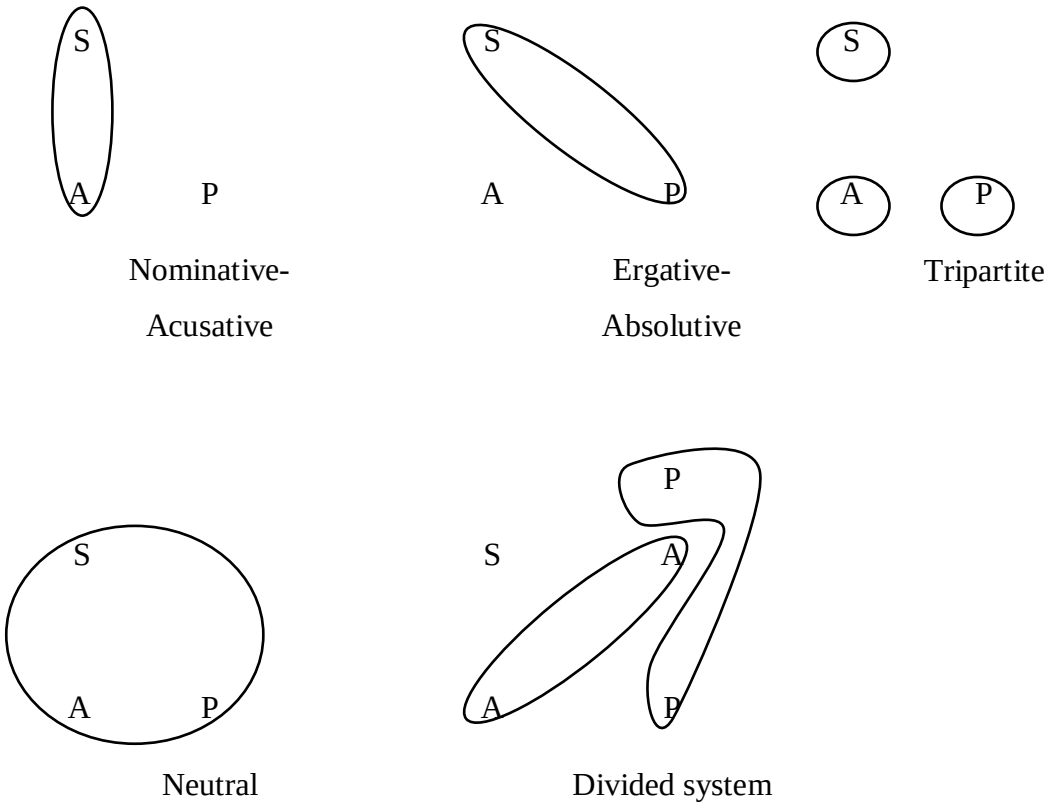


Figure 12. Alignment Systems

In the nominative-acusative system, the intransitive subject is marked the same way as the transitive subject (Nominative), while the patient of the transitive construction is marked differently (Accusative) (See example 46). On the contrary, in an ergative-absolutive system the intransitive subject is marked the same way as the patient of the transitive construction (Absolutive), whereas the transitive subject is marked in a different way (Ergative) (see example 47). In a tripartite system each argument is marked differently (see example 48). In contrast, the neutral system marks all of them equally (See example 50). Finally, the divided system has two different forms for the intransitive

subject: the agentive subject of intransitive construction is marked as the transitive subject, while the less agentive subject of the intransitive construction is marked as the patient of the transitive construction (see example 51). It is important to consider that not all languages have morphological case markers. As a matter of fact, Baerman and Brown (2013) mention that most of the languages don't have case markers or they have minimal marks. In their study they discovered that out of 197 languages 123 of them either do not have case marking or have minimal marks. The following examples were taken from Comrie (2013):

Nominative-Acusative
Latvian (Mathiassen 1997: 181, 187)
(40)
a. putn-**s** lidoja
bird-NOM fly.PST.3
'The bird was flying.'
b. Bērn-**s** zīmē sun-**i**
child-NOM draw.PRS.3 dog-ACC
'The child is drawing a dog.'

Tripartite
Hindi (McGregor, 1977)
(42)
a. laRkaa kal aay-aa
boy yesterday come.AOR-SG.MASC
'The boy came yesterday.'
b. laRke ne laRkii ko dekh-aa
boy.OBL ERG girl ACC see-SG.
'The boy saw the girl.'

Neutral
Mandarin (Li and Thompson 1981: 20)
(44)
a. rén lái le
person come CRS
'The person has come.'
b. zhāngsān mà lǐsì le ma

Ergative-absolutive
Hunzib (van den Berg 1995:122)
(41)
a. Kid-**Ø** y-ut'-ur
girl-ABS CL2-sleep-PST
'The girl slept'
b. oždi-**l** kid-**Ø** hehe-r
boy-ERG girl-ABS hit-PST
'The boy hit the girl

Divided system
Georgian (Harris 1981: 40)
(43)
a. vaxt'ang-**i** ekim-I iqo
Vakhtang-PAT doctor-PAT be.AOR.3SG
'Vakhtang was a doctor.'
b. nino-**m** daamtknara
Nino-AGT yawn.AOR.3SG
'Nino yawned.'
c. nino-**m** ačvena surat-eb-**i**
Nino-AGT show.AOR.3SG>3SG>3SG picture-PL-PA
gia-s
Gia-DAT
'Nino showed the pictures to Gia.'

Zhangsan scold Lisi crs q
'Did Zhangsan scold Lisi?'

In addition to the nuclear case markers (grammatical roles), there are other non-nuclear case markers (semantic roles). Among these markers we may find locatives, comitatives, benefactives, instrumentals, genitives, etc. The following examples show some of these non-nuclear case markers:

(45) àpá-ŋ ìʔìŋ **á-**kùufì
M.PFV.hit-TR 3.SG.M **INST-**baton
'He hit him with the baton'

Krongo, Sudan (Dryer, 2013a)

(46) Villem jaluta-b isa-**ga**
Villem go.for.a.walk-3SG father-**COM**[8]
'Villem is going for a walk with his father'

Estonian (Lavotha in Slotz, Stroh & Urdze, 2013)

(47) ɛsl'ɛk **tu**-g'ul
that **LOC**[9]-country
'in that country'

Prasuni (Nuristani; Afghanistan; Morgenstierne in Dryer, 2013a)

(48) adgur **jə**-ç^{o}a
Adgur **3SG.POSS-**apple
'Adgur's apple'

Abkhaz (Irina Borisovna Ankvad p.c. in Gil, 2013)

(49) qam-paq rura-nqa
you-**BEN**[10] do-3.FUT
'He will do it for you'

Huallaga, Quechua (Weber, 1947:56)

[8] The author's gloss for the commitative is 'with'. I changed it for the purposes of this paper.
[9] The author's gloss for the locative is 'in'. I changed it for the purposes of this paper.
[10] The author's gloss for the benefactive is 'purposive'. I changed it for the purposes of this paper.

In the world atlas of language structures, the language with more cases, including both nuclear and non-nuclear cases, Hungarian, is registered with 21 productive cases (Iggesen, 2013). The following paradigm of Hungarian is shown:

Nominative:	*hajó*	Allative:	*hajó-hoz*
Accusative:	*hajó-t*	Terminative:	*hajó-ig*
Inessive:	*hajó-ban*	Dative:	*hajó-nak*
Elative:	*hajó-ból*	Instrumental-Comitative:	*hajó-val*
Illative:	*hajó-ba*	Formal:	*hajó-képp*
Superessive:	*hajó-n*	Essive:	*hajó-ul*
Delative:	*hajó-ról*	Essive-Formal(-Similitive):	*hajó-ként*
Sublative:	*hajó-ra*	Translative-Factitive:	*hajó-vá*
Adessive:	*hajó-nál*	Causal-Final:	*hajó-ért*
Ablative:	*hajó-tól*	Distributive:	*hajó-nként*
		Sociative:	*hajó-stul*

(Tompa in Iggesen, 2013)

Chart 8. Hungarian Case Paradigm

3.1.4.1.3 Determiners, articles and demonstratives

Givón (2001) divides articles into definite and indefinite. A very common characteristic that is mentioned by the author is their tendency to appear as noun phrase clitics. They may also appear as noun affixes. The following example shows the article as a prefix in Bemba from Zambia:

(50) Non-referring (indefinite)
n-dee-fwaaya **ci-**tabo
I-PRS-want NREF-book
'I want a/some book' (not any particular one)

Givón (2001:65)

Payne (1997:93) states that demonstratives take the speaker's position as a starting point to express distance, or orientation. He uses the demonstratives *this, that, these* and *those* to represent the two degrees of distance that English has. Other languages may conceive more degrees of distance.

3.1.4.1.4 Class and Gender

Payne groups class and gender together. "A noun class, gender, or grammatical gender system is the grammatical classification of nouns, pronouns and other referential devices. Often such a system correlates with some extralinguistic grouping, such as human vs. non-human or female vs. male. However, gender for a linguist is a grammatical classification, which may be quite independent of any natural classification" (Payne, 1997:107). Givón (2001) also groups gender along with class. Moreover, he explains a very interesting aspect of noun classifying morphology regarding a diachronic view:

> Most commonly, noun classifying morphology begins its life as a relatively coherent system of semantic classification. Over time, however, it may gradually restructure and modify itself, eventually loosing much of its early semantic coherence. Many classification systems have thus become mere structural, seemingly arbitrary feature of synchronic grammar, with few semantic correlates (Givón, 2001:60).

Payne (1997:108-109) mentions that classifiers sometimes correspond to semantic classes:

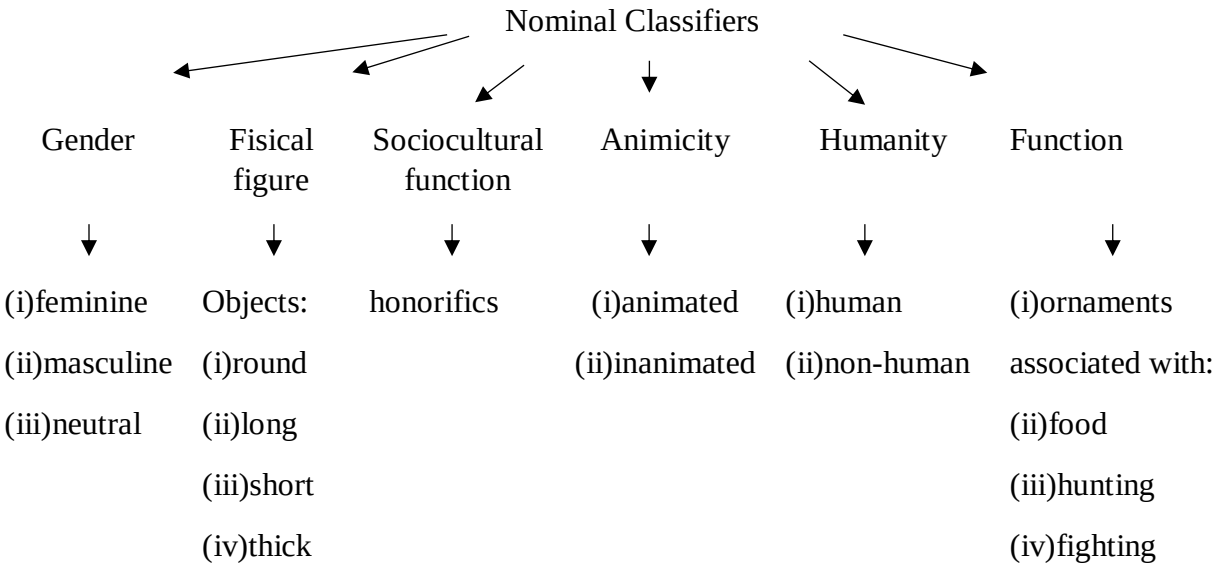


Figure 13. Nominal Class

3.1.4.2 Adjectival inflection

Haspelmath and Sims (2010) group adjectival inflection together with inflection that may be present in demonstratives, relative pronouns and adpositions (p. 82). The reason for this is that the adjectives can take the same morphemes and their functions are the same, to agree with the noun. The inflectional values that may be present in these classes are number, case, gender and person.

3.1.4.3 Verbal Inflection

This chapter will be centered in identifying the kind of morphemes that can be attached to the verb. I will describe the verbal morphemes that are most commonly found in the world's languages: TAM (§3.1.4.3.1), Valency Change (§ 3.1.4.3.2), and agreement

markers (3.1.4.3.3). Furthermore, TAM and valency change can also be divided in different subcategories. TAM, as it may be noted by its abbreviation, is divided in three subcategories (i) tense, (ii) aspect, and (iii) mode. Valency Change is divided in three subcategories (i) valency reduction, (ii) valency increase mechanisms, and (iii) rearranging mechamisms[11]. It must be stated that each language has its own mechanisms to represent these categories. On this chapter I will also address the tendency that each of these categories have to occur as inflectional categories (3.2.3.2.4).

3.1.4.3.1 TAM

In this chapter I will discuss briefly tense, aspect and mode, also known as TAM. Tense, aspect and mode are grammatical operations that refer to the expressed information in a clause according to its sequential orientation, temporal or epistemological (Payne 1997:233). In the following sections I will explain each of them.

3.1.4.3.1.1 Tense

Bybee (1985) and Comrie (1985) state the well-known definition for tense. This definition identifies at least three tenses represented in the world's languages: present, past and future. Both of them arrive to the conclusion that this vision is not enough to analyze the linguistic tense. The authors agree on the fact that each language has its own tense system. The following systems have been described by Comrie (1985:155-163):

It is relevant to take into consideration that languages have different ways to represent time. There will be languages that will even have other markers, such as,

[11] In this chapter I will only center the attention on the increasing and decreasing mechanisms.

immediate past, remote past, or immediate future. In languages like Birmano, even though there is no morphological tense, there must be another kind of mechanism to express time.

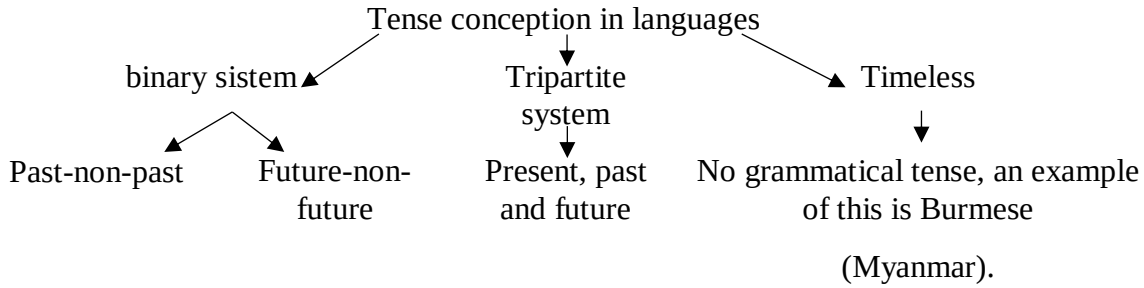


Figure 14. Tense Classification

3.1.4.3.1.2 Aspect

"Aspect describes the internal temporal shape of events or states" Payne (1997:238). To define aspect, Bybee (1985:141) classifies the aspect markers the following way:

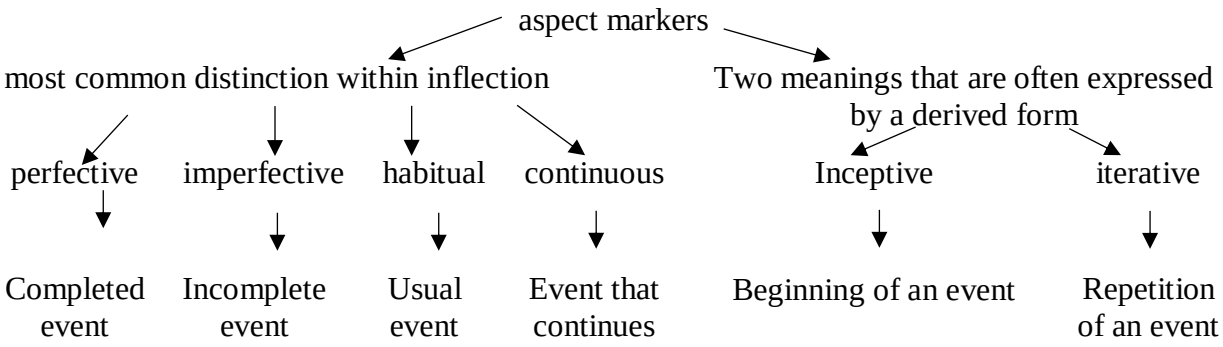


Figure 15. Aspect Classification

3.1.4.3.1.3 Mode/Modality

Mode describes the speaker's attitude towards an event, including the speaker´s belief in reality (Payne: 1997:244). Bybee (1985) describes mode as the way in which a

speaker chooses to express within a discursive context. Bybee also explains the difference between mode and modality. While modality is used to describe the conceptual domain that can be represented by numerous linguistic expressions, mood is the inflectional representation of this semantic domain.

3.1.4.3.2 Valency change

Verbal valency may go through different changes. The one relevant to the subject at hand is the one that presents change among the semantic roles and the syntactic functions. These changes are known as function-changing operations, also called *voice* (Haspelmath and Sims 2010:236).

