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Referential Density in Tarahumara

(Densidad Referencial en Tarahumara)

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ABBREVIATIONS

1	first person	IRR	irrealis
2	second person	LOC	locative
3	third person	MN	manner
A	agent-like argument of canonical transitive verb	NMLZ	nominalizer/nominalization
APPL	applicative	OBL	oblique
AUX	auxiliar	P	patient-like argument of canonical transitive verb
BEN	benefactive	PASS	passive
CAUS	causative	PFV	perfective
CL	clausal marker	PL	plural
COMIT	comitative	POSS	possesive
COND	conditional	POT	potential
CONJ	conjunction	PROG	progressive
CONT	continuative	PRS	present
DAT	dative	PST	past
DEM	demonstrative	REC	receptor
DES	desiderative	REP	reportative
DIR	directional	RES	resultative
DP	discursive particle	S	single argument of canonical intransitive verb
EMPH	emphatic	SG	singular
EP	epistemic	SIM	simultaneity
HAB	habitual	STAT	stative
IMPRS	impersonal	SUB	subordinator
INDEF	indefinite	TM	temporal location
INSTR	instrumental		
INT	intensifier		

INTRODUCTION

This work constitutes a statistical study concerned with the behavior of referential elements in Tarahumara. It retrieves its main concepts from typological studies and functional linguistic theory, while trying to touch upon their concerns. Accordingly, this study intends to address the need for more discourse studies in indigenous languages, mainly in the area of referentiality, referential mechanisms and information structure.

It is, for the most part, based on the Referentiality Project started by Christian Lehmann in 2012 at the University of Erfurt in Germany. This research project was envisioned towards a crosslinguistic text-based analysis of 12 unrelated, endangered languages that had nothing, but one thing in common: none of them had received much attention from researchers in general. Researchers that worked together in this project used data from The Language Archive (TLA). The 12 Languages studied as part of the Referentiality Project were: Aché (Tupi-Guarani, Paraguay), Baure (Arawakan, Bolivia), Beaver (Athabaskan, Canada), Chintang (Kiranti, Nepal), Gorani (Iranian, Iran), Hocak (Siouan, U.S.A.), Isubu (Bantu, Cameroon), Savosavo (East Papuan, Solomon Islands), Sri Lanka Malay (Malaian, India), Teop (Western Melanesian, Bougainville), Vera'a (Austronesian, Vanuatu), Wichita (Caddoan, U.S.A.).

The aim of the Referentiality Project was not only to establish a protocol for cross-corpus analysis for future research, but also to reach a better understanding of referential operations in the communicative process. Additionally, the Referentiality Project had the purpose of demonstrating the importance of unknown languages in theoretical linguistics, as they have the potential to “change our views of how languages function” (Lehmann 2012). Hence, Lehmann's research project was not aimed at simply organizing data or testing existing hypotheses on these

languages. Rather, the Referentiality Project was resolved to collect new or undocumented referential strategies and grammatical categories from unknown languages; it was open to language-specific categories that would later be mapped on cross-linguistic concepts, which can lead to novel research questions and hypothesis.

One of the most significant features of the Referentiality Project is that it only used natural spoken language data to draw statistical information for crosslinguistic comparison. To attain its purposes, the project focused on certain text genres, mainly narrative, procedural and interactive texts, as they typically present different discourse properties.

The main features and general purposes of the Referentiality Project are recaptured in this work: only natural, non-elicited material was used as data for linguistic analysis, and openness to language-specific structures and referential strategies is maintained. However, this is not a cross-linguistic analysis; instead, two texts of the same language were analyzed in this work, a narrative and a procedural text, as they feature a greater range of phenomena of the language in question. Thus, instead of comparing different text genres from different languages, this work makes a comparative analysis of different text genres of the same language.

The purpose of comparing two text genres of the same language is to reveal how diverse referential mechanisms can be within the same language, depending on the different communicative purposes which are embodied in different text genres. While it is understandable that it is impossible for a time-limited research project such as the Referentiality Project to look into every text genre of every language, individual researchers may well make an effort to collaborate with their own works. Ideally, linguistic theory and typological studies would take into consideration as many and as varied languages as possible, along with deeper studies of their structures and mechanisms. However, typologists cannot do all the work on their own, and many

times they have to make their hypothesis relying solely on the available data. It is descriptivists' work to make available as much (processed) data as possible, so that linguistic research can move forward.

With that being said, this work intends to contribute to the enrichment of typological studies, providing a glimpse into the referential properties of two different types of discursive texts in Tarahumara. It seeks to answer some questions about the Tarahumaran language through statistical values concerning referentiality (that is, Referential density):

- i. What does Referential Density say about informativeness in Tarahumara?
- ii. How is referential information managed in Tarahumara?
- iii. How does information structure relate to discourse genre?

Because discourse studies are such a complex subject matter, a wide range concepts were reviewed, and various tools were used in this work, leading to (a) statistical work to account for referential density and information structure, (b) syntactic analysis for reference identification and tracking, (c) semantic analysis to observe the level of informativeness of references, (d) exploration of text genre to allow for predictions and have a better understanding of referential behavior, and (e) examination of cultural and syntactic aspects that play a role in inference for referential identification and maintenance.

1. Work structure

The information needed to understand this work is organized logically in such a way that one concept leads to the next one. Chapter 1 begins with a brief account of some previous studies concerned with referentiality. Notice that it does not provide a historical overview of referential studies, nor does it enlist a large number of all authors or important articles who revolve about this subject. It rather looks at the variety of research questions and linguistic aspects that can be

addressed by means of referential studies. These antecedents are followed by the theoretical framework which served as a base for the conception of this study. The theoretical framework incorporates all concepts that make part of this referential study, and explains the relationship among them. It first introduces the concept of referentiality and referential density in section 1.2, followed by informativeness and referential weight in 1.3. Section 1.4 explains the concepts of information structure, topic and focus, which gets us to discourse analysis, which is addressed in 1.5. Within discourse analysis, there is a brief portrayal of discourse/text typology; it also takes a look into the universe of discourse, which comprises referential anchorage, deixis, referential distance and inference.

Chapter 2 is a description of the subject language of this study: Tarahumara (spoken in the state of Chihuahua, Mexico). This chapter actually opens with some cultural and geographical aspects of Tarahumara which will be taken into consideration later on, as part of the analysis. Section 2.2 presents the linguistic family to which Tarahumara belongs. The language description begins in section 2.3. This description does not intend to be a thorough grammar; such descriptions can be found in other studies that have been made about this language. Here, the description includes only the linguistic features that are relevant for the understanding of referential behavior, that is, alignment type in section 2.3, which helps in the interpretation of zero anaphora; morphological features (in 2.4), as some morphemes have referential value; valency changes that may affect the number of referents and referential mechanisms within a clause (section 2.5); nominal expressions, the main referential mechanisms, are presented in 2.6. Section 2.7 explains the usage of determiners and determiners, among other elements that may affect referential expressions in different ways.

Information about the data used in this work and the analysis are presented in chapter 3 and 4, respectively. Chapter 3 gives details about the material sources and the people who participated in the processing of the texts. Sections 3.1 and 3.2 describe the two discursive texts used, in terms of text genre. The last section of this chapter discloses some of the difficulties encountered in the interpretation process of the texts. Chapter 4 is the last chapter; it presents the actual referential analysis and statistical results. First, section 4.1 explains all the methodological details, including some problems that came across during the analysis of referential expressions. Then, section 4.3 shows the results for the procedural text, and section 4.4 shows those of the narrative text. Section 4.5 summarizes the outcome of the analysis. Chapter 4 is followed by the final observations and conclusions of this work. Finally, the appendix offers the two texts used for this study; they are transcriptions in Tarahumara accompanied by an English translation for easy reading.

CHAPTER I

THEORETICAL FRAMEWORK

1.1. Antecedents

In the last years referential studies have gained weight as another means for typological studies. There are works that explore strategies for referential codification in language and the discursive status of the referents encoded (Lehmann 2012). Other discursive analyses have described the relationship between reference and clausal transitivity (Nariyama 2001); it has also been associated with information structure across languages (Bickel 2003). These works are all based on analyses of reference in discursive texts.

By means of Referential Density studies, Bickel (2003) was able to observe when and how participants are introduced in discourse in the three languages of his sample (Belhare, Maithili and Nepali), which is associated to information management (or information structure), and to rhetorical styles that could be due to cultural values in the disclosure of information or individual choice (Stoll & Bickel, 2006). Additionally, the values obtained reflect the amount of information that is facilitated to the listener through the various explicit and implicit referential mechanisms, as opposed to what is left to the listener to infer. Bickel (2003) referred to this as information density (Lehmann 2012 uses the term *informativeness* of NPs). Moreover, referential density values (RDV) helped identify prominent syntactic arguments in discourse, which are the controllers or pivots that are subject to verb agreement, relativization, passivization and other syntactic phenomena.