There are two types of voice mechanisms, those that increase and those that decrease valency. Each of these are also divided in different subtypes, as it is shown below:

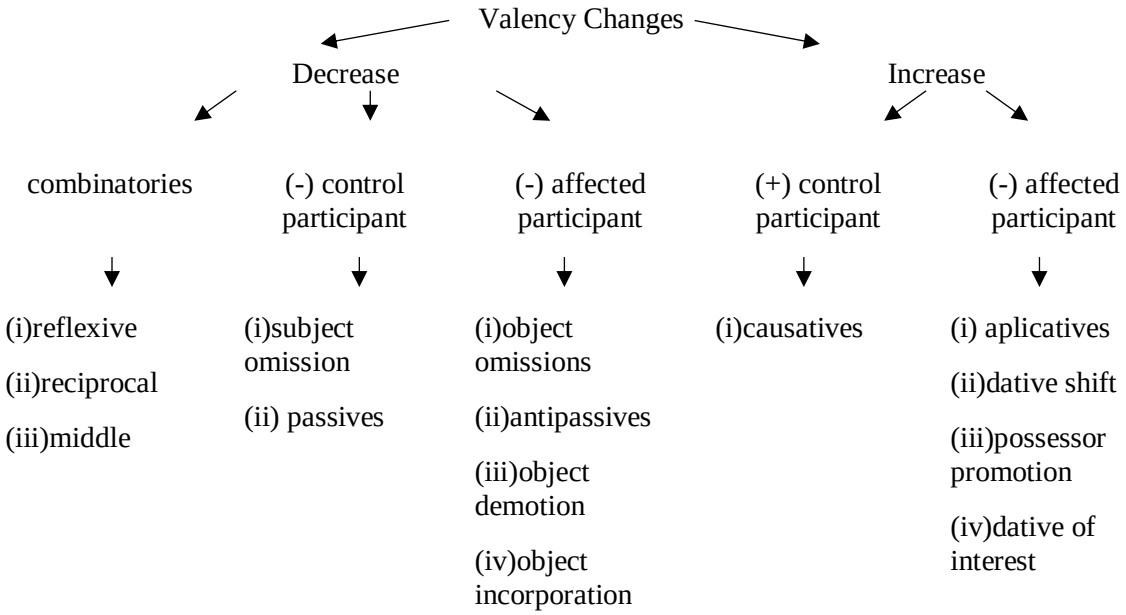


Figure 16. Valency Changes

The following examples illustrate each valency change type in detail:

(51)

Object reduction (combinatory)

Reflexive/Reciprocal

a. wambra-kuna riku-**ri**-rka

child-PL see-REFL/RECP-PST

'The children saw each other.'

or: 'The children saw themselves.'

Imbabura Quechua (Cole in Maslova & Nedjalkov, 2013)

Reduction of control participant

Passive

b. Be'arí né eče-**tu**-ma

Mañana 1SG picar-**PASS**-fut

'Mañana seré picado (lit. picado)'

Tarahumara (Valdez ,2005:105)

Reduction of affected participant

Incorporation

c. ngii- bmoomaawas

ni- gii = [bim - oom - **aawaso**]

1.S- PST= [along - carry.on.back - **child**]

'I carried a child on my back.'

Ojibwe: Rhodes y Valentine (2015:1238)

Increase of control participant

Causative

d. Je wé'rom karáa-**rol**

1SG a.la.fuerza cantar-**CAUS**

'canto (a la fuerza/forzado)''Soy obligado a cantar'

Tarahumara (Villalpando, 2010:247)

Increase of affected participant

Possessor promotion

e. Maniwíri ihčorewapaté-**ke**-re pantaóni waní

Manuel got dirty-BEN-PFV jeans John

'Manuel got John's jeans dirty' (John was wearing his jeans)

Guarijío: Félix (2007:264)

In the decreasing valency changes we can observe that a participant is downgraded or fused. For instance, in (51b) the agent of the active voice is downgraded to the point where it does not occur on the passive clause. However, in (51a) the mechanism is slightly different. The agent is not removed from the clause. It is actually fused with the object. As it may be observed in Imbabura Quechua there are two different interpretations that can be perceived by the same morpheme *-ri.* In the reflexive voice the verbal definition stays the same, but the agent and the patient are coreferential (Haspelmath, 2002: 213). The same may be said about the reciprocal sense. Incorporation is a very specific process that involves the union of a verb with one of the arguments, for instance in (51c) of Ojibwe the verb *oom* 'carry on back' incorporates the object *aawaso* 'child (see chapter 2.2.1 for further discussion).

On the other hand, the increase valency changes add a participant to the clause. For instance, in (On the other hand, the increase valency changes add a participant to the clause. For instance, in (57d) the causative adds a causer to the clause. Even though the causer is not specifically determined, semantically we can consider that there is something or someone that causes the cause *je* '1.SG' to sing *karáa-*. While (57e) *waní* 'John' is being promoted to possessor.

3.1.4.3.3 Agreement

"Subject and object pronominal affixes are some of the most salient members of the verb's inflectional paradigm. Thus, verbs are traditionally said to 'agree with their

subject' or, less often, *agree with their object"* (Givón, 2001:73). It is also possible to find non-pronominal suffixes that agree with the verb. "Occasionally, verb-agreement with some classificatory feature(s) of the subject or object is totally independent of the pronominal system" (Givón, 2001:74).

(For further explanation see chapter 2.1.2)

3.1.4.3.4 Verbal category tendency

Verbal categories have a tendency in the world languages to act as inflectional or derivational. Bybee (1985:17) mentions that the categories that are highly relevant to verbs tend to fail in generality to be considered as inflectional categories. This is the constant conflict between relevance and generality exposed by the author (see chapter 3.2.3.4) In fact, she mentions that these types of categories tend to lexicalize. Bybee (1985), in a study of 50 languages, has described the behavior of verbal categories. The following illustration shows the tendency of these categories:

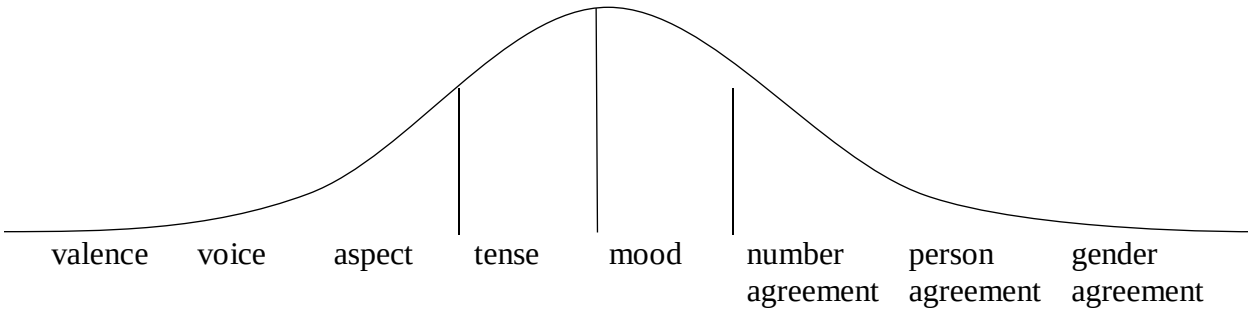


Figure 17. Tendencies of Verbal Categories to be Inflectional. Adapted material from Bybee (1985)

The author describes this illustration by considering the ones that are closer to the middle of the bell curve as categories that are more likely to be inflectional. On the other hand, the categories that are on the left and right of the graph have a less inflectional behavior. It must be pointed out that the behavior of the categories on the peripheries on the left and right are not the same. Bybee (1985) considers that even though both categories on the peripheries have a low tendency to inflection, their motivation differs. While the ones on the left are less prone to be inflectional because of their high semantic relevance, the ones on the right are less likely to be inflectional because they are scarcely relevant to the verb. In other words, if the category is highly relevant it inclines to lexicon, whereas if the category's semantics is scarcely relevant to the verbal base it tends to syntax.

3.1.4.4 Inflectional Expressions: relevance and generality

This chapter's purpose is to define two concepts that have a high impact in the semantics of inflection and derivation: *generality* and *relevance.* As we will see in chapter (3.2), linguists have different approaches for the conceptualization of derivation-inflection.

Bybee (1985) describes relevance in the following way: "a meaning element is relevant to another meaning element if a semantic content of the first directly affects or modifies the semantic content of the second" (p.13).This means that for lexical and inflectional expressions,[12] the relevance between the semantic elements should be quite high. On the other hand, when two elements that are irrelevant to one another, they're expressed through a syntactic expression. Bybee (1985) illustrates this with the following example:

[12] If we take into consideration the continuum we may include derivative expressions.

(52)

Semantic concepts				Lexical expression
'walk'	+	'through water'	=	'wade'
'walk'	+	'through water'	=	'wade'

Bybee argues that for the concept of walking it is relevant to know if the feet are moving on dry land, or in water. Therefore, the lexical expression *wade* joins these semantic concepts. As Bybee points out the *climate* might not be that relevant for the concept of *walking*. Therefore, the expressions *walk on a sunny day* or *walk on a cloudy day* would be expressed in a syntactic expression. The author reminds us that this depends on cognitive and cultural salience.

The relevance of inflectional expressions that are added to verbs can be analyzed. If the expression affects directly to the base, then it is semantically relevant. For instance, Bybee (1985:13) compares aspect with person agreement:

Aspect	Subject agreement
While Comrie (as in Bybee, 1985:13) defines it as directly related to the internal constituency of an *action, or state*.	It relates the predicate with its arguments.

Chart 9. Relevance of Aspect and Agreement

The author arrives to the conclusion that if we take into consideration that the verbal base is an *action, or state,* we will be able to deduce that aspect is much more relevant to a verbal expression than subject agreement. The author adds that this distinction implies other predictions:

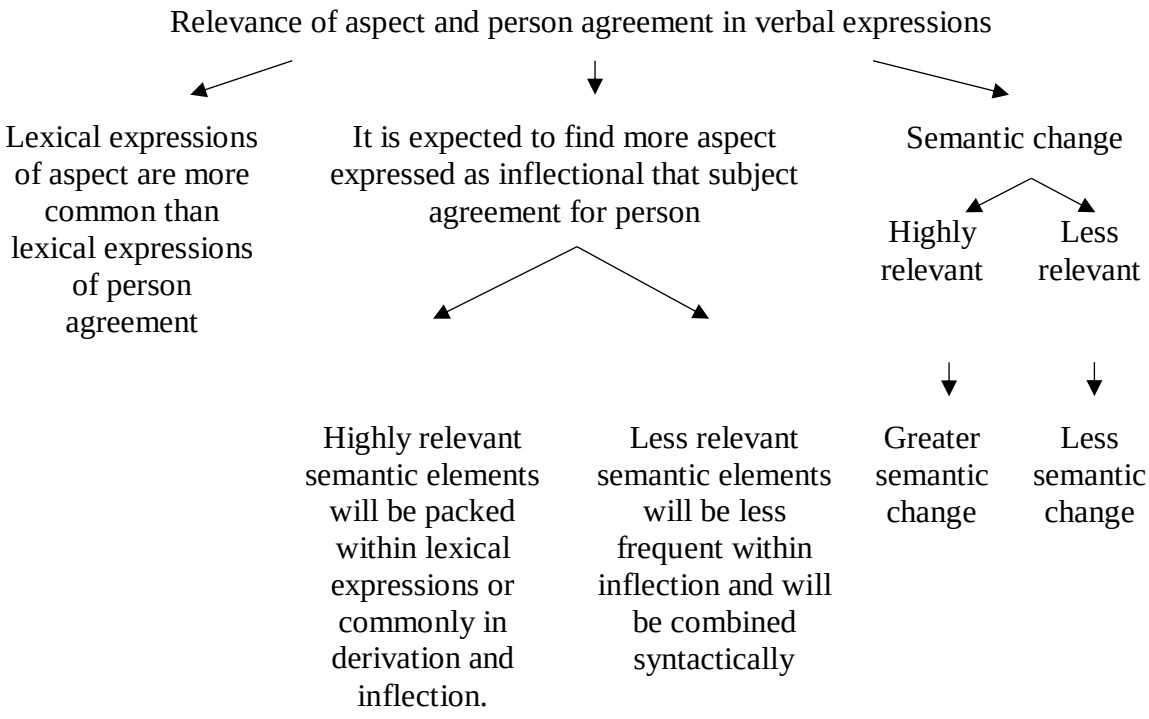


Figure 18. Relevance of Aspect and Person Agreement in Verbal Expressions

The second determinant is generality. An inflectional category is said to be applicable in a productive and obligatory way. This means that all stems of a semantic and syntactic category can be inflected in an appropriate syntactic context (Bybee, 1985:17). The author establishes that in order for the inflectional category to be so general, its semantic

content should be minimal. If the content is too specific, then it wouldn't be able to be added to a large number of stems. The motion prefixes in Latin show this restriction:

(53)

a.	eō	'I go'
b.	ex-eō	'I go out'
c.	trans-eō	'I go across'
d.	du-cō	'I lead'
e.	produ-cō	'I lead forth'
f.	tradu-cō	'I lead across'
g.	redu-cō	'I lead back'

(Bybee, 1985:17)

The author points out that the fact that these prefixes are so specific makes it hard for these affixes to be productive. In other words, it limits the affixes to verbs of motion.

Another aspect that needs to be considered is that these two determinants, relevance and generality, act upon categories in a very significant way. Even though they do not precisely oppose, they do detract from one another. Bybee (1985:17) expresses that if a category has a high relevance then it may not be able to be general. Actually, very relevant categories mainly produce derived words that have a more specific meaning. This may lead to lexicalization. On the other hand, she explains that when it is less relevant, and its meaning starts bleaching out, then it grammaticalizes. The following examples shows this behavior with causatives (Luganda, Bantu, and African):

(54)

a.	kùsalà	'to cut'	kùsazà	'to cut with'
b.	kùleèta	'to bring'	kùleèsa	'to make to bring, or to bring by means of'
c.	kùgoberera	'to follow'	kùgobereza	'to cause to follow'
d.	kùbala	'to count or calculate'	kùbaza	'to multiply'
e.	kùkyûka	'to turn around, change or be converted'	kùkyûsa	[1]'to turn, change or convert (transitive)' [2]'to retrace steps' [3]'to translate'

(Ashton et. al. as in Bybee, 1985:18)

Even though the causative may be kind of general in the language, where it is expressed as agent, instrument, reason or purpose, it is kind of ambiguous. In cases like (54d) and (54e) the meaning is unpredictable. Bybee (1985:18) compares the causative to tense. Tense's relevance is not as high as the causative expressions. Even though it anchors the situation to the moment of speech it does not change the event. The author considers that if we put morphemes on a scale, based on relevance, we might find out that inflectional categories will fall right in the middle of the scale. They would be relevant enough for their bases, but not as highly relevant to be lexicalized.

3.1.5 Derivation

Haspelmath (2002:68) defines derivation's main function as a mechanism to create new words for new concepts. The semantics of derivational morphemes tend to be more diverse than the semantics in inflectional morphemes (Haspelmath, 2002:68). Haspelmath

also adds that some derivational morphemes may cause a word-class change. In the following chapters I will address the different changes that derivation may cause.

3.1.5.1 Types of derivation

The classification of derivative morphology depends on two main aspects: the derived lexeme and the base. To define the process through the derived lexeme, the word class must be identified. For instance, in spanish the noun *lechero* 'milkman' derives from the noun leche 'milk'. Since a new noun is created, the morphological process is called nominalization. The same should be applied to verbalization and adjectivization. The classification of derived lexemes used by Haspelmath (2002:69) also depends on the word class of the base: deverbal, deadjectival, or denominal. For example, in Spanish *empacador* 'a person that packs products in a grocery store' comes from the verb *empacar* 'to pack'. If we take into consideration the base's word class, it is classified as a deverbal derivation. To sum up, we would say that *empacador* is classified as *deverbal* because of the nature of its base, and as a *nominalization* because of the nature of the derived lexeme. In other words, *empacador* is a *deverbal nominalization*.

Bauer (as in Haspelmath, 2002:68) considers that, since we have the need of naming things, nominalization is more common than verbalization or adjectivization. Comrie and Thompson (2007) made a classification of nominalization based on the type of derived nouns.

(55)

Name of activity or state				
a.	Action/state nouns	happy	happi-ness	Language English
Name of an argument				
b.	Agentive nouns	garden	garden-er	English
c.	Instrumental nouns	grind	grind-er	English
d.	Manner nouns	caminar (walk)	camin-ado (the way in which someone walks)	Spanish
e.	Locative nouns	sula- (heart)	sula-či (on the heart or chest)	Guarijio
f.	Objective nouns	naosa- (talk)	naosa-ri (word)	Guarijio
g.	Reason nouns	dataŋ	paŋ-dataŋ	Sundanese, Indonesia

(Robins, 1959 in Comrie and Thompson, 2007)

As I have mentioned before, derived verbs are less common that derived nouns (Haspelmath, 2002:69). Bauer (as in Haspelmath 2002:69) points out that the most common verbalization is deverbal verbalization. Even less common is deverbal adjectivization. The following are examples of denominal verbalizations in Névome (Pima Bajo):

(56)

a.	turhcadaga	'scabies'	turhcadaga-ta	'to have scabies'
b	ooga	'tears'	ooga-bua	'to shed tears'
c.	matae	'ash'	matae-mada	'to fill with ashes'

(Montiel, 2017:124-132)

3.1.5.2 Semantic features of derivative morphology

The purpose of this chapter is to semantically describe the combinatory processes of morphological derivation. In addition to form, it is relevant to consider the semantic aspects that are involved within word formation. The following aspects are crucial to accomplishing this task:

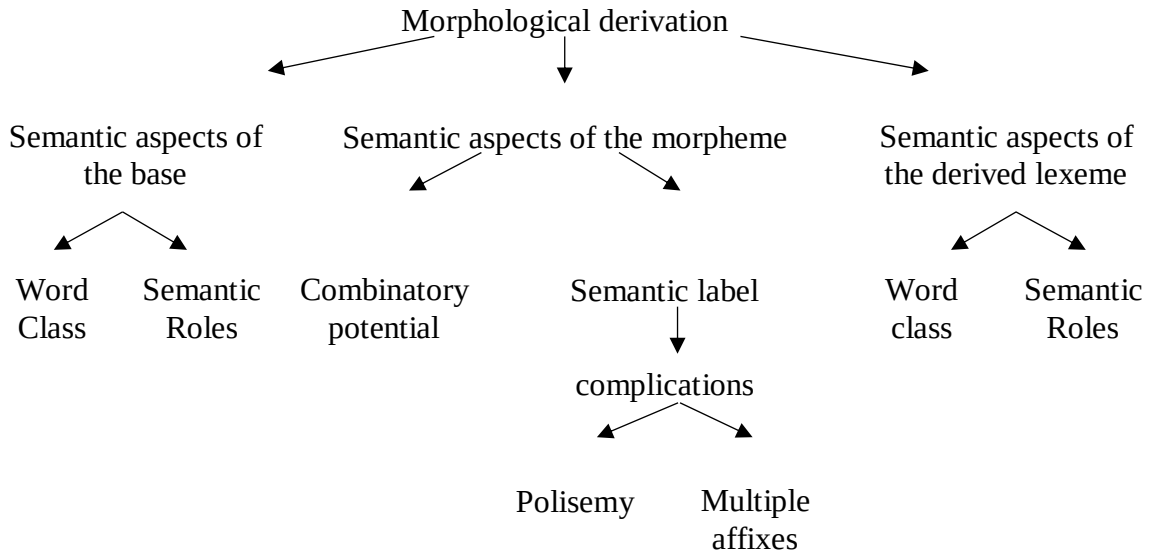


Figure 19. Semantic Features of Derivation

These aspects are not isolated from each other. The interaction that exists between them can actually give us more insight to the combinatory processes.