Nariyama (2001) also used discursive materials in three languages (Sacapultec, Tshimshian, Acehnese) to show how argument structure can be used as a reference-tracking

system. In this study he identifies the referent of ellipsis in the clause, arguing that since the ellipted argument must be inferred by the hearer, it constitutes a reference-tracking mechanism. In addition, Nariyama (2001:122) observes that languages have preferred argument structure that induces a pattern of ellipsis, which serves as a reference-tracking of ellipted arguments. This referentiality study had interesting findings: languages of the sample taken by Nariyama tend to have only one lexical argument per clause (independently of the clause's transitivity). Nariyama (2001:118) points out a cognitive relevance of this fact: new information is cognitively more difficult to process, and since lexical arguments generally represent a new argument in discourse, the ones that are not new tend to be ellipted. "It is also in line with the claim made by Hopper and Thompson (1980) about the transitivity and discourse relation, that low transitivity is correlated with backgrounding information, and high transitivity is correlated with foregrounding information" (Nariyama 2001: 122). This again is related to information structure in discourse.

Another aspect that can be observed through referentiality studies is the discourse status of referents. Lehmann (2012), maintains that different coding strategies respond to discourse status of referents: more explicit NPs tend to be the ones introducing new referents into the Universe of Discourse (creation of a referent), whereas less explicit or implicit coding strategies are used for referents that are already active and accessible for the interlocutor in discourse (endophora and anaphora).

By looking at the three examples mentioned above, we can see that referentiality studies can be used to render information about different aspects and properties of discourse in languages, such as:

- a. information management (or information structure)
- b. rhetorical styles

- c. information density (or informativeness)
- d. identification of privileged syntactic arguments
- e. reference tracking
- f. argument structure
- g. clausal transitivity
- h. coding strategies of referents
- i. discourse status of referents

Of course, these are not the only reference related studies; many others have been made, as referentiality studies have proved to be a useful tool in typological studies.

1.2. Reference

Following Lehmann (2012), *referentiality* “is a property of a linguistic sign that functions in a discourse (as opposed to a linguistic sign as an element of a language system)”. Linguistic elements that mention entities or referents are called referential/referring expressions or referential devices (Kibrik 2011: 5). The entities that people mention can be of different sorts, including (Kibrik 2001: 1123):

- i. participants of the current speech act (*I, you*)
- ii. other persons (*Mary, she*)
- iii. living beings and objects (*the cat, that car*)
- iv. abstract notions conceptualized as objects (*the Great French Revolution, my salary*)
- v. locations in space (*right here, on the Red Square*)
- vi. moments in time (*tonight, on New Year’s eve*)

Referents do not have to be perceived entities of the external world; they can be brought to mind not only from perception but also from long-term memory or imagination. For a referent to be mentioned in discourse, it is not relevant whether it has an independent physical existence (Kibrik 2011).

Kibrik (2011: 7) considers the distinction between referents and events/states to be a fundamental one, and he also sets time/location as separate elements. As it is known, elements denoting time and location are commonly coded as non-central arguments in the clause. This would restrict the study of reference to central arguments of verbs only, leaving aside any mention of other entities in discourse, as if they were irrelevant in the processing of discourse.


Other authors consider this category to be broader. According to Givón (2005), “the grammar of reference cheerfully disregards denotation in the [referential world] RW, opting to align itself with denotation in the Universe of Discourse” (Givón 2005:127). Thus, referential expressions may represent any entity that is relatively stable in time, which would include any physical object, landmark, place, cultural institution or abstract concept. In even wider terms, Lehmann (2012) defines reference as the relation between the linguistic expression and an entity present in the universe of discourse. Lehmann (2012) does not ignore referential expressions that refer oblique arguments, or nouns that refer spatial and temporal locations. Including these sort of referents in the study of discourse means that all referents that are being mentioned by speakers and processed by listeners are also being analyzed.

If we are to consider reference from a communicative/discursive perspective, it cannot be denied that there is reference and informative content even in those NPs that function as oblique arguments or that appear in adverbial clauses. These NPs become relevant from the moment the speaker decides to include them as part of discourse. This may be explained by the principle of

economy of language and by Grice’s conversational maxims of relevance and quantity (Grice 1975). Speakers would not include these NPs if they were not relevant for their communicative purposes.