Throughout this chapter I will define the concepts that are relevant to the semantic analysis of morphological derivation. To begin with I will define and exemplify the concept of *combinatory potential*. Then I will define the semantic characteristics of a base that is involved in a combinatory process. Similarly, I will define these semantic

features regarding morphemes. Finally, I will define the importance of making a semantic analysis concerning the derived lexeme.

3.1.5.2.1 Combinatory potential

The semantic study allows us to identify the combinatory potential of the morphemes, in other words, the type of morphemes that can be combined (Haspelmath & Sims, 2010:34). "Affixation involves more than just combining two morphemes. A rule of affixation is also a statement about which types of morphemes may combine. This is the combinatory potential of the affix." (Haspelmath & Sims, 2010:34). The following affixation is possible in English:

(57) un- + Intelligent = unintelligent
(Haspelmath y Sims, 2010:34)

However, the authors show that not every morpheme can be combined with every base. For instance, in English the following combination is not possible:

(58) intelligent + -able = *intelligentable
(Haspelmath y Sims, 2010:34)

In other words, there is no combinatory potential of the base *intelligent* and the affix *-able*. The reason for this is due to the fact that the morpheme *-able* can be combined with verbs and the base *intelligent* is an adjective (Haspelmath and Sims, 2010). On the other hand, the affix *un-* is generally attached to adjectives, as in example 63. We may come to the conclusion that we are able to identify the combinatory potential

of morphemes by taking their semantic features into consideration. This may not be completely true. The following examples illustrate this fact:

(59)

	Un-
a	unkind
b	*unachiever

(60)

	Non-
a	non-achiever
b	*nonkind

(Haspelmath y Sims, 2010:35)

Both prefixes' semantics are identical (negative), which might bring us to the conclusion that their combinatory potential should be very similar. Nevertheless, non- is added to nouns and less frequently to adjectives (*non-circular).* While *un-* is added to adjectives and less frequently to nouns (Haspelmath & Sims, 2010:35). The authors represent the combinatory potential in the following way:

a. combinatory potential of *un-* [— A]
b. combinatory potential of *-able* [V —]
c. combinatory potential of *non-* [— N]
(' —' represent the position of the morpheme)

3.1.5.2.2 Semantic Features of derivative morphemes

Lieber (2004:2) points out the questions that have arisen throughout the years concerning the semantics of word formation processes. In this section I will mention the ones that are specifically about derivative morphology:

i. Polysemy: Lieber (2004) questions the fact that a single affix may hold more than one meaning at the same time. The example that she brings up is the english morpheme *-ize* (Lieber, 2004:2):

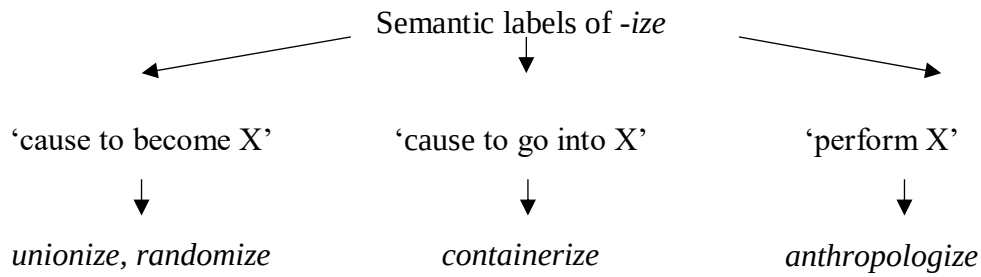


Figure 20. Semantic Labels for the Morpheme *-ize* Suggested by Lieber (2004)

Moreover, she discusses those instances in which a single morpheme is able to derive words with different thematic roles, for example the morpheme *-er* of English (Lieber, 2004:2):

-er			
agent	singer, dancer, painter, reader	**patient/theme**	catcher, buyer
instrument	hanger, slicer, grinder	**denominal noun**	drummer, gamer
experiencer	listener	**measure**	fiver
stimulus	awakener, reliever	**location**	diner

Chart 10. Derived Words with the Morpheme *-er*. Adapted from Lieber (2004).

ii. Multiple affixes: Lieber (2004:2) also mentions the fact that different affixes may have the same function at the same time or create derived lexemes of the same

type. For instance, she mentions the verbalizers *-ize*, and *-ify* that form causative verbs, and the nominalizers *-er*, and *-ant* that form agents:

(61)

	-ize
a)	immobilize
b)	fertilize

(62)

	-ify
a)	falsify
b)	terrify

(63)

	-er
a)	speaker
b)	teacher

(64)

	-ant
a)	protestant
b)	participant

3.1.5.2.3 Semantic Features of the base and the derived lexeme

Bauer (1983) analyses the semantic features of the bases that are involved in morphological derivation. He illustrates the whole process[13] with the bases that can be combined with the English morpheme *un-*. We should initially look for the bases that can be combined with the prefix (Bauer, 1983:38):

(61)

a.	glass	*un-glass
b.	toy	*un-toy
c.	clear	**un-clear**
d.	wrapped	**un-wrapped**

[13] The examples have been adapted.

e. happy **un-happy**

f. (to) call *un-call

g. (to) jump *un-jump

Bauer (1983:39) immediately notices that the prefix *un-* adds a negative meaning to its base. He also points out that, at this first sight, we might arrive to the conclusion that adjectives are the ones that can be combined with the morpheme *un-*. There are three statements that may be true if we only take these examples into consideration:

- *un-* can be combined with adjectives.
- *un-* can't be combined with nouns.
- *un-* can't be combined with verbs.

However, the author reminds us that, even though this seems to be the case at first sight, the data is not enough to make a definite conclusion. Bauer (1983) adds that the data that reflects the previous analysis seems to be precipitated:

(62)

	nouns
a.	uncertainty
b.	unnova

(63)

	verbs
a.	untie
b.	unlock
c.	untangle
d.	unabolish

The previous examples show that the prefix *un-* can actually be added to both, noun and verb bases. Nevertheless, the author mentions that the quantity of derived nouns with this morpheme is very limited. On the other hand, derived verbs with this morpheme

can be analyzed because its frequency is higher. In order to do so, we have to identify the type of verbs that may be combined with the morpheme *un-*. First of all, the author brings our attention to the semantics of the derived lexeme. The derived verbs do not have exactly the same semantic outcome as the derived adjectives. For instance, the verb *untangle* does not precisely have the definition of *not tangle*. Bauer (1983:41) suggests a different meaning related with reversal or deprivation. Therefore, it is reasonable to continue observing more data:

(64)

a. unabort
b. unaccelerate
c. unfasten
d. unwrap

(65)

a. *unwalk
b. *untry
c. *unlive
d. *undie

Bauer (1983:39) also questions the fact that every adjective can be combined with the prefix *un-*. He exemplifies some of the adjectives that do not allow the prefix *un-* to be added to them (Bauer, 1983:43):

(66)

	Group1
a.	*Unorange
b.	*Unwhite
c.	*Unviolet

(67)

	Group 2
a.	*undown
b.	*untogether
c.	*uncold

Bauer (1983:43) points out that the semantics of the adjectives that can't be combined with the morpheme don't seem to be arbitrary. On the contrary, there seems to be a pattern. Bauer (1983:43) cites the analysis made by Zimmer (1964) and Adams (2001) regarding this subject where they consider that to understand the 'negative' meaning of the morpheme *un-* it is essential to analyze the nature of antonyms due to the fact that the prefix creates an opposite meaning. They define three types of antonyms:

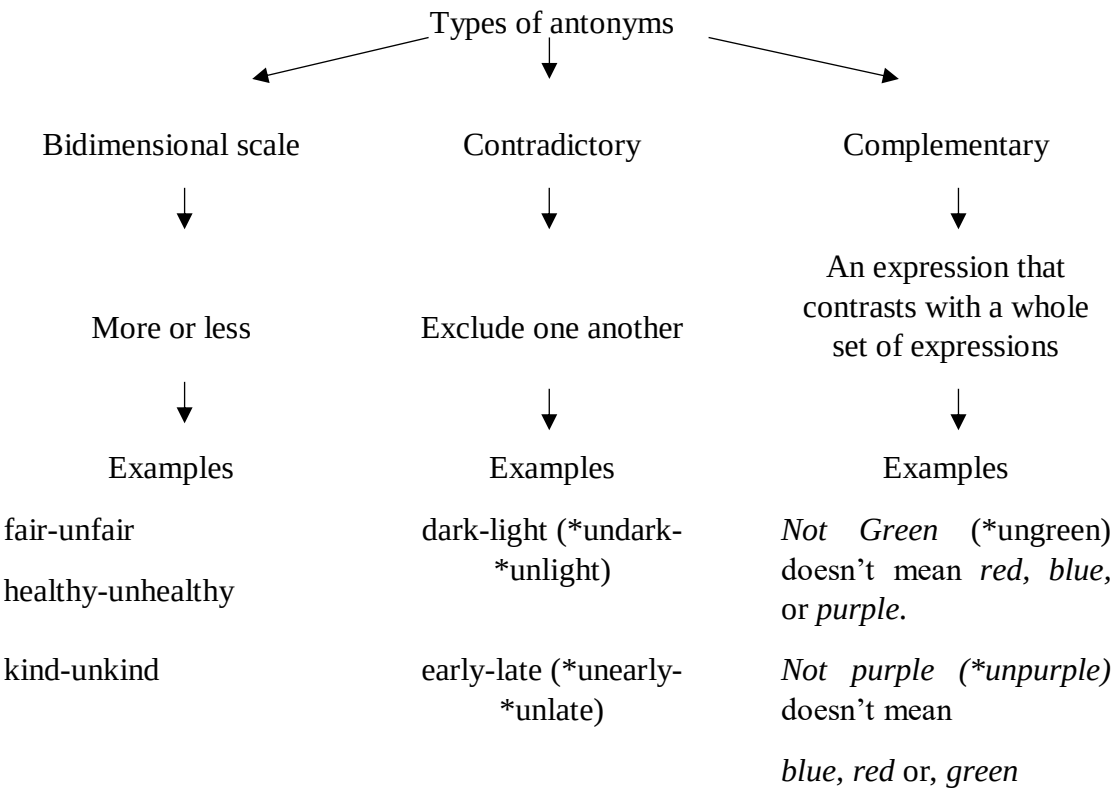


Figure 21. Types of Antonyms

In brief, the restriction for the morpheme *un-*, regarding adjectives, is that it can't be added to adjectives that have contradictory, or complementary antonyms. In addition to

these conclusions Bauer (1983:44) states that we are actually looking at three different morphemes:

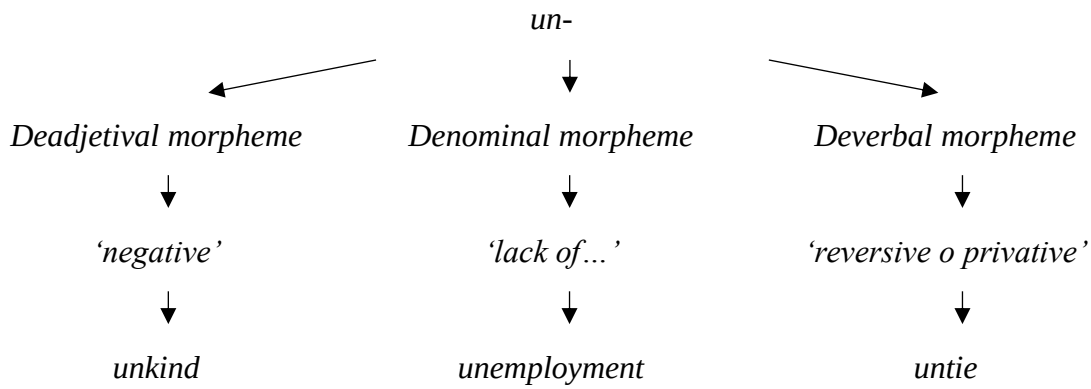


Figure 22. Derivative Morpheme *un-*

On the other hand, under Lieber's (2004) perspective we may consider that we are dealing with a polysemic morpheme. The following illustration compares both perspectives:

Different morphemes (Bauer, 1983)

un- Derivative denominal morpheme

un- Derivative deadjectival morpheme

un- Derivative deverbal morpheme

A single derivative morpheme *un-* (Lieber, 2004)

Deadjetival Denominal Deverbal

Figure 23. Different Perspective for *un-*

Another example presented by Haspelmath and Sims (2011:119) is the reversive prefix *de-* of English:

(68)

		Reversive
a.	compose	de-compose
b.	create	*de-create

The morpheme can only be combined with verbs that can be reversed (Haspelmath & Sims, 2010:119). However, the authors point out that there are some semantic restrictions that seem to be arbitrary. In other words, there are no inherent reasons regarding the semantic of the morpheme, or the base that can justify these restrictions. For instance, in Russian the suffix *-stvo* that denotes quality:

(69)

	Adjetive		Derived noun	
a.	bogatyj	*'rich'*	bogat-stvo	*'richness'*
b.	udaloj	*'bold'*	udal-stvo	*'boldness'*
c.	vjalyj	*'withered'*	*vjal'-stvo	
d.	priemlemyj	*'acceptable'*	*priemlem-stvo	

The authors consider that the restriction seems to be that the morpheme can only be combined with adjectives that express human qualities but can't be combined with adjectives that express an object's qualities. It is not possible to make a semantic conclusion out of this type of restriction.

3.2. Three approaches of morphology

There are three ways of conceptualizing the relationship between inflection and derivation: dichotomy approach, tripartition approach, and a continuum approach. The dichotomy approach and the continuum approach oppose each other, Haspelmath explains the difference between them:

> "The two most important views are the dichotomy approach, which assumes that complex words can be neatly divided into two disjoined classes, and the continuum approach, which claims that morphological patterns are best understood as lying on a continuum ranging from the most clearly inflectional patterns to the most clearly derivational patterns" (Haspelmath, 2002:60).

In this section I will define each of these approaches. I will also refer to some of the linguists that have embraced any of these positions and will describe their points of view.

3.2.1 Dichotomy Approach

As I have mentioned before, the dichotomy approach is one of the views held for morphological inflection-derivation. This approach tries to make a clear-cut distinction between two morphological processes. One that belongs solely to word-formation and the other one to word-form. The dichotomy approach is also known as *split morphology*.

It is very important to point out that *split morphology* doesn't have just one approach. There's a significant difference in the conceptualization of this approach between *functionalism, and formalism* (Laca, 2001:1215):

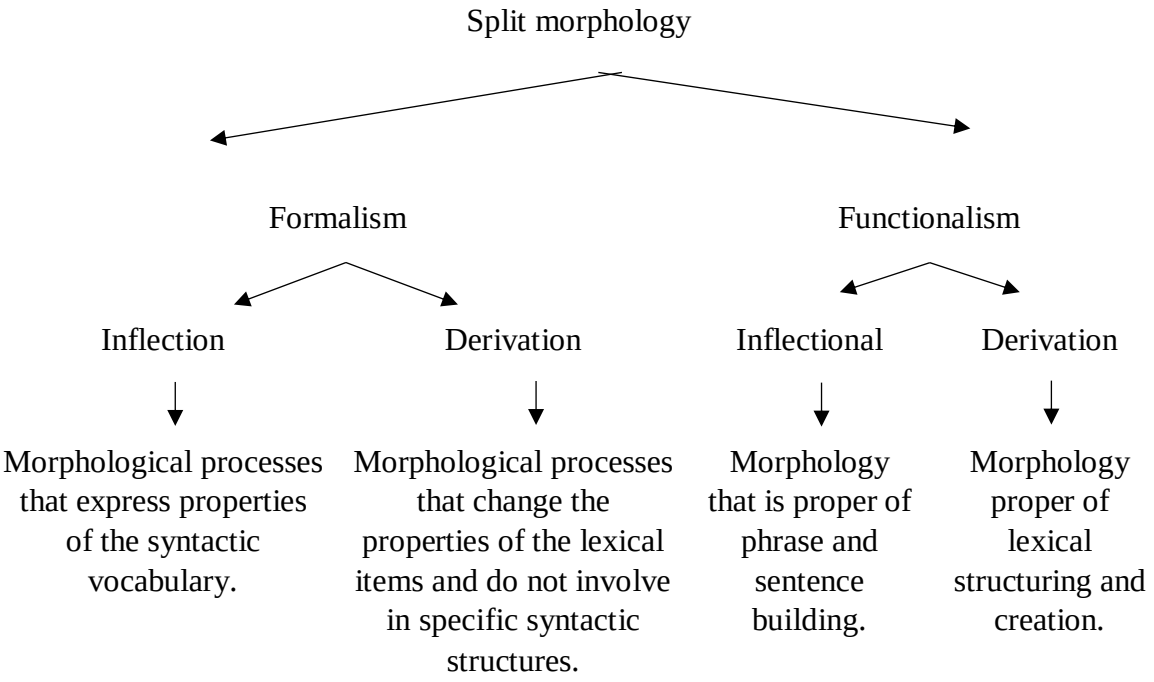


Figure 24. Split Morphology Approaches

Despite the different conceptualizations that formalism and functionalism have regarding inflection and derivation, under this approach they both have a common perspective. They are both trying to make a clear-cut distinction between derivation and inflection.

Within the split morphology view, it is considered that word-formation is pre-syntactic, while inflection is post-syntactic (Haspelmath, 2002:77). Therefore, the next example of guarijío would be analyzed as follows:

(70) ehpé rawé lune-či temei ohčome
today day monday-LOC tortillas black

koʔka=reme ihí sunu ohčorí rewa-ri=boga
comer=1.PL.S PRON.DEM.PROX corn blue.corn to.name-IMPF=RPT
'Today (monday) we ate black tortillas, the corn is named blue corn.'
'Ahora (lunes) comimos tortillas negras, el maíz es llamado maíz azul.'

The lexemes *temei* 'tortillas', *ohčome* 'black' and *ohčori* 'blue corn' are themselves derived lexemes. For instance, *temei 'tortillas'* is the nominalized form of the verbal base *teme* 'to make tortillas'. While two different lexemes are derived from the verbal base *ohčo* 'to be black': the adjectivalized form *ohčome* 'black', and the nominalized form *ohčori* 'blue corn'. Within the dichotomy approach these processes belong exclusively to the lexicon. While the syntactic structure will require the inflectional morphemes like the 'imperfective' *-ri* and the 'locative' *-či*.

Aronoff and Fudeman (2011) describe inflection and derivation from a dichotomy approach. They make a clear distinction between these categories:

Criteria	**Derivation**	**Inflection**
Change of lexical meaning or category	x	-
Tend to occur closer to the root	x	-
It is present in the lexicon[14].	x	-

[14] There are many exceptions in languages worldwide, therefore Aronoff and Fudeman (2011:170) consider this generalization no to be very reliable. Even more, they point out that some derived forms are not recorded on the lexicon.

It is determined by syntax.	-	x
It is more productive.	-	x
It may be applies to words of a given category with relative freedom.	-	x

Chart 11. Aronoff and Fudeman's Dichotomy Approach (Aronoff and Fudeman, 2011:168-170)

Actually, Haspelmath (2002) and Laca (2001) consider that this approach might support one of the basic distinctions between derivation and inflection. Since derivation is pre-syntactic and occurs before inflection, which is post-syntactic, this implies that the derivation rules are applied first and, as a consequence, the derivational morphemes *tend to occur closer to the root.* However, Laca (2001:1215) points out that in practice it does not seem to be that practical since it requires two complicated tasks:

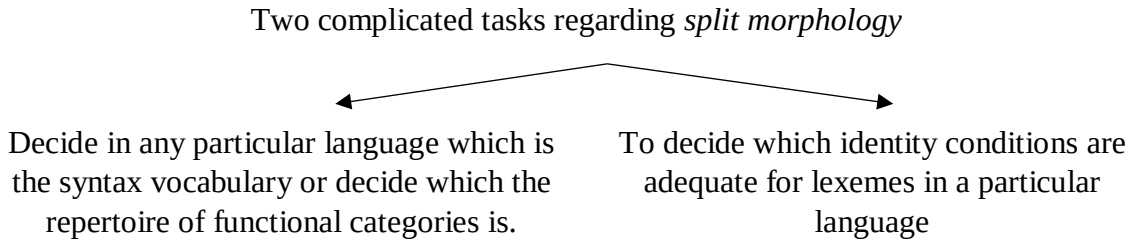


Figure 25. Split Morphology's Tasks

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More Problems arise while trying to tell these two categories apart. Despite linguists' efforts to decide which set of criteria might be useful for this purpose, they have found too many exceptions, and they tend to be inconsistent and only possible in a theoretical level. Bybee (1985:81) considers that Greenberg's (1954) criterion of obligatoriness might be the most successful among them. Due to the fact that obligatory categories force speakers to make certain choices.

This issue has brought new approaches to the derivation-inflection conceptualization. The tripartition approach (see chapter 3.3.2) tries to make sense out of these inconsistencies.

As I have previously mentioned, the criteria used to tell inflection from derivation brings other issues. "While linguists seem to have an intuitive understanding of the distinction, the objective criteria behind this intuition have proven to be difficult" (Bybee, 1985:81). In the following sections I will be addressing the problems that have arisen within these criteria.

3.3.1.1 Semantic change

Derivation has been described as a process that creates new lexemes, i.e., it produces a semantic change. On the other hand, inflection is described as a process that acts within syntax and is not related with semantic change. However, Bauer (2003:92) shows that this is not quite an easy task:

(71)

	Turkish	
a.	öl-mek	'to die'
b.	öl-dür-mek	'to kill'

(72)

	Swahili	
a.	chelawa	'be late'
b.	chelewa-sha	'delay'

(73)

	Finnish	
a.	elä-ä	'live'
b.	elä-ttä- ä	'provide for'

The morphemes of Turkish -dür-, Swahili -*sha,* and Finnish -ä are all causative affixes. In Turkish and Swahili, the outcome of the causative construction is predictable; *öldürmek* means 'cause to die', while *chelewasha* means 'cause to be late'. However, this

predictability is not so obvious in the causative construction ‘provide for’. The semantic change in Finnish is so considerable that causatives are considered to be derivational.

3.2.1.2 Morphological inflection is relevant to syntax

This criterion claims that inflection is relevant to syntax, whereas derivation is not. Haspelmath (2002:72) argues that this might be true for inflectional agreement categories because of their own syntactic nature, but other inflectional categories like tense and aspect are not that relevant to syntax at all. On the other hand, this criterion also claims that derivation is not at all relevant to syntax. As pointed out by Haspelmath (2002), the very fact that a derivational process may cause a change of word class affects the behavior of this derived forms in their syntactic environment. The following examples show change of category:

(74)

a. They were desperately trying to **extinguish** the fire.

b. The **extinguisher** was behind the door.

(75)

a. The first **colonies** settled in.

b. They **colonized** a whole continent.

Even though *koʔka-* ‘to eat’ and *koʔká-yame* ‘food’ have semantic similarities, their syntactic behavior is different, precisely because each of them act as the word class that they belong to.

3.2.1.3 Inflectional obligatoriness

This criterion establishes that inflection is obligatory, whereas derivation is optional (Haspelmath & Sims 2010:92). The authors refer to the Latin nominal paradigm to exemplify this phenomenon:

(76)

		singular	Plural
a.	nominative	*insula*	*Insulae*
b.	accusative	*insulam*	*insulās*
c.	genitive	*insulae*	*Insulārum*
d.	dative	*insulae*	*insulīs*
e.	ablative	*insulā*	*insulīs*

Haspelmath & Sims (2010:16)

The authors point out that Latin speakers did not have the choice to use the lexeme INSULA without a case marker. This characteristic made its use obligatory in nominal forms. In contrast, the authors mention that a non-obligatory morpheme would lead to the coexistence of the derived lexeme and the non-derived lexeme. For instance, Guarijio’s derived noun lexeme *temúre* ‘dream’ coexists with its non-derived verb lexeme *temú* ‘to dream’. Actually, Bybee (1985) considered obligatoriness to be the most reliable among these criteria.

However, Haspelmath (2002:72) considers that the application of this criterion doesn't seem to be accurate since most inflectional morphemes do not have the same behavior as the one exemplified in Latin.

3.2.1.4 Change of category

It is argued that derivation may lead to category change, while inflection does not. For instance, if we take into consideration the morpheme *-(a)im* 'past tense, first person singular' of Irish we may observe no change of category:

(77)

	Verbal base		*Present tense, 1SG*	
a.	mol	'to recommend'	mol-aim	'I recommend'
b.	cuir	'to add'	cuir-im	'I add'
c.	reáchtál	'to run'	reáchtál-aim	'I run'
d.	tiomáin	'to drive'	tiomáin-im	'I drive'

(Mac-Congáil, Nollaig, 2004)

The event stays semantically the same. The morpheme of tense just places the event in a specific place in time. On the other hand, observe the deverbal nominalizer taga- in Tagalog we are able to notice that there is a change of category:

(78)

	Verbal base		*Derived noun*	
a.	bumili	'buy'	taga-bili	'buyer'
b.	kumuha	'take'	taga-kuha	'taker'

c. samulat ‘write’ taga-sulat ‘writer’

(Schachter, Paul & Fe. T Otanes, 1972:105)

Even though the previous examples seem to show that this criterion makes a clear distinction between morphemes that change the category of the base and the ones that don’t, there are a couple of inconsistencies. For instance, Bauer (2003:95) points out that some derivational affixes could add so little meaning to the base that they would seem to have an inflection-like behavior. The author exemplifies this with the derivational suffix -ing. Even though there is a category change, there seems to be no relevant change of meaning:

(79)

a) Bill reads in bed.

b) Reading in bed is fun.

(Bybee, 2003:83)

It is also relevant to say that this morpheme is not only exceptional because of this behavior. It has led to controversy because it is commonly referred to as the verbal inflectional morpheme that denotes progressive aspect:

(80)

a) The children are playing hide and seek.

b) My dad was playing golf yesterday.

Bauer (2003:96) points out some of the inquiries that this kind of morphemes have produced: Is this the same morpheme with two functions, one inflectional and one derivational? Or, are we dealing with two different homophonous affixes?

Another issue added by Bauer (2003:93) is that there is no clear definition for category. To determine a category, we must group those that have identical distribution. Sometimes it is not clear if there is really a change of category because it is not established how close the distribution should be:

(81)

	Noun base		*Derived nouns*	
a.	perro	'dog'	perrera	'dog pound'
b.	carta	'letter'	cartero	'mailman'
c.	hombre	'man'	hombría	'manhood'
d.	pelo	'hair (countable)'	pelaje	'fur'

Even though we would expect a change of category because of the derivational process, there's none. Bauer (2003:94) argues that there is no simple answer concerning this kind of examples. The author considers that, at first sight, we are able to say that there is no change of category, but at a deeper level we might say that there is. This is due to the fact that the category of noun might even be subcategorized: abstract, concrete, countable, uncountable, animate, inanimate, etc. Under this view we are able to say that when the animate noun *perro* 'dog' was combined with the denominal suffix *-era* it changed to the category of inanimate noun *perrera*. In example (81b) we see the opposite

change, from inanimate to animate noun. We can also observe category change from concrete noun to abstract noun in example (81c). We even find a change from countable noun to uncountable on example (81d).

Bauer (2003) mentions that if we take into consideration this subcategorization, we might even find that inflectional morphemes may also cause these changes.

The purpose of Bauer (2003) is to point out that neither position seems to solve the problem. If we consider that the category changes should be among the major categories (noun, verb, or adjective), we might be leaving behind other derivational processes that do not make these changes. On the other hand, if we try to make a subcategorization to justify the change of category, we might find that inflection and derivation overlap. This means that this justification is not useful for a dichotomy approach of morphology.

3.2.1.5 Regular semantics of inflection

This criterion establishes that inflectional affixes have regular meaning whereas derivational affixes don't (Bauer, 2003:96). To make a better sense of this criterion it is important to get familiarized with the Bybee's (1985) concepts of *relevance*, and *generality* (see chapter 3.2.3.4).

Inflectional morphemes tend to be more general than derivational morphemes, while derivational morphemes tend to be more relevant than inflectional morphemes. In

consequence, inflectional categories have regular meanings. For instance, Ute's morpheme *-u*:

(82)

a.	sari-chi	'dog'	sari-chi-u	'dogs'
b.	toghoa-vi	'rattlesnake'	toghoa-vi-u	'rattlesnakes'
c.	sinaa-vi	'wolf'	sinaa-vi-u	'wolves'

(Givón, 2011:46)

On the other hand, since derivational affixes tend to be highly relevant, their meanings are sometimes too specific. Sometimes it is hard to grasp a regular meaning for a single morpheme, for example, Spanish's derivative morpheme *-ero:*

(83)

a.	ceniza	'ash'	cenic-ero	'ashtray'
b.	tráiler	'truck'	trail-ero	'truck driver'
c.	verdura	'vegetable'	verdul-ero	'a person that sells vegetables'
d.	hormiga	'ant'	hormigu-ero	'anthill'
e.	lavar	'to wash'	lavad-ero	'buddle'
f.	chiltepín	'chiltepín'	chiltepin-ero	'a special mortar for grinding chiltepin'

The previous examples show that giving a general semantic label to the morpheme *-ero* is not that simple. If we take into consideration (83a) and (83f), we might consider that 'a container' might be an acceptable label. Nevertheless, if we continue analyzing the rest of the derived nouns, we will soon realize that the morpheme is very irregular. The derived noun in (83d) can somehow be considered a 'container'. But it

should be taken into consideration that the semantics have expanded to a container of animated things, in this case ants. On the other hand, examples (83b) and (83c) show that the morpheme changes the inanimate base to an animate root, in these two occasions specifically to a 'person'. However, the meanings between these two derived nouns are very specific, thus a semantic label is hard to apply. We can also notice that the semantic label 'container' is no longer applicable. Moreover, example (83e) shows an even more problematic situation, not only does it not help to make a general semantic label, but it shows that the same morpheme may be applied to verbs to form new nouns.

Even though the distinction between the inflectional semantic regularity and the derivational semantic irregularity seems to be adequate for the examples mentioned above, a problem does take place. Bauer (2003:96) considers that the issue lies in the fact that some derivational affixes actually have regular meanings. For instance, the derivational morpheme in English *-able* 'ability to' has quite a regular meaning.

3.2.1.6 Productivity

To understand inflectional and derivational productivity we need to comprehend the general notion of morpheme's *productivity*. Haspelmath (2002:98) defines it as the ability of a morpheme to be applied to new bases in order for new words to be formed. It is said that inflection is productive, while derivation tends to be semi-productive.

However, Bauer (2003:74) points out that there might not be a morpheme that is fully productive. Even inflectional morphemes, which are said to be fully productive,

have their exceptions. For instance, English's morpheme *-ed* 'past', which is highly productive, has its exceptions:

(84)

	-s 'third person singular'	
a.	look-ed	
b.	spook-ed	
c.	scratch-ed	
d.	connect-ed	
e.	*think-ed	thought
f.	*sleeped	slept

The previous examples show that, even though the suffix is added to most of the verbs in English, it cannot be added to irregular verbs. Considering that most suffixes have their restrictions, Bauer (2003:85) centers his attention to the concept of *semi-productivity*, which is attributed to derivational morphemes. "A process is generally said to be semi-productive if it does not apply without exception to all bases defined by a certain part of speech" (Bauer, 2003:85). In other words, if derivation is defined as semi-productive, in contrast to inflection, why is it that we find inflectional categories that fit into this description?

Another fact that needs to be stated is that derivational morphology can even be as highly productive as inflectional morphology. Haspelmath (2002:100) exemplifies this with the derivative morpheme in English *-less*. The suffix creates new adjectives quite freely.

To sum up, we may be able to say that since both derivative and inflectional morphemes can be highly productive, and both can be 'semi-productive', this criterion is not able to make a dichotomic distinction in morphology.

3.2.1.7 Derivational morphemes are closer to the root that inflectional ones

As it has been mentioned before (see chart 11), linguists have observed across languages that derivational morphemes tend to be closer to the root, while inflectional morphemes tend to be peripheral. For instance, the following examples show this behavior:

(85)

a. enferm-er-a-s
root-NMLZ-FEM-PL

b. carbon-iza-ron
root-VBLZ-3.PL.PST.PFV

c. horror-os-a-s
root-ADJVZ-FEM-PL

In the previous examples we may observe that the derivational morphemes (nominalizer, adjectivizer, and verbalizer) are closer to the root than the inflectional morphemes (gender, number, person, tense, aspect). Nevertheless, there are some cases in which this is not true:

(86)

a. German
kind-er-chen
child-PL-DIM

c. Welsh
merch-et-os
girl-PL-DIM

b. Dutch
muzikant-en-dom
musician-PL-ABS.NOUN

d. English
accord-ing-ly
accord-PROG-ADVZ

(Bauer, 2003:100)

Again, the criterion may describe a morphological tendency, but it does not achieve a dichotomic differentiation.

3.2.1.8 Derivative lexemes can be replaced by monomorphematic forms

This criterion establishes that if we replace any derivative lexeme with a monomorphematic form it will still make sense (Bauer, 2003:100). For instance, the following example is possible in Spanish:

(87)

a. El presidente niega su *racismo* hacia los migrantes.
'The president denies his racism towards migrants.'

b. El presidente niega su *odio* hacia los migrantes.
'The president denies his hate towards migrants.'

The monomorphematic word *odio* 'hate' replaces the derived noun *racism* 'racismo'. The following examples show the opposite:

(88)

a. The bumblebee bat is the *smallest* living mammal on earth.
b. *The bumblebee bat is the *small* living mammal on earth.