1.2.1. Individuation and Referential Type

In discourse, speakers may refer to entities with a specific mental representation in mind, a referent with an identity (*John’s car is red*), or they could refer to things as mere concepts (*Cars are not a luxury anymore*). According to Lehmann (2014), *individuation* is a linguistic operation leading from a unit of the linguistic system to a unit of discourse. Individuation involves separability and distinguishability of entities. Depending on the nature of entities, some may be taken as individuals more easily than others: a human entity, by instance, is more easily individuated compared to an inanimate object. The more specific the identity of the referent, the more individuated it is. Table (1) provides the individuation scale from low to high (based on Lehmann, 2014):

Table 1. Individuation scale		
low  high	<i>Generic reference.</i>	Making reference to a species comprised by the concept
	<i>Non-specific reference.</i>	Making reference to a subset of a certain species, without specifying the identity of the individuals.
	<i>Specific reference.</i>	Making reference to an individual or a set of individuals that can be identified by at least one of the interlocutors.
	<i>Unique reference.</i>	Making reference to an entity that is already stored in the memory of the interlocutors (encyclopedic or shared knowledge), so that the identity of the referent is known by both of them.

Individuation is highly related to animacy: when people feel identified with another entity, they tend to individuate that entity in a higher degree, compared to those entities with which they feel no relation or similarity. Thus, Lehmann (2014) renames the animacy hierarchy

as the *empathy* scale. Furthermore, people tend to pay more attention to and speak about those entities that are higher in the animacy/empathy scale; therefore, they tend to occupy central positions in language, featuring higher in the topicality hierarchy. The animacy hierarchy and topicality hierarchy are shown below.

- i. **Animacy hierarchy** (Croft 1991): first/second person > third-person pronoun > proper name > human common noun > animate common noun > inanimate common noun
- ii. **Topicality hierarchy** (Givón 1995): AGT > DAT/BEN > PAT > LOC > INSTR > OTHERS

Languages grammaticalize individuation in different ways and degrees. Higher individuation is usually attained through certain grammatical categories like determiners and definite articles, although it may be achieved by other mechanisms in languages. Lower degrees of individuation, by contrast, may be attained by indefinite articles or noun incorporation. In some languages it is possible to make constructions where no referents can be identified, like German passive constructions such as *Es wurde getrunken* ‘there was drinking*’; however, an implicit referent can be inferred as a non-specific entity (Lehmann, 2014).

1.3. Referential strategies and informativeness

All languages of the world have a referential system. A system of reference is only feasible when it undertakes the semantic task, the discourse-pragmatic task and the processing task (Dooley & Levinsohn 2001). The **semantic task** is fulfilled when referents succeed to unambiguously identify the intended object from other possible ones. Referring expressions will be more specific when there is more than one possible referent. Sometimes only one argument of the clause is overtly expressed, and the others can be identified by means of contextual information and selectional restrictions. The **discourse-pragmatic task** is done by indicating a referent’s activation status and its prominence. The amount of explicitness or coding material

varies according to the activation status: highly active referents require less coding material. The activation of a referent is commonly done using a full noun phrase; once activated, it will typically require only minimal coding to maintain its active status. Concerning the **processing task**, referential devices must overcome any disruptions in the flow of information. More coding material is needed whenever there are disruptions like thematic breaks in a narrative, or a change in the type of information (Dooley & Levinsohn 2001).

In general, people mention referents using nominal expressions such as nouns and pronouns; however, as Kibrik (2011) has stated, the boundaries of the category ‘referent’ are not clear-cut. He recognizes two basic types of referential devices or nominal elements (Kibrik 2011:37):

- (i) Full referential devices
 - a. proper names
 - b. common nouns (with or without modifiers), or descriptions
- (ii) Reduced referential devices
 - a. pronouns
 - b. zero forms

Lehmann (2012) proposes a list somewhat different from Kibrik’s, resulting in five referential strategies:

Table 2: Lehmann’s referential strategies.