The word form *smallest* could not be replaced by the monomorphematic word *small* because the construction is grammatically incorrect. However, Haspelmath (2002:73) points out that there are some inflected forms that may be replaced by monomorphematic words, for instance:

(89)

a. The *tulips* withered on may.
b. The *tulip* withered on may.

The example above shows that a word form may be replaced by a monomorphematic word. However, Haspelmath (2002) agrees on the fact that derived forms are replaced by monomorphematic words because they do not have specific syntactic properties. The issue relies on the phenomenon not being exclusive of derivative processes. Therefore, this criterion does not fulfill the purpose of dichotomy approach either.

3.2.1.9 The set of inflectional morphemes is a closed one

It is said that inflectional morphemes have a more closed category than the derivational ones. In other words, no new inflectional affixes can be easily added to a particular language. On the other hand, Bauer (2003:103) mentions that we might be able to add new derivative affixes to a language. For instance, the derivational suffix to create adjectives *-adelic:*

(90)

a. psyche-delic
b. shag-adelic
c. funk-adelic
d. punk-adelic

In Guarijio we may even find a new derivational morpheme that seems to be borrowed from Spanish. Medina (2011:37) considers that this morpheme might have been adopted from Spanish words like *guitarrero, arpero,* and *vaquero.* The following example shows the morpheme *-elo* added to a native word:

(91) Yawe-élo
to.make.a.celebration-NMLZ
musician (Medina, 2011:37)

Bauer (2003:103) indicates that the problem with this criterion that states that inflectional morphemes have a closed category is that it is describing languages from a synchronic scope. The claim that inflectional morphemes are strictly closed is undoubtedly false, from a diachronic point of view. Languages are in a constant change and that includes their inflectional morphemes. Throughout time, languages have new inflectional morphemes and they also lose inflectional morphemes. The biggest issue with this criterion is that it doesn't help to make any distinction between inflectional and derivational morphemes in a first approach to any language. A deeper diachronic study would be necessary to have reliable data.

3.2.1.10 Cumulative Inflection

Haspelmath & Sims (2010) add this criterion to the features of derivation and inflection. Inflection can be cumulative, whereas derivation can't be cumulative. The following examples of Kashmiri (Indo-Aryan Dardic language) show this characteristic:

(92)

a. tsi chu-**kh** kita:b para:n
2sg.nom be.M-PRS.2SG.NOM book read.PRS
'You (masculine) are reading a book'

b. toh' chi-**v** batɬ kheva:n
you.PL be.M.PL-PRS.2PL.NOM food eat.PRS
'You (plural) are eating your meals'

c. tse chu-**y** do:s ya:d kara:n
you.DAT be.M.PL-PRS.2.DAT friend.3MSG remember do.PRS
'Your friend remembers you'

(Koul, Omkar N. & Kashi Wali, 2006:83-86)

Kashmiri's morphology shows that a single inflectional morpheme can store a lot of information. In examples (92a-b) we can observe that the present tense morpheme also gathers other agreement morphemes like 'person, number and case'. In (92a) the morpheme *-kh* refers to 'present, 2nd person, singular, nominative'. On the other hand, in (92b), the morpheme *-v* has almost the same values as 92a, except for 'number', which is 'plural'. As a consequence, a different morpheme must be used. In other words, a group of values are gathered and contained in a single form. If one of these values varies the form must change. In example 92c the morpheme *-y* refers to 'present, 2nd person, dative'. Unlike the nominative morphemes *-kh* and *-v*, there is no number agreement for the dative case morpheme *-y*.

However, this does not help the dichotomy approach, due to the fact that a vast number of inflectional morphemes are not cumulative. In other words, we could *not support* the following statement: inflectional morphemes are cumulative, whereas derivational morphemes are not.

3.2.1.1.1 Summary

Bauer (2003:92) considers that the traditional dichotomy approach, though it seems to be quite intuitive, it really is not as precise as it seems. One of the weaknesses that the author exposes is that the main distinctions between inflection and derivation are founded over the concept of lexeme. The issue is that the concept of lexeme is regularly founded over the concept of inflection, for instance, "an abstract unit of vocabulary which occurs in different inflectional forms" (Bauer, 2003:91).

Bauer (2003:105) tries to find a solution to these inconsistencies by considering that we might think of these criteria as prototypes. Therefore, in many languages we might find certain variation. Under this view we would expect prototypical inflection and prototypical derivation to be as follows:

Prototypical inflection	*Prototypical derivation*
Unable to produce new lexemes	able to produce new lexemes
syntactically relevant	syntactically irrelevant
obligatory	non-obligatory
unable to change category	able to change category
semantically regular	semantically irregular
highly productive	semi-productive
peripheral	closer to the root

Irreplaceable (by monomorphematic words)	replaceable by monomorphematic words
a closed set of category	an open set category
cumulative	non-cumulative

Chart 12. Prototypical Features of Derivation and Inflection

This solution would not discard the dichotomy approach, it would only change its perspective. This way each language's morphemes would fall nearer or further from the prototypical categories. In the following chapters I will describe two alternative approaches, which do discard the dichotomy approach.

3.2.2 Tripartition Approach

This approach was pioneered by Booij (1996) and his concern for the inability of the dichotomy approach to find a reliable criterion to distinguish between derivation and inflection. Although he considers that there is no need to fully repel the distinction between derivation and inflection, he does point out that having only two classifications is not enough to encompass morphology. For his part, Haspelmath (2002:100) considers that dichotomy approach is divided into two: one that has two subtypes (derivation and inflection) and a tripartition (contextual inflection, inherent inflection, and derivation) which continues to mark a sharp boundary between the subtypes. Booij's (1996) proposal is to make an inner distinction on inflection. Therefore, he divides inflection into contextual inflection, and inherent inflection.

Boiij (1996) defines inherent inflection as the kind that doesn't have syntactic impact, whereas contextual inflection is defined as the kind that is ruled by syntax. Bauer

(2003) also points out that inherent inflection would solve issues similar to the *-ing* morpheme (see chapter 3.2.1.4). The author points out that the syntactic relevance is not enough to make a distinction between derivation and inflection (see chapter 3.2.1.2).

Some of the morphological categories that are classified among inherent and contextual inflection are the following:

Inherent inflection	**Contextual inflection**
Tense	Person agreement
Aspect	Gender agreement
Number	Noun class agreement
Comparative markers	Number agreement
Superlative markers	Case-marking (which are typically required by syntactic agreement or government)
Locative	
Ablative	
Instrumental	

Chart 13. Classification of Morphological Categories Under a Tripartition Approach

This distinction justifies those inflectional morphemes that do not have a prototypical inflectional behavior. Haspelmath (2002:101) argues that even though inflectional morphemes rarely have an unpredictable, idiosyncratic meaning, the ones that do, belong to the inherent inflection, For instance the locative morpheme in Guarijio *-či*:

(93)			(94)			
Predictable meaning			*Unpredictable meaning*			
a neʔa-či	night-LOC		a ohi-	To drink	ohi-či	drinking place

b	ari-či	river-LOC	b	sula-	heart	sula-či	chest
c	čeʔla-či	dawn-LOC	c	čeʔlá-	dawn	čeraʔá-či	East
							(Medina, 2011:20)
d	siera-či	mountains-LOC	d	Kasí-	branches	kasa-či	dumpster
							(Medina, 2011:64)
e	tepuri-či	cut-LOC	e	wiʔló-	to be bent	wiʔló-či	wrist
							(Medina, 2011:232)

Even though the locative morpheme in Guarijio is highly productive, sometimes its behavior is unpredictable. We can even observe that even though example (105a) seems to have a predictable semantic behavior, it has a derivation-like behavior. When the suffix is added there is a change of category (see chapter 3.2.1.4).

However, Haspelmath & Sims (2010) and Bauer (2003) agree on the fact that this approach does not solve every issue that has been mentioned on section (3.3.1). In fact, if we pay a close attention, we may arrive to the conclusion that this approach only solves some cases in which inflection seems to deviate from the inflectional prototype, but the cases where derivation deviates from the prototypical derivation remain unsolved.

3.2.3 Continuum Approach

Bybee (1985:109) considers that there is no discrete division between inflection and derivation, instead she considers this distinction to be as a continuous scale. “One of the persistent undefinable in morphology is the distinction between derivational and inflectional morphology. While linguists seem to have an intuitive understanding of the

distinction, the objective criteria behind this intuition have proved difficult to find" (Bybee, 1985:82).

Haspelmath (2002:99) also considers that the continuum approach solves basic issues in morphological analysis. First, by following the continuum approach, it is possible to avoid arbitrary choices that can be misguided due to the criteria used to distinguish derivation from inflection. Second, since derivation and inflection are seen as a collective whole, finding a strict border between them becomes pointless. And finally, what was considered an exception within the dichotomy approach, would only be considered a deviation from the prototypical derivative or inflectional morphemes. These deviations will only give us more information about the morpheme's position within the inflection/derivation continuum. The next chart shows an analysis using Haspelmath's model for continuum approach.

Language	Formation	Example	cum	obl	new	unl	cm
English	3rd Singular	*sleep/sleeps*	I	I	I	I	I
English	Noun plural	*rock/rocks*	D	I	I	I	I
Spanish	Diminutive	*perro/perrito*	D	D	I	I	I
English	Repetitive	*arrange/rearrange*	D	D	D	I	I
English	Female noun	*professor/professoress*	D	D	D	D	I
English	Action noun	*accomplish/accomplishment*	D	D	D	D	D

cum: cumulative, obl: obligatory, unl: unilimited applicable, cm: compositional meaning

Chart 14. Continuum Approach Analysis. Adapted material from Haspelmath (2002)

Essentially, it would be possible to place each morpheme, considering their characteristics, in a continuum graph.

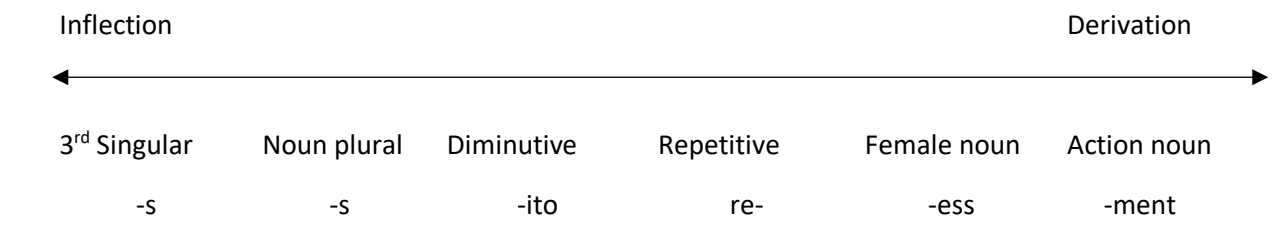
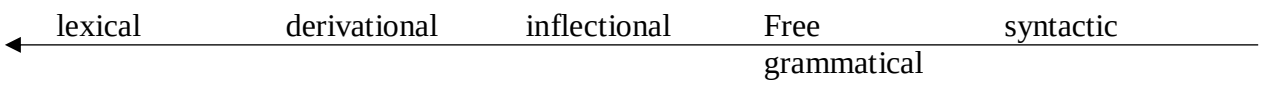


Figure 26. Continuum Graph

While the '3rd person singular' morpheme *-s* seems to be the morpheme that is more inclined to inflection, the 'nominalizer' *-ment* appears to be more inclined to derivation. Along the continuum, we can observe that other morphemes, based on their behavior, are more or less derivational or inflectional.

Bybee (1985:12) looks at the continuum from a much larger scope. The author suggests that this continuum is part of a much bigger one. In this respect, we can say that derivational expressions are much closer to lexical expressions than inflection. On the other hand, we can say that inflection is much closer to syntax than derivation. The following scale can illustrate this relation in a very clear way:



Greater degree of fusion

Figure 27. Degree of Fusion. Adapted from Bybee (1985:12)

The continuum approach, unlike the dichotomy approach, takes advantage of the morphemes' deviations from the criteria (mentioned in 3.2.1). The need to position the morphemes of any language within a clear-cut classification, under the dichotomy approach, makes it necessary to speak about exceptions or particular cases. Instead, if we consider the continuum approach, we can describe morphemes in a more accurate way. For instance, we might be able to explain why some inflectional morphemes can occur closer to the root than derivational ones, for instance, the inchoative morpheme -pa/-ba in Guarijio:

(95) čeʔe- → čeʔe-ba → čeʔe-ba-re
'to be sick' *'to get sick'* *'sickness'*

Haspelmath (2002) considers that the morphematic order could be explained under this approach. If a morpheme appears more derivational in a continuum, it is more likely that it will appear closer to the root. On the other hand, if it appears more inflectional, it is more likely that it will appear at the periphery.

CHAPTER 4

GUARIJIO'S INFLECTION-DERIVATION ANALYSIS

Our purpose all along has been to demonstrate that the continuum approach of morphology can provide us a deeper insight into morphological analysis. To do this we are analyzing under the continuum approach four morphemes of Guarijio which have been carefully chosen based on their high probability of showing an overlapping behavior between derivation and inflection. Naturally, there are other equally interesting affixes that can be explored in the language, i.e., other morphemes that will show this behavior. Nonetheless, a decision had to be made and a proper exploration of these four items will very well give us a general view of the phenomenon, as well as an understanding of what needs to be taken into consideration when making this type of analysis. My hopes are that our present work will aid researchers to advance more academic investigations using this approach.

The first morpheme that is being analyzed is the nominalizer *-me*. This morpheme has also been documented in other languages of the Uto-Aztecan family. Álvarez (2012) describes the divergent behavior of the morpheme *-me* in Yaqui (a language of the Uto-

aztecan family that also belongs to the Taracahitan branch). It has been observed that in Guarijio the morpheme *-me* has a very similar behavior. It would be interesting to test analogous morphemes in more languages from the same linguistic family, perhaps another time.

The second and third morphemes that will be analyzed have been selected considering the verbal categories with a derivative tendency, which is mainly motivated by their semantic relevance. Therefore, the morphemes that have been chosen correspond to categories on the left of Bybee's bell curve (see figure 17). In Guarijio, I have found two morphemes that show syncretism between derivation and inflection: (i) the inchoative morpheme -pa/-ba, and (ii) the applicative morpheme -e/-re.

And finally, I will describe the verbalizer *-e*. There is a discrepancy in the ways in which previous authors have described this morpheme. Some authors consider this morph to be part of the applicative *-e/-re*, mentioned before, with a different function. On the other hand, some authors have described them separately. For instance, Medina (2011) documents two different morphemes in her dictionary's entries. In other words, she does not make a link between the morphemes. On the other hand, Miller (1996) and Casas (2018) consider *-e/-re* as a single morpheme with different functions. This apparent link between the applicative and the verbalizer seems to be very unclear, and dubious. I consider that the way in which these morphemes are related is exclusively by their phonological form. In other words the applicative *-e/-re* and the verbalizer *-e* are homophonous. There seems to be no other relation between the the two morphemes. This

apparent bond lead me to the verbalizer *-e*. In process of analysis the morpheme also showed a varying nature regarding derivation and inflection.

In the following sections I will be analyzing the four morphemes under the morphological criteria of derivation and inflection that has been proposed by Haspelmath & Sims (2010), Bybee (1985), and Bauer (2003).

There has been a careful selection of the criteria that will be used in this thesis. Some criteria have been discarded for several reasons. First of all, 'productivity' (see §3.2.1.6) needs a much bigger sample than the one that is considered in this thesis. A similar rationale is considered in the criterion that states that derivative lexemes can be replaced by monomorphematic forms (see § 3.2.1.8). The sample would have to be doubled to show a monomorphematic form in the same or, at least, a very similar context in which each morpheme occurs. The criterion that refers to inflection as a closed category (see § 3.2.1.9) was discarded because it's theoretically refutable. Bauer (2003) clearly rebuts this criterion by reminding us that, from a diachronic point of view, languages are in constant change, and this includes inflectional affixes (see further discussion in § 3.2.1.9). The last criterion that has been discarded in this section is the one that refers to cumulative inflection (see § 3.2.1.10). This criterion might be helpful in fusional languages. However, Guarijio's typological characteristics show that cumulative affixes are very rare in the language (see § 2.1). The vast majority of affixes in the language are non-cumulative, regardless of their inflectional or derivative nature. Therefore, I consider that this criterion is not appropriate for Guarijio's morphological analysis.

In consequence, the morphemes are described under six main criteria (i) syntactic relevance, (ii) semantic change, (iii) arbitrariness, (iv) change of category, (v) the morpheme's position relative to the base, and (vi) obligatoriness.

4.1 Nominalizer *-me*

The first thing that has to be noted is that this morpheme has two functions: (i) as a prototypical derivative morpheme it results in lexical nominalization, and (ii) it is also able to form clausal nominalizations. The description of the morpheme relies on these two outcomes. The morpheme's functions have been analyzed separately to have a better understanding of all their possibilities. Throughout this section we will notice that the affix may behave differently under a single criterion because of its varying nature.

Álvarez (2012) shows that nominalizations in Yaqui can be both, lexical and clausal. The author lists different properties of these kinds of nominalizations:

		Lexical nominalization	**Clausal nominalization**
(i)	**Type of process**	Derivational	Grammatical
(ii)	**The referring expressions created are**	Lexical nouns (with lexical status)	Noun phrases (with no lexical status)
(iii)	**Applies to**	Lexical roots	Finite verbal clauses
(iv)	**Graduality**	Non-gradual process restricted to lexemes	Gradual process that refers to interclausual connectivity
(v)	**Applicability**	Limited	Unlimited
(vi)	**semantic**	Semantically	Semantically predictable

predictability	unpredictable	
	(idiosyncratic meaning)	

Chart 15. A Contrast Between Lexical and Clausal Nominalization's Properties. Adapted material from Alvarez (2012)

If we look closely at the properties described by Álvarez (2012), they are notionally similar to some of the criteria mentioned in this paper (see chapter 3.2.1). For instance, in property (ii) we are considering different indicators. It basically summarizes the difference between the *syntactic* and *semantic relevance*. The same relation can be perceived from property (iv). Another comparison can be made on property (iii) where the central argument relies on the fact that morphemes can be added to two different bases. They may be added to lexical roots, or finite verbal clauses. This has a consequence on the position of the morpheme with respect to the base. If a morpheme is added to lexical roots, the morpheme will occur closer to the root. Otherwise, if the morpheme is added to a finite verbal clause the morpheme will occur on the periphery. Property (v) refers to the productivity criterion. And finally, property (vi) is closely related to the *semantic relevance* criterion (semantic change and semantic regularity). On this section I will describe the nominalizer *-me* under the inflection-derivation criteria.

4.1.1 Criterion I: Syntactic Relevance

The nominalizer *-me,* in Guarijío, has the ability to create new lexemes. This is a prototypical feature of a derivative morpheme. The following examples show lexical

nominalizations, and as expected, this type of nominalization is not relevant to syntax (see §3.3.1.2):

(96)

a. ihí noʔo woči-wa=ga kaari-na=boga
DEM.PROX 1SG.NS grandfather-POSS=EMPH house-PRS.PROG=RPT

yohk-ame rewa-ni=ra
paint-NMLZ to.name-PRS.PROG.=RPT
'My grandfather is called a house painter'

b. ihí **čičtula-me** iʔkačima nete-re maria=ga kesó
DEM.PROX to.roll.up-NMLZ xxx make-REM.PST mary=EMPH cheese
'Mary used a rounded mold to make cheese'

However, an aspect that must be mentioned is that, as Haspelmath (2002) points out, the very fact that a derivative process may cause a change of category affects the behavior of the derived forms in their syntactic environment. The nominalizer *-me* shows this behavior:

(97)

a. aʔčigo ni=ga **koʔ-ko-nare** pie lulče
very 1SG.S=EMPH ITER~eat-**DESD** one candy
'I want to eat a candy (so much)'

b. ihí kučala kuʔu netere-ma iʔka lo~loa-me
DEM.PROX spoon stick need-FUT DEM.PROX.NS ITER~mix.food-NMLZ

koʔ~ká-ya-me
PL~eat-xxx-NMLZ

‘She/he will need the spoon for food mixing’

The previous examples show the difference between the verb and its derived form. On (97a) the verb *koʔko-* ‘to eat’ is the head of the clause. We can observe that this form is able to occur with the desiderative morpheme *-nare*, which is added only to verbs. On the other hand, on (97b) the derived form acts as a noun, therefore it can no longer have verbal morphology. We may attest this by taking into consideration that *koʔkáyame* ‘food’ has a different function in the clause. It acts as an oblique argument.

There are morphemes that are typically described as derivative affixes that seem to have some syntactic functions. The clausal nominalizations that Alvarez (2012) refers to in Yaqui are those that show relativization patterns. Guarijio seems to act in a very similar way, it also shows clausal nominalizations with the same morpheme. At first sight, we may argue that the nominalizer does not have any syntactic impact since it does not create any agreement-like relations. Nevertheless, because it has the ability to create clausal connections, it is highly relevant to syntax. The following examples show this behavior in Guarijio:

(98)

a. ihí peineta [**mesá-či poʔi-me**] noʔo nati-wa-u
DEM.PROX comb table-LOC to.be.lied.down-NMLZ 1.SG.NS thing-POSS-xxx
‘The comb that lies down on the table is mine’
(subject-RCl)[15]

[15] This classification of the relativization is made in Álvarez (2012).

b. čuhčiri ma te-kao teua-i-ra iʔka **hesus** **[muʔu-ka-me]**
dog well loc-up find-xxx-REM.PST DEM.PROX.NS Jesus to.die-PST-NMLZ
'The dogs found Jesus', who was dead, up there'
(subject-RCl)

The previous examples show noun phrases that act as relative clauses. As mentioned by Álvarez (2012), clausal nominalizations show finiteness. For instance, (98b) shows a past tense morpheme *-ka*. It should be mentioned that in (98a) the verb seems not to be finite. But Guarijío's present tense is not marked (Miller, 1996). Therefore, the fact that the verb does not show an explicit morpheme does not mean that the verb is not finite.

4.1.2 Criterion II: Semantic Change

As I have mentioned before, the nominalizer has to be seen under its two functions. If we consider what has been stated in chart 15, we can expect that the semantic relevance of the morpheme will vary depending on its function. Lexical nominalizations imply semantic change, for instance:

(99)

a.	yohke-	to stain	yohk-**ame**	painter
b.	čičtula-	to roll up	čičtula-**me**	rounded object/ rounded mold for cheese
c.	wikata-	to sing	wigata-**me**	singer

As it can be observed in the examples above, the morpheme has created new lexemes that will be stored in the speaker's lexicon. However, when it is applied to clausal nominalizations it creates noun phrases with no lexical status:

(100) ehpé rawé lune-či teme-i **ohčo-me**
today day monday-LOC to.make.tortilla-NMLZ to.be.black-NMLZ

ko?ka=reme ihí sunu ohčo-ri rewa-ni=boga
to.eat=1.PL.S DEM.PROX corn to.be.black-NMLZ to.name-PASS.PRS=RPT

'Today (monday) we ate tortillas that are black, the corn is named black corn.' (subject-RCl)

On the previous example *ohčo-me* 'the ones that are black' is nominalized to modify the noun *temei* 'tortilla'. This type of nominalization is not considered to be stored in the speaker's lexicon. If we analyze the base's meaning *ohčo* 'to be black' and its nominalized form *ohčome* 'the one that is black' we arrive to the conclusion that the morpheme has very little semantic relevance. In other words, the semantic features of the base do not change significantly when the morpheme is added.

4.1.3 Criterion III: Arbitrariness

The morpheme *-me,* within its lexical nominalization, has very irregular semantics, just as derivational morphemes are expected to. As a matter of fact, it is very hard to appoint a single label to this morpheme. This can be perceived on the following examples:

(101)

a.	eči-	to plant	eči-**me**	crop	Medina (2011:34)
b.	yohke-	to stain	yohk-**ame**	Painter	
c.	čičtula-	to roll up	čičtula-**me**	rounded object/ rounded mold for cheese	

These derived forms have different outcomes. For instance, in example (101a) an objective noun is created, i.e. a result or product. Thus, we can observe that *ečime* 'crop' is a result of *eči-* 'to plant'. We can also observe that the lexemes under this label are inanimate and non-volitive. In contrast, we observe that in (101b) the morpheme creates lexemes that refer to *agents*. In other words, when the suffix is added to the non-derived verb *yohke-* 'to stain', an agentive noun[16] is created, *yohkame* 'painter'. Under this label the morpheme creates lexemes that possess high animacy, and volition. Moreover, example (101b) does not fit under any of the labels mentioned in the previous examples. Instead, the lexemes that are created seem to refer to an object with certain characteristics, which are described by the non-derived lexeme. That is to say that čičtulame 'rounded object/ rounded mold for cheese' has the characteristic of being an object that is 'rolled up'. The lexemes that are created are inanimate and consequently non-volitive. In other words, the meaning added by the morpheme to the base is highly irregular. Under this perspective we may say that the morpheme, under this function, has an inclination to a more derivative behavior.

In contrast to the lexical nominalization of *-me*, under the clausal nominalization criterion the morpheme has a different behavior. The semantics that result from the addition of the affix is quite regular. The following examples clearly show this aspect:

(102)

a. ena-pa start to come ena-pa-**me** 'the one that starts to come'

[16] See classification in § 3.1.5.1.

b.	mamači-	to pray	mamači-**me**	‘the one that prays’
c.	inamú-	to listen	inamú-**me**	‘the one that listens’
d.	poʔi-	to be lying down	poʔi-**me**	‘the one that is lying down’
e.	nahki-	to love	nahki-**ame**	‘the one who loves’

The meaning that is added to the base is very consistent. These nominalizations add a more grammatical meaning that is used to define a referent. Therefore, in (102a) when the morpheme is added to *enepa ‘start to come’* (which has an inchoative morpheme *-pa*) it defines someone or something that ‘starts to come’, just like a relative clause does. The same may be observed on examples (102b-e).

4.1.4 Criterion IV: Change of category

If we take into consideration lexical nominalization with the morpheme -me, we may observe that there is a change of category. In other words, we may observe that lexical nominalization does comply with this criterion. The following examples show this:

(103)

a.	aha-	‘to be standing up’	aha-ga-**me**	‘living thing’
b.	ariwá-	‘the days to pass’	ariwá-**me**	‘the beginning of the afternoon’
c.	mugu-	‘to die’	mugú-**me**	‘death’ (Medina, 2011:102)
d.	suʔrí-	‘to get scratched’	suʔri-**éme**	‘scar’ (Medina, 2011:174)

In examples (103a-d), when the morpheme is added to the verbal base, the derived lexemes change into a noun. However, we may also find that this same morpheme can act on nominal bases to create new nouns, for instance:

(104)

a.	čihtó	'corner'	čihtó-**ame**	'mold for adobe clay'	(Medina, 2011:23)
b.	kahé	'shell, crust'	kahé-**me**	'waterbug'	(Medina, 2011:60)

The examples shown in (104a-b) are the only few examples that have been documented where the nominal lexeme derives from another noun with the morpheme *-me*. It could be considered that this is not productive.

Clausal nominalization has a different behavior under this criterion. The result of the combination of the base and the morpheme *-me* is a little bit more complicated. To understand this, a comparison with lexical nominalizations can be useful. Lexical nominalizations act on a lexical level and the change of category stays on the same level, from a lexical verbal root to a lexical nominal derivation. Clausal nominalization, on the other hand, acts on clausal level, see the following examples:

(105)

a. Ihí tomoári ibuanaa **ena-pa-me** iʔwa wana
DEM.PROX cloud xxx to.come-INCH-NMLZ here

wana elsur asi-ma ohčona rona
to.the.other.side south to.arrive-FUT to.be.black xxx

yuʔki-pa-ma-ra ba'a aʔačigo čonani tomoári
to.rain-INCH-FUT-POT already very xxx cloud

'The clouds that will start to come here to the other side (the south) will arrive and will be black, the clouds will probably start to rain'
(Subject-RCl)

b. maé-na=niga Teurúsio **ená-me**
to.believe-pres=1SG.S Tiburcio to.come-NMLZ
'I believe that Tiburcio came'

(Complement clause)

(Miller, 1996:211)

We may observe that (105a) and (105b) differ because of a single morpheme *-pa*. This morpheme adds a grammatical verbal aspect of inchoative (105a). This shows that the nominalizer acts on a clausal level. This has to do with the order in which the morphemes are applied. First the TAM morphemes take place on the verb and then the nominalizer occurs.

Bauer (2003) argues that it is sometimes unclear how to define category. The main word class categories (noun, verb, adjective) are not useful in this type of constructions because they remain in a lexical level. To decide if there is a change of category it is necessary to define the level in which the morpheme is acting. As I have stated along this section, the morpheme acts on a clausal level. Therefore, it is pertinent to define the categories that are involved in the process. In other words, there is a change of category since a finite verbal clause changes to a noun phrase when the morphemes is applied.

4.1.5 Criterion V: Morphemes' Position Relative to the Base

As the previous criteria have shown, the behavior between the morpheme's functions varies. Their behavior within this criterion is not the exception. The affix *-me* in lexical nominalization has a prototypical derivative behavior, as can be seen in the following examples:

(106)

a.	ehkóri-	‘before (mythical past)’	ehkóri-ame	‘ancestors’ (Medina, 2011)
b.	mugu-	‘to die’	mugu-me	‘death’ (Medina, 2011)
c.	yohke-	to stain	yohk-ame	‘painter’
d.	čičtula-	to roll up	čičtula-me	‘rounded mold for cheese’
e.	wikata-	to sing	wigata-me	‘singer’

As we may observe, the derivative morpheme tends to occur closer to the root, this might be a little problematic since Guarijio has very little morphology in its nouns. Therefore, it is not quite clear because there rarely is any inflectional morpheme added to the derived nouns. However, there is an example that shows what seems to be a verbal inflectional affix closer to the root. This can be expected since the root is verbal:

(107) aha- ‘to be standing up’ aha-ga-me ‘living things’

The morpheme *-ka/-ga* is the morpheme for past tense in Guarijío. However, it must be argued that the morpheme is lexicalized. It no longer adds any grammatical value. This could be an example of an interfix. This is the only example found where the morpheme is not adjacent to the root. It must be stated that since *–ka* can be a diachronic remnant this is not a case of an inflectional morpheme closer to the root that the

nominalizer. To sum up, there is no evidence that shows that there can be TAM markers closer to the root than lexical nominalizations.

Clausal nominalization with the morpheme *-me* shows that the morpheme does not occur as expected. Since this is not a lexical nominalization, it occurs at the periphery. We can find grammatical morphemes closer to the root than the morpheme -me, for instance:

		nominalizer		
(108)	a.	niʔó-ame to.pray-NMLZ 'One who prays'	b	niʔó-**ti-ame** to.pray-CAUS-NMLZ 'one who makes him/her pray' (Medina, 2011:54)
(109)	a.	ena-pá to.come-ITER 'arriving' (Miller, 1996:484)	b.	ena-**pá-me** to.come-INCH-NMLZ 'the one that starts to come'
(110)	a.	muʔu-[17] to.die 'to die'	b.	muʔu-**ka-me** to.die-PST-NMLZ 'the one that died'

Examples (108a-b) show that the nominalizer stays at the periphery of the word-form. In (108a) there is no causative conception and the nominalized form for the verb *niʔó-* 'to pray' is 'the one who prays'. However, in (108b) the form *niʔótiame* 'the one that makes him/her pray' includes the grammatical meaning of causation caused by the morpheme *-ti*. In other words, the grammatical 'causative' morpheme occurs closer to the root due to the syntactical relevance of the clausal nominalizer. The same may be

[17] In the dictionary 'Diccionario Léxico-morfológico del Guarijío' by Ana Aurora Medina (2010) the entry is *muku-* with its variations: *muki-, mugu-, mugi- and muhkú.*

observed in (109b) and (109b) since the grammatical morphemes are perceived on the nominalized form. In (109b) the inchoative aspect can be observed on the nominalized form *enapáme* 'the one that starts to come'. Likewise, in the nominalized form *muʔukame* 'the one that died' (109b) the past tense is identifiable. To sum up, as Álvarez (2012) mentions, clausal nominalization has finiteness. The verbal morphemes occur closer to the root than the clausal nominalizer.

4.1.6 Criterion VI: Obligatoriness

The nominalizer *-me* clearly shows that the affix is not obligatory. The non-derived verb coexists with the derived noun in lexical nominalization. The following examples show that the non-derived form can occur without the derivative morpheme *-me*:

(110)

	Non-derived form		Derived form	
a.	čihtúla	'to roll up'	čihtúla-**me**	'round mold for cheese'
b.	čihpú	'to be bitter'	čihpú-**ame**	'gall' (Medina, 2011)
c.	kahka	'to be sweet'	kahka-**ame**	'candy' (Medina, 2011)

The examples above show that the derivative morphemes *-me* is not obligatory for the base, just as a derivative morpheme is expected to. Likewise, if we take a look at clausal nominalization we will find out that this morpheme is not obligatory either:

(111)

a. Noʔnó-la tihoé turélo hú Wehčóriči **mugu-ré**
father-POSS man singer to.be Wehčóriči to.die-PST
'The father of the man, that is a singer at Wehčóriči, died'
(Miller, 1996:190)

b. čuhčiri ma tekao teua-i-ra iʔka hesus
dog well LOC-up find-XXX-REM.PST DEM.PROX.NS Jesus

muʔu-ka-me
to.die-PST-NMLZ
'The dogs found Jesus', who was dead, up there'

Example 120 shows that the verb *mugu* 'to die', without the nominalizer *-me*, can take place. Since this morpheme acts on a syntactic level, whenever the word is not part of a relative-like clause it can occur on its own.

4.2 Inchoative *-pa/-ba*

In the following sections the inchoative morpheme *-pa/-ba* will be analyzed under the continuum approach. As I have mentioned previously, this verbal category tends to show an overlapping between derivation and inflection, as stated by Bybee (1985). The following analysis has the purpose of describing the aspects that make this morpheme prone to have a varying behavior.

4.2.1 Criterion I: Syntactic Relevance

The inchoative morpheme *-pa* has been described as an inflectional morpheme. This criterion states that inflectional morphemes are relevant to syntax. However, Haspelmath & Sims (2010) and Bybee (1985) agree on the fact that some morphemes that are generally described as inflectional are not that relevant to syntax (see § 3.2.3.4). As a matter of fact, all of them have considered that aspect categories do not create agreement-like relationships, nor are they assigned by syntax (this may also be observed on figure 17). The following examples show the inchoative's behavior:

(112)

a. Ihí ana rebani niga aʔačigo to-tolo-ča=ne
PRON.DEM.PROX Hanna xxx 1SG.S=EMPH a.lot VBLZ=1SG.S

to-tolo-ča=ne night koči-**pa**-sao
REDP-snore-VBLZ=1SG.S tugao to.sleep-INCH-SUB

'I hear Hanna snoring a lot at night, when she falls asleep.'

b. Aʔačigo yuwésu-**ba**-re maria=ga temarí oʔiro-sa=ba
very to.be.sad-INCH-REM.PST Mary=EMPH boy leave-SUB=already

'Mary got very sad when the boy left (her son)'

As I have mentioned before, the morpheme *-ba* in (112 a-b) does no create any agreement-like relationship with any argument of the clause. The morpheme might as well be absent, and the construction would continue to be grammatically possible. In other words, its function does not focus on syntactic implications. Instead the morpheme concentrates on the internal aspect of the verb.