- a. nominal expressions (lexical NP, free/clitic/affixal pronoun, inflectional person marker, zero anaphor)
 - b. determiners (demonstratives, definite/indefinite and specific/non-specific articles, determinative/deictic clitics and affixes)
 - c. case marking that is sensitive to referentiality (e.g. differential object marking)
 - d. non-personal referential marking on verbs (switch-reference, obviation)
 - e. constituent order
-

As we can observe, the list of referential devices provided by Kibrik (2011:37) is shorter, as he does not consider determiners, case marking, non-personal referential marking and constituent order. Lehmann's inclusion of these referential strategies has a direct impact on the methodology and results of referentiality studies. His approach takes into account a larger range of coding possibilities for languages crosslinguistically, making it possible to analyze the different referential strategies of typologically diverse languages. For this reason, I will adopt Lehmann's approach in this work.

The referential choices of the speaker depend on the activation or accessibility of the referents in discourse. It also depends on the situational context and shared knowledge (see section 1.5.2). Overt NPs can have diverse structures as they can be more or less descriptive, rendering various degrees of information. Stoll & Bickel (2009) define *informativeness* as the degree of referential information given in a NP. Referential elements fall into a continuum of informativeness depending on its semantic structure, ranging from explicit to implicit mechanisms. Pronouns are closer to zero anaphora when they only encode number (for instance the pronoun *they* in English). They get closer to generic NP as they include other categories like gender, spatial distance or honorific degree (Stoll & Bickel 2009).

Lehmann (2012) proposes scale that includes, as it was mentioned before (Table 2: Lehmann's referential strategies), additional referential devices like pronominal affixes; he also makes a distinction among different types of pronouns:

Table 3. Explicitness of coding of referents (Lehmann 2012).

representation	explicitness
lexical NP	explicit  implicit
emphatic pronoun	
neutral pronoun	
clitic pronoun	
pronominal affix	
zero	

Informativeness can be measured by assigning a numerical value to referential expressions, depending on their level of explicitness or complexity. This numerical value is called *referential weight*. Referential expressions were ordered by Ariel (1990) on a scale of decreasing complexity/explicitness as shown in table (4). According to Ariel (1990) explicitness is related to accessibility of the referent in the same way it is to Givón (1995), as we will see in section 1.4.2.

Table 4. Accessibility Marking Scale (Ariel 1990)

		Low Accessibility
a.	Full name + modifier	
b.	Full (“namy”) name	
c.	Long definite description	
d.	Short definite description	
e.	Last name	
f.	First name	
g.	Distal demonstrative + modifier	
h.	Proximal demonstrative + modifier	
i.	Distal demonstrative (+NP)	
j.	Proximal demonstrative (+NP)	
k.	Stressed pronoun + gesture	
l.	Stressed pronoun	
m.	Unstressed pronoun	
n.	Cliticized pronoun	
o.	Extremely High Accessibility Markers (gaps, including <i>pro</i> , <i>PRO</i> and <i>wh</i> traces, reflexives, and Agreement)	
		High Accessibility

Lehmann (2012) used another version of this scale to assign a referential weight to all references in his Referentiality Project:

Table 5. Scale of complexity of referential expressions.		
Referential expression		Weight
a.	clause (completive, e.g. the Obj of a say verb)	9
b.	(common) noun phrase with head and (clausal or adjectival) attribute	8
c.	(common) noun phrase with head and lexical possessive specifier	7
d.	(common) noun phrase with head and determiner	6
e.	proper name	5
f.	bare common noun	4
g.	emphatic pronoun	3.5
h.	neutral pronoun	3
i.	clitic person form	2
j.	bound person form (affix)	1
k.	ZERO person form	0

1.4. Information structure

Lehmann (2008) considers information structure to be another functional domain of language. It relates to the ways in which information is packaged in each sentence and in discourse, according to the speaker's evaluation of the Universe of Discourse. This functional domain has its own subdomains (Lehmann 2008:208):

1. presupposition vs. assertion of propositions (known vs. not yet known),

2. identifiability and activation of referents (status of mental representations in the addressee's mind, from active to brand-new anchored¹), discussed
3. topic vs. focus status of elements of propositions (predictability vs. unpredictability of relations between propositions and their elements).

According to Saeed (1997), information structure is the grammaticalization of the assumptions made by speakers about the knowledge of their listeners. Grammaticalization here refers to these assumptions being reflected in sentence form and referential choices. As participants of the conversation share their knowledge, it emerges the distinction between the information assumed to be known and the information that is being presented as new.