4.2.2 Criterion II: Semantic Change

The inchoative morpheme *-pá* has been generally described as an inflectional morpheme. The aspect category does not alter the event that is being described by the verb.[18] However, its semantic relevance relies on the fact that the situation is seen from a different perspective. Even though the event is the same, the inchoative aspect focuses solely on the beginning of the event. It is pertinent to observe that in most occasions the semantic change caused by the inchoative morpheme is highly predictable, for instance:

(113)

Predictable semantic outcome

a.	yohke	'to be stained'	yohke-**pá**	'get stained'
b.	koči-	'to sleep'	koči-**pa**	'fall asleep'
c.	ena-	'to come'	ena-**pá**	'start to come'

In examples (113a-c) we can observe the change of perspective that is caused by the inceptive morpheme. The event continues to be the same, but the point of view varies. For instance, when the verb *koči-* 'to sleep' in (113b) changes to *kočipa* 'to fall asleep' the base still holds the semantic core of the lexeme SLEEP. However, there is a slightly different meaning because of the different perspective of the event which is centered on its beginning.

However, in some instances the same morpheme can cause a higher semantic change. In other words, the sum of the base and the inchoative morpheme is not enough

[18] The same is predicted by Bybee (1985) for tense.

to predict the semantic outcome of their combination. This can be attested with the following examples:

(114)

		Unpredictable semantic outcome		
a.	eʔré-	'want to do something'	eʔré-**ba**	'to remember'
b.	suhki	'to scratch'	suhki-**ba**	'to scratch one's body'
c.	pené	'to know something'	pene-**pá**	'turn on the light'

(Medina, 2011)

As we are able to observe, the morpheme *-pa* may cause unpredictable meanings. Even though, examples (114a) has a rather predictable meaning there is still some idiosyncrasy on the definition of the new verb. An anticipated meaning for the inchoative form of *eʔré-* 'want to do something' would resemble something like 'start to want' or 'start to desire'. Nevertheless, the inchoative form *eʔréba* corresponds to a more specific definition 'to remember'. The example (114b) shows a slightly different behavior. The object is specified on the verb *suhkiba* 'to scratch one's body', and the inchoative meaning is not so clear. The reason to consider this a relevant semantic change is that its outcome can't be easily predicted.

4.2.3 Criterion III: Arbitrariness

Most of the times, the combination of the inchoative morpheme has little consequence on the base. Therefore, when the morpheme is added to different verbal bases, we should expect a very general meaning. In other words, the combination with different verbs is very regular, for instance:

(115)

a.	yuʔki-	‘to rain’	yuʔki-**pa**	‘start to rain’
b.	kahpora-	‘to be round’	kahpora-**ba**	‘to get round (start to be round)’
c.	yuwésu-	To be sad	yuwésu-**ba**	‘To get sad (start to be sad)’

The general definition for the previous examples is ‘start to x’ (see also example in § 4.2.2). This general meaning can be added to different verbal bases and the outcome will be invariable. On the other hand, as it has been stated in the previous criterion, the inchoative morpheme *-pa* can sometimes have an irregular meaning. In other words, the fact that the morpheme provokes a high semantic change makes its more unpredictable, therefore its meaning may be more arbitrary, for instance:

(116)

a.	tuʔla-	‘to be cold’	tuʔla-**ba**	‘to freeze (water)’
b.	čoʔi-	‘(light) to fade’	čoʔi-**ba**	‘to eclipse’
c.	kuri-	‘to be thick’	kuri-**ba**	‘to curdle’

(Medina, 2011)

The previous examples show that the combination of the morpheme with these verbs is not as predictable as it is expected. For instance, in example (116a) the expected inchoative outcome *tuʔlaba* would be ‘start to be cold’, instead its semantic idiosyncrasy relies on the fact that the verb is focused on the coldness, specifically, of water. A similar effect can be observed on example (116b), the fading of light expressed by the inchoative

form *kuriba* is centered on the fading of the light of the sun, or the moon. An even more idiosyncratic definition is seen on example (116c). The inchoative form for the verbal base *kuri-* 'to be thick' would be expected to be 'start to get thick', however, its semantics gets centered in a specific process of a liquid getting thick which is *kuriba* 'to curdle', which is specific to certain liquids such as milk.

4.2.4 Criterion IV: Change of Category

This morpheme is added to verbal bases. When the suffix *-pa* is attached to the verb we can get two different outcomes: *the same verb* with an inchoative sense or a *new verb* with inchoative sense. This relies completely on the degree of semantic change that the morpheme adds to the base. However, regardless of the semantic relevance of morpheme, the category of the base stays the same. In both instances the base is a *verb*, and the outcome continues to be a *verb*. The following examples show this behavior:

(117)

a. ihí kukuči kaʔi ma **ko~goči-re** aʔačigo ma
DEM.PROX children NEG anymore PL~sleep-REM.PST very well

maha-ka močikama=boga čeʔla-ré waʔači
to.be.scared-PST seated=RPT dawn-REM.PST like.that

'The children couldn't sleep anymore, they sat until dawn like that'

b. ihí huan=ga wehči =má=boga íhpe-re waʔama
DEM.PROX john=EMPH floor=CIT=that.one to.lie-REM.PST there

koči-pa-re eʔego
to.sleep-INCH-PAS.REM then

'John laid there on the floor and then fell asleep'

If we observe in (117a) the *kočí-*[19] 'to sleep' occurs as a verb. This can be attested by fact that it can possess verbal morphology such as the tense marker *-re* 'remote past'. Likewise, in example (117b) it is possible to attest that when the inchoative morpheme is added to the base it is still able to acquire verbal morphemes.

Even though, it has been attested that the morpheme causes no change of category, it is relevant to mention a single instance that has been found where the morpheme seems to produce this kind of change. The inchoative morpheme is added to a nominal base to create a new verb:

(118) pami[20] 'summer (raining season)' pamu-**ba** 'to be the raining season'
(Medina, 2011:130)

The noun *pamí* 'summer' goes through a change of category when the inchoative morpheme *-pa* is added 'to be the raining season'. It should be stated that this is the only isolated case that has been documented where the change of category has taken place. I consider that a further investigation should be made to attest that the morpheme is indeed capable of changing the base's category.

4.2.5 Criterion V: Morphemes' Position Relative to Base

The analysis under this criterion should be done with caution. As Haspelmath & Sims (2010) point out, this criterion may only be effective under special circumstances. This

[19] The verb can alternate as *goči-* due to phonological rules.
[20] It may also refer to the 'passing of the year'. However 'summer' and 'the raining season' seems to have a closer semantic relationship.

analysis should exclusively be made when a derivational affix and an inflectional affix are found on the same side of the root (Haspelmath and Sims, 2010:95).

The inchoative morpheme differs in its position depending on different factors. First of all, the aspectual affix occurs as a prototypical inflectional affix is expected, i.e., on the periphery of the word. The following examples show this behavior:

(119)

a. maʔčí-**re** — outside-VBLZ — 'to be illuminated'
   maʔčí-**re-ba** — outside-VBLZ-INCH — 'start to be illuminated (dawn)'
   (Medina, 2011:91)

b. pusa-**wi** — to.wake.up-NMLZ — 'wokeness'
   pusa-**wi-ru** — to.wake.up-NMLZ-VBLZ — 'to have wokeness'
   pusa**wiru-ba** — to.wake.up-NMLZ-VBLZ-INCH — 'To start being awake (no longer sleepy)'
   (Medina, 2011:150)[21]

In the previous examples we may observe that the inchoative morpheme *-pa* occurs in the periphery of the word. In example (119a) it is clear that the verbalizer *-re* is closer to the root than the inchoative morpheme. A similar case can be observed in (119b) where a nominalizer and a verbalizer occur closer to the root than the inchoative morpheme. As a matter of fact, (119a) shows that a change of category takes place first in order to add a verbal morpheme like the inchoative *-pa*. Nevertheless, there are other instances where the affix has a different occurrence, for example:

[21] The analysis of morphemes -wi and -ru is not available Medina's dictionary.

(120)

a. ena-**pá-me**
to.come-INCH-NMLZ
'the one that starts to come'

b. wasí-**pá-me**
to.cook-INCH-NMLZ
'the one that is cooked'

(Miller, 1996:583)

c. waki-**pá-ti-ame**
to.be.dry-INCH-CAUS-NMLZ
'the one who makes water dry out'

(Medina, 2011: 217)

At first sight, the previous examples show that the inchoative morpheme occurs closer to the root than the nominalizer *-me*. We then might arrive to the conclusion that the morpheme has a derivative behavior. In other words, since a prototypical nominalizer can be considered to be derivative, we may say that the inchoative morpheme is closer to the root than a derivative morpheme. However, it is crucial to notice that if we make a more detailed analysis, we may realize that this may be an erroneous conclusion. The previous examples are not lexical nominalizations, in fact they are clausal nominalizations (see § 4.1). Clausal nominalizations, rather than creating lexical nouns, form noun phrases with no lexical status. These nominalizations are finite. Therefore, we may find verbal morphemes, that are prototypically more inflectional, closer to the root than the morpheme *-me* because of its syntactic features. We may observe in (120c) that

not only can the inchoative affix occur before the nominalizer, the causative *-te* is also closer to the root than the nominalizer. In other words, since these nominalizations have no lexical status, they are unable to provide us with sufficient evidence to prove that the inchoative morpheme occurs closer to the root than other prototypical derivational morphemes.

Taking into consideration that the clausal nominalizations have a different behavior, they were analyzed separately. In the following instances the ones that were taken into consideration are lexical nominalization. And even though previously it has been shown that the morpheme can occur on the periphery of the word (129a-b), other cases have been found where this is not necessarily true:

(121)

a. kuhi[22]-**ba-ni**
   to.be.flashing-INCH-NMLZ
   'lightening'

b. pamu-**ba-ri**
   summer-INCH-NMLZ
   'year'

c. čeʔe-**bá-re**
   to.be.sick-INCH-NMLZ
   'sickness'

[22] It has been defined by Medina (2010) as the noun 'lightening'. It is relevant to mention that the author has marked this definition as questionable. Under this analysis I consider that the best way to define it is as the intransitive verb 'to be flashing'.

The previous examples show that the inchoative morpheme can occur before a lexical nominalization. For instance, in (121a) the inchoative morpheme *-pa/-ba* occurs before the nominalizer *-ni*. The same may be observed in (121b) where the inchoative morpheme is added before the nominalizer *-ri*. As a matter of fact, Medina (2011) adds the entry *pamiba* 'to be one year older' (see example 121b).

4.1.6 Criterion VI: Obligatoriness

The aspect category in Guarijio is not an obligatory one. Verbs can occur without aspectual morphology. This criterion predicts that a prototypical inflectional category would be obligatory, whereas a derivational category would be optional. The following examples show this aspect of the inchoative morpheme:

(122)

a. ča-ne-na buú no'o nahki-ame amó woci
to.say-APPL-PRS.PROG DEM 1.SG.S to.love-nmlz 2SG.S grandfather

amó woci **ineé-meri**
2SG.S grandfather to.be-DEON

'She tells me "the one that loves me has to be your grandfather"'

b. Ihí huani=ga loʔoko ma **ineé-ba-ru** aʔčí ahpo
DEM.PROX John=EMPH crazy very to.be-INCH-WIT.PST thus 3.SG.NS

paʔči=wa muʔu-sao
older.brother=EMPH morir-SUB

'John became crazy when his old brother died' lit. 'John started to go crazy when his old brother died'

In (122b) we can observe that the verb *ineé* ‘to be’ occurs with the inchoative marker *-ba*. However, we can also see that in (122a) can occur without the inchoative marker. In fact, there is no need for any other aspectual marker.

4.3 Applicative *-e/-re*

Valency-changing affixes have been described as morphemes that have high semantic relevance (Bybee 1985). This means that these morphemes are also prone to show both derivational and inflectional features. As it has been done with the previous morphemes (§4.1 and 4.2), this morpheme will be described in the following sections under six inflection-derivation criteria to describe their behavior.

4.3.1 Criterion I: Syntactic Relevance

Valency-changing morphemes are syntactically relevant due to their ability to add central arguments to the verb. This affix *-e* has the function of promoting an argument to object, which is a prototypical inflectional behavior, for instance:

(123)

a.	Peníri	ri-me	naosa-ri	**na~naos-e-na**
	pretty	to.be-PRS	to.talk-NMLZ	HAB~to.talk-APPL-PRS
	‘He speaks words which are pretty’			

In example (123) *naosari* ‘word’ is promoted to a central argument because of the applicative morpheme *-e* that is added to the intransitive verb *naosa-*. In this instance the affix is relevant to syntax because of its direct impact on the arguments of the clause.

4.3.2 Criterion II: Semantic Change

Valency-changing categories are highly relevant to the verb since they affect the event that is being described by the verbal base. This is exemplified by Bybee (1985:17-18) with the causative category. She also mentions that, since they are semantically relevant, they may lead to semantic change and even to lexicalization. The following examples show the effect that the applicative morpheme *-e* has on the base:

(124)

a.	taha-	'to blaze'	tahar-**e**	'to burn (something)'
b.	naosa-	'to talk'	naos-**é**	'talk to someone'
c.	iʔóa-	'to heal'	iʔóa-**e**	'to heal someone'
				(Medina, 2002)
d.	taipa-	'to get warm'	taipa-**re**	'to heat something'

The previous examples show that semantically the morpheme *-e* has a great impact on the verb. In other words, the morpheme does imply semantic change. There are some instances in which the semantic change is even more observable (see § 4.3.3-4.3.4).

4.3.3 Criterion III: Arbitrariness

As I have mentioned before, the applicative morphemes is highly relevant to the base. It's even able to modify the event that is being expressed. This fact can even go further to the point where the meaning becomes arbitrary. The following examples show that the applicative affix *-e* can cause unexpected outcomes:

(125)

a.	toʔ-	'to pour'	toʔ-**e**	'to baptize (pour water onto someone)'	
b.	unatá-	'to think about someone or something'	unat-**é**	'to take care of someone or something'	(Medina 2010:209)
c.	cuhcá-	'to hang'	cuhc-**é**	'to load a beast of burden'	(Medina, 2002: 76)
d.	nahte-	'to cost'	naht-**é**	'to pay'	(Medina, 2002:76)

Example (125a) shows that, when the applicative morpheme is added, the base *toʔ- 'to pour'* is modified to a different event. In this instance the event does not refer to the simple fact of 'pouring water onto someone', but it goes semantically further to specify a religious event, *toʔe* 'to baptize'. If we observe (125b) we may realize that the relation between the base and the applicative form is not so easy to grasp. One may argue that the applicative verb *unaté* 'to take care of someone or something' is the materialized event of the mental state of *unata* 'to think of someone or something'. As for example (125c) the idiosyncrasy relies on the fact that the applicative verb is centered in a specific activity which is to load a horse, donkey or a similar animal. As we may observe on the previous examples, the morpheme is semantically relevant and can cause idiosyncratic outcomes.

4.3.4 Criterion IV: Change of Category

The applicative morpheme *-e/-re* shows an inflectional behavior under this criterion. The following examples illustrate this very clearly:

(126)

a. Waʔá-na tapá-ro=ra=bu natí **taí-tó=ra** kurusí=gari
here-DIR to.glare-XXX=RPT=DEM thing to.blaze-XXX=RPT cross=EMPH
'It was coming here glaring, the cross was coming here blazing'

(Miller, 1996:297)

b. ihí temarí nuʔíti **taha-re=ma** saténi-wa waši-la-e
DEM.PROX young.boy boy to.blaze-**APPL**=CIT pan-POSS tail-POSS-WITH
'The boy burnt himself with the pan's handle'

(127) ihí ihpedro koči-pa-re=ma waika ihhuan iʔka
DEM.PROX peter to.sleep.INCH-REM.PST=CIT that.time John

iʔka pawí **toʔ-e-ru-či**
DEM.PROX.NS water to.pour-**APPL**-WIT.PST-LOC

'Peter started to fall asleep where they baptized John (lit. Peter started to fall asleep where they poured water on John)'

The comparison of (126a) and (126b) shows that the non-applicative form *taí-*[23] 'to blaze' and the applicative form *tahare* 'to burn' are both verbs. Both of them act as head of the clause. In example (127) we observe that the applicative form *toʔe-* 'to baptize' has the same word category as *toʔ-* 'to pour'. As I have mentioned in (§ 4.3.3), this example shows a high semantic change to the point of an idiosyncratic outcome, nevertheless there is no change of category. We can attest this by observing the capability of the word to accept verbal morphology, such as the witnessed past morpheme *-ru* in example (127).

[23] tahi- Var: taha-, tahe-, *tai-

4.3.5 Criterion V: Morpheme's Position Relative to the Base

There are very few instances in which the morpheme *-e/-re* has been found along with a prototypical derivative morpheme. This complicates the task of making a concrete conclusion regarding this criterion. The instances that have been documented are the following:

(128)

a. iʔó 'remedy, cure' iʔó-**a** 'to.heal' iʔóa-**e** 'to heal someone'

b. piči 'to be true' piči-**ka** 'to believe' pičik-**e** 'to believe someone'

(Medina, 2011)

The previous examples show that the applicative morpheme occurs on the periphery of the base. In example (128a) the denominal verbalizer *-a*[24] occurs closer to the root that the applicative marker *-e*. Similarly, in (128b) the verbalizer *-ka* is closer to the root than the applicative affix. We can conclude that the morpheme occurs on the periphery of the base. However, it must be said that the morpheme might occur before the nominalizer *-me,* for example:

(129)

a. koči-e-me
to.sleep-APPL-NMLZ
'that I slept with someone'

(Miller, 2010:211)

[24] This morpheme seems to be an allomorph for the verbalizer *-wa*.

b. te-tehíma-e-me
pl-relative-APPL-NMLZ
'those who have relatives'
(Miller, 2010:317)

c. yelo-é-me
poison-APPL-NMLZ
'the ones that are poisonous'
(Miller, 1996:261)

At first sight, we may say that there are instances in which the morpheme occurs closer to the root than the nominalizer. Nevertheless, we should always keep in mind that there are two different functions for the morpheme *-me*. The function for the affix in the previous examples is that of a clausal nominalizer (see § 4.1). Since this type of nominalizer has a more inflectional behavior, the information is not reliable. As I have mentioned previously, this analysis should only be made with a prototypical derivative morpheme. The clausal nominalizer can hardly fit into this classification. Therefore, this data does not show that the applicative morpheme can occur closer to the root.

4.3.6 Criterion VI: Obligatoriness

The applicative marker, described in previous studies as an inflectional marker, would be expected to be obligatory. However, the affix does no behave as predicted. The following examples show this behavior:

(130)

a. amo=ne **naós-e**-nare
2SG.NS=1SG.S talk-APPL-DESD

'Do you want to talk with me?'

b. Ihí huani=ga kaʔi ma **naosa** waʔači aʔačigo ma
DEM.PROX John=EMPH NEG well talk then very well

uʔnata-ga ariwa čina
think-PST days.go.by xxx

'Days went by, John didn't speak well and then he didn't think very well'

The applicative form *naóse* 'talk to someone' (130a) coexists with *naosa* 'talk or speak'. The valency changing morpheme is not obligatory for verbs. We can even go further by stating that the existence of the applicative morpheme relies completely on the fact that there are other verbs that have a defined valency. Since its function is to change the valency of verbs there must be something for the morpheme to change. Therefore, morpheme without the valency changing mechanism must exist.

4.4 Verbalizer *-e*

The verbalizer *-e* has the function of creating new verbs from nouns (Miller 1996: 92[25]). The dichotomy approach would undoubtfully classify this morpheme as a derivative morpheme due to its ability to create new words. However, throughout this chapter we will notice that the morpheme can also show some inflectional features.

[25] It is relevant to mention that the author classifies the verbalizer and the applicative *-e/-re* as a single morphemes with two functions.

Felix (2007) considers that there is a link between the morpheme *-e* of the predicate of possession, which corresponds to the verbalizer used in this paper, and the instrumental suffix *-e*. Felix (2007) justifies this connection by alluding to one of Heine's instrumental schemes (2001) that is used as a diachronic source for possession:

(131)

a. čeʔčé kuú-**e**
prick stick-**INST**
'Prick him with a stick!'

(Felix, 2007: 23)

b. piípi seʔka-**é**=ne
one arm-**VBLZ**[26]=1SG.S
'I have only one arm' lit. 'I with one arm'

(Felix, 2007: 58)

As we may observe above, the interpretation for the morpheme in (148a) is instrumental. However, in (131b) the morpheme deviates from the instrumental interpretation to a possessive one.

4.4.1 Criterion I: Syntactic Relevance

From a dichotomy point of view, we would expect the verbalizer *-e* not to be relevant to syntax (see § 3.2.1.2). However, we are able to argue that there is syntactic relevance when the morpheme is added to the base, for instance:

[26] Felix glosses this morpheme as instrumental. He argues that there is a diachronic conection between instrumental and the verbalizer.

(132) **mari-e=mu** kaʔi=ne **mari-e** kaʔi=ne **yeye-e** pinerí
father-VBLZ=2SG.S NEG=1SG.NS father-VBLZ NEG=1SG.NS mother-VBLZ alone

hú=ne=ri
to.be=1SG.S=xxx
'¿Do you have a father? I don't have a father, I don't have a mother, I am alone.'

On example (132b) two new verbs are created with the morpheme *-e.* When the affix is added to the nominal bases *mari* 'father', and *yeyé* 'mother' they gain a possessive feature and form the verbs *marie* 'to have a father', and *yeyee* 'to have a mother'. In this instance, there seems to be no syntactic impact since it operates in a lexical level. However, it is relevant to mention that the base goes through a change of category. Therefore, the syntactic behavior of the lexeme changes. This means that the verbalizer *-e* produces syntactic implications.

4.4.2 Criterio II: Semantic Change

As we already know the morpheme *-e* is added to nouns to create new verbs of possession. The following examples show this behavior:

(132)

a. puʔkaésa paiká=reme **arewá-e** remé warihó=ga
therefore three=1PL.S spirit-VBLZ 1PL.S guarijio=EMPH
'Therefore, we, the guarijios, have three spirits'
(Miller, 1996:229)

b. Mohé-ne=buga moči-pó-ra iʔká tamó **arewá,**
rise-APPL=DEM to.sit-FUT:PL-POT DEM.PROX.NS 1SG.NS spirit/soul

teʔpá teweká-či
above heaven-LOC
'Our souls of ours are going to be living, rising for Him, above in heaven'
(Miller, 1996:587

Regardless of the change of category (see § 4.3.4) that has taken place, there seems to be very little semantic relevance. Bybee (2003:15) mentions that the verbal categories are highly relevant if they have a direct effect on the stem. If we take this concept further, we may even apply it to nominal stems, such as example (132a). The change of category gives us a sense of possession. However, the base's semantic features remain intact. In other words, the concept *aréwa* 'spirit' does not have an internal change when the possessive verbalizer is added.

4.4.3 Criterion III: Arbitrariness

A prototypical derivative verbalizer will be expected to be arbitrary. However, the verbalizer *–e* shows a very regular and predictable definition. Take a look at the following examples:

(133)

a.	arewá	'spirit'	arewá-e	'to have spirit'
				(Miller, 1996:229)
b.	mari	'father'	mari-e	'to have a father'
c.	yeye	'mother'	yeye-e	'to have a mother'
d.	asuka	'sugar'	asuka-e	'to have sugar'

The previous examples show that when the morpheme is added, it is very constant among the different derivatives. As I have stated before (§4.3.3), the nominal base's semantic features remain unmodified.

4.4.4 Criterion IV: Change of category

When the morpheme *–e* is added to a nominal base, a verb of possession is created. Therefore, there is a change of category from a noun to a verb, for instance:

(134)

a. kaʔi simi-saga neʔe witu mercao-ci kaʔi teremare eʔego
NEG to.go-COND 1.SG.S specific.place market-LOC NEG early then

asúga-re kaʔi noʔo simi-sago
sugar-VBLZ NEG 1.SG.NS to.go-COND

'If I don't go early to the market then there will be no sugar, if I don't go'

b. Ihí maria=ga ihi-na=ma kahpe kaʔi **asuká** rieme
DEM.PROX Mary=EMPH drink-TRVZ=RPT coffee NEG sugar XXX

čihpu-me ma=boga we~wemu-ga ihi-ga
to.be.bitter-ADJVZ very=RPT HAB~like-PTCP drink-PTCP

'Mary drinks coffee with no sugar, she likes to drink it bitter'

(135) Paʔloísi noʔó maé-na=moga, piči-wá-ri= boga=ne
Jackrabbit 1SG.NS to.believe-PRS-2SG.NS truth-TRVZ-NMLZ= DEM=1SG.S

saʔyawé hú noʔ=koʔkó-sa=moga amó
rattlesnake to.be 1SG.NS=to.eat-SUB=2SG.S 1SG.NS

yelo-é-ma-ne
poison-VBLZ-FUT=1SG.S

"You think I am a Jackrabbit, but I am really a rattlesnake, and when you eat me my poison will kill you"

(Miller, 1996:459)

The previous examples show that the derived applicative morpheme *–e* causes a change of category, from a nominal base to a derived verb. If we observe the non-derived form in example (135b), *asuká* 'sugar' acts as a noun. However, in (139a) the derived form *asúgare* 'to have sugar' acts as the head of the main clause of the conditional construction, in other words it changed to a verbal category. In (140) we can even observe that the derived verb shows verbal morphology, such as the future *–ma*, and the pronominal clitic for the first person singular =ne.

4.4.5 Criterion V: Morpheme's Position Relative to the Base

In this section we will analyze the occurrence of the morpheme regarding the position of the base. Look at the following example:

(136)	waʔa	tehpégo	arikíri	litró	tewa-rí=ra
	over.there	after	early.in.the.afternoon	liter	to.see-PST=RPT
	waʔá	teʔpa-éna	ču~čupá-ga		taapó
	over.there	above-over.here	PL~move.in.four.legs-PST		ridge
	haʔ-atá-e-ga	**pihtóla-e-ga**			
	PL-rifle-VBLZ-PST	gun-VLBZ-PST			

'Later in the early afternoon, they saw the liter where they came mounted on horse from this side above on the ridge, each one had a rifle and a gun'.

(Miller, 1996:597)

The example shows that the verbalizer occurs closer to the root than other prototypical inflectional affixes. As a matter of fact, it should be noted that there has been a verbalization with the morpheme *-e* in order for other verbal affixes to take place. The following order is not possible in the language:

(137)

a. *****haʔ~atá-**ga-e**

b. *pihtóla-**ga-e**

This occurrence is impossible considering that the base is still a noun before the verbalization. In other words, a tense morpheme, such as the past *-ga*, can't be added to nouns. The order of the morphemes regarding the base reflects the order of the processes that are taking place. The explanation is simple, there has to be a verbalization of the noun before any verbal inflection occurs.

4.4.6 Criterio VI: Obligatoriness

A prototypical derivative morpheme would be expected to not be obligatory. In this section I will analyze if the morpheme is obligatory to its base. Let's take a look at the following examples:

(138)

a.	aʔká	'saliva'	aka-hé	'to have saliva'
b.	čuhpá	'pointy tip'	čuhpá-re	'to have a pointy tip'
c.	usapówa	'antennae'	usapówa-e	'to have antennae'

(Medina, 2011)

As we may expect, the derived form coexists with the non-derived form. This is clearly a characteristic that is related with derivative morphology.

CONCLUSIONS

The morphemes analyzed in this thesis have all shown an overlapping behavior between derivation and inflection. The data attest that the most crucial aspects that produce morpheme's inconsistency are their semantic and syntactic relevance. These aspects are ubiquitous in every criterion that is used in this investigation. Morphemes that had a high semantic relevance would surely tend towards derivation, whereas morphemes which are syntactically relevant tend towards inflection. At this point, we may think that this is quite an easy task. Nevertheless, since the syntactic and semantic relevance do not exclude each other, morphemes tend to have a combination of both. This is essentially what triggers their varying nature. Bybee (2003) has argued this by stating that generality and semantic relevance do not oppose each other, but they do tend to detract (see section 3.2.3.4). The key point is to notice that this detraction means that both of them are in constant interaction. In other words, there is a sort of competition between them.

There was a crucial decision that had to be made in this investigation. The nominative morpheme *-me* and applicative morpheme *-e/-re*, respectively, showed two divergent functions. Analyzing the morphemes as a whole would only lead to a more

complicated and blurry task. It must be said that Álvarez (2012) and Casas (2018) previous studies shed some light on the way to proceed. These studies clearly showed that the most reasonable way to proceed would be by making a separate analysis of each of the morphemes' functions.

However, another issue emerged when I opted to identify each of the functions separately. It was relevant to determine if this divergence was product of homophonous morphemes. Making an inaccurate relation between both forms would have brought us to an erroneous outcome.

Regarding the morpheme *-me,* there is plenty of semantic resemblance between the clausal nominalization and the lexical nominalization. Genetti et al. (2008:113) mention that the historical relation between the lexical function of a morpheme and the clausal function can be bidirectional. In other words, clausal nominalizations may arise from derivational nominalizations, and derivational nominalizations may arise from clausal nominalizations. Though the aim of this paper is not to determine the diachronic directionality of the development of the morpheme, it acknowledges the fact the functions are diachronically connected. If we compare the two functions of the morpheme *-me*, regardless of their differences, we are able to see the semantic relation between them. In some circumstances, it is even hard to put them apart.

Without setting aside the properties that define each of the functions (see chart 15), we can recognize that their semantic similarities are still identifiable. For instance, if we take a lexical nominalization like *čičtulame ´*rounded mold of cheese', we can say that

there is a similar notion to clausal nominalizations as ‘the object or thing that is round’. The syntactic relevance between lexical and clausal nominalizations is very different. Nevertheless, semantically they are hard to set apart. Therefore, these are not two unrelated homophonous morphemes. In fact, it is quite the opposite; these two functions reflect the morpheme’s development throughout the language’s history. Bearing this in mind, I decided to do a separate analysis for each function to understand the morpheme thoroughly.

The applicative morpheme and the verbalizer have been grouped together by previous authors (Miller, 1996), and Casas (2018). However, there is no common ground between the morphemes. This is a case of homophonous morphemes. Therefore, in this thesis they were analyzed separately.

Having acknowledged these issues, I consider pertinent to proceed with the main topic of this thesis. There were four morphemes analyzed under the inflection-derivation continuum approach. The following results were obtained during the investigation:

1. The lexical function morpheme *-me* shows a tendency to derivation. Its behavior under the six criteria that were used, has little variation. However, there are two instances in which the morpheme tends to deviate from derivation. Under the syntactic relevance criterion, the morpheme shows syntactic relevance because of its capability to change the base’s category. Another deviation can be observed under the change of category criterion. In spite of the morpheme’s tendency to

change the category of the base, there are few instances in which the morpheme does not have this effect over the base.

2. The nominalizer *-me*, as a clausal nominalizer, has an inflectional tendency. The morpheme's generality and low semantic relevance trigger an almost prototypical inflectional morpheme. As a matter of fact, there are only two instances in which the morpheme deviates from its inclination to inflection (i) it is not obligatory, and (ii) it changes the category of the base.

3. A morpheme that shows a high overlap between derivation and inflection, is the inchoative morpheme *-pa/-ba*. Within the semantic and arbitrariness criteria, the morpheme has an inconsistent behavior. In some instances the morpheme *-pa/-ba* shows a prototypical inflectional behavior and in some others it shows a prototypical derivational behavior. The main reason for this overlapping is the morpheme's semantic relevance, as it has been predicted by Bybee (2003). Another criterion in which the morpheme shows an overlapped behavior is within the criterion which refers to the morpheme's position. There are some instances in which the morpheme occurs, as expected on the periphery of the base, and there are some others in which it occurs closer to the root. However, there are also some other criteria in which the morpheme has a clear tendency. For instance the morpheme's low syntactic relevance creates a tendency towards derivation under the obligatoriness and the syntactic relevance criteria. The only criterion in which

the morpheme has a clearly inflectional tendency is in the change of category criterion. The morpheme does not imply any change of category.

4. Despite the fact of the applicative morpheme *-e/-re* being generally described as an inflectional morpheme in Guarijio, it shows some derivative behavior. As Bybee (2003) states, the semantics of valency changing morphemes is highly relevant to the base. In consequence, the affix shows a derivative behavior under the criteria that refers to semantic change and arbitrariness. Another criterion in which the morpheme shows a derivative behavior is in the obligatoriness criterion. The morpheme is not obligatory for the verbal base. By contrast, the morpheme also shows some inflectional behavior: (i) the morpheme is syntactically relevant because of its implications on the valency of the verb, (ii) the morpheme occurs on the periphery of the base, and (iii) the morpheme does not imply any change of category.
5. The verbalizer *-e* has the ability to change the category. Nevertheless, its semantic behavior tends to be inflectional. It implies very little semantic change and it tends to be very regular. In addition to these inflectional features, it also shows syntactic relevance due to its ability to change the base's category. However, the morpheme also shows some derivative characteristics: (i) As it has been stated previously, the verbalizer changes the category of the nominal base, (ii) since the nominal form coexists with the derived verb, it is not obligatory, and (iii) the morpheme occurs closer to the root.

The following chart shows a summary of the morphemes' analysis under the continuum approach:

	Lexical nominalizer *-me*	**Inchoative *-pa/-ba***	**Verbalizer *-e/-re***	**Applicative *-e/-re***	**Clausal nominalizer *-me***
Change of category	D/I	I	D	I	D
Semantic change	D	D/I	I	D	I
Arbitrariness	D	D/I	I	D	I
Syntactic relevance	I	D	I	I	I
Morpheme's position relative to the base	D	D/I	D	I	I
Obligatoriness	D	D	D	D	D

Chart 16. Continuum Approach Analysis of the Guarijio's Morphemes

The data shows some interesting outcomes. The two functions of the nominalizer *-me* show very divergent behaviors. They almost seem to oppose each other. Regardless of the connections between them, their syntactic and semantic tendencies have a direct impact on their position on the continuum. Whereas the lexical nominalization has a derivative tendency due to its semantic relevance, the clausal nominalization has an inflectional tendency due to its syntactic relevance.

Other aspects that are equally interesting are those morphemes that are highly relevant to the verb. The semantical relevance of the inchoative morpheme *-pa/-ba* triggers a morpheme that constantly moves along the continuum. Its behavior varies even

within a single criterion. Similary, the applicative morpheme *-e/-re* has also a combination of derivative and inflectional features. However, it is more constant within each criterion.

Finally the verbalizer *-e* represents very little semantic content to the nominal base. Its meaning is so regular that, even though it changes the category of the base, its outcome is very predictable. This low semantic relevance causes the morpheme to show some inflectional features.

To sum it up, I believe that the main actors in the inflection-derivation continuum approach are the semantic and syntactic relevance. The morphemes' behavior depends directly on the interaction of these two linguistic aspects. The criteria that has been used to analyze the morphemes gives us an insight of this interaction. As I have insisted along this paper, the purpose of this analysis is not to classify the morpheme as inflectional or derivational. Its purpose is to understand the morphemes' tendencies and their motivations.

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