In general, the use of a definite nominal is the way that languages have grammaticalized the assumption that the information needed for referent identification is already given by the speaker, or known by the interlocutors. Typically, referents are introduced by an indefinite nominal; then a definite article can be used, later to be replaced by an anaphoric pronoun or zero anaphora, while the referent is still activated or salient in the conversation (Saeed 1997). These uses of referential expressions are called **coreference**. Coreferential elements are therefore the grammaticalization of the information status of nominals within discourse.

1.4.1. Topic and focus

Topic and focus markers are part of information structure. There are two notions of topicality: sentence topic and discourse topic. Discourse topics are referents maintained active throughout discourse by different conversational devices (see Saeed 1997: 200). According to Givón (1995) the discourse topic is the unmarked participant since it is more salient, that is, more recurrent and

¹ The definition of referential anchorage is clarified in section 1.5.2.

cognitively activated. Sentence topics or ‘chain-initial topics’ (Givón 1983), on the other hand, correspond to newly introduced referents in a sentence. Topics are coded by the subject/agent and direct-object/patient. Both notions of topic are very close to each other, as the sentence topic is often the discourse topic. Focus markers tend to point out elements in a sentence as new. It can also mark a referent as salient when there are a number of alternative interpretations (Saeed 1997).

1.4.2. Referential distance

With this respect, Givón (1995) stated that a continuous or accessible topic (or referent) will need less linguistic material to be coded. Based on this knowledge of referential codification in languages, it is understood that referential choice in discourse is related to cognitive capacities and operations (like attentional focus and working memory) (Kibrik 2001). Givón (1995), measures the accessibility of referents by means of *referential distance*. Topical referents tend to have low referential distance. Referential distance is calculated by counting the number of clauses that separate a reference from its previous occurrence. When the previous occurrence of a referent is in the immediate preceding clause, it has a referential distance of 1. When it is in the second or third clause, a value of 2 or 3 is assigned. If there is no antecedent in the last 3 clauses, it is assigned a value of >3. Generally, highly topical referents (usually coded by zero anaphor) tend to have a referential distance of 1. Referents that are continuous in discourse also tend to be coded with zero anaphora or unstressed pronouns, whereas discontinuous referents are expressed by means of full lexical nouns or stressed pronouns. This relation is shown in the scheme below (Givón 1995):

- maximal continuity → zero anaphora, unstressed pronoun
 discontinuity → stressed pronoun, full lexical noun

Maximal continuity coding devices indicate the (cognitive) default choice of *continued activation* of the topical referent. Discontinuous devices, by contrast, indicate the termination of the current topical referent, along with the activation of a new topic. Stressed pronouns may serve as a short-distance device, which indicates activation of a new referent without terminating the current one (Givón 1995:364).

1.5. Discourse analysis

1.5.1. Typology of text/discourse genre

In a referential study it is important to identify the genre of the text that is being analyzed. Knowing the text genre will enable us to make some predictions about the flow of information and recognize the origin of certain phenomena. Smith (1985) analyses the importance of certain characteristics of texts needed for a taxonomy. This taxonomy considers two main features (agent orientation and chronological succession), that combine to render four text types, as shown in the table:

Table 6. Text types (Smith 1985: 231).

	+AGENT ORIENTATION	-AGENT ORIENTATION
	NARRATIVE	PROCEDURAL
+ CONTINGENT TEMPORAL SUCCESSION	1. 1/3 person 2. Agent oriented 3. Accomplished time 4. Chronological linkage	1. Non-specific person 2. Patient oriented 3. Projected time 4. Chronological linkage
	BEHAVIORAL	EXPOSITORY
-CONTINGENT TEMPORAL SUCCESSION	1. 2 person 2. Addressee oriented 3. Mode, no time 4. Logical linkage	1. No necessary person ref. 2. Subject matter oriented 3. Time not focal 4. Logical linkage

The characteristics of text types are reflected in particular linguistic forms and uses. The feature of [+agent oriented] is realized through the use of first or third person pronouns as agents. The feature of [+contingent temporal succession] is reflected in the use of the past tense, temporal conjunctions or temporal adverbials. Thus, the features of each text type would be distributed as follows (Smith 1985):

- a) Narratives: 1/3 person pronouns, Agent/Experiencer subjects, Past/historical present tense, head-head/tail-head linkage.
- b) Procedural: 1/2/3 person (general) pronouns, Patient as object, Present/future (customary) tense, head-head/tail-head linkage.
- c) Behavioral: 1 incl., 2 or 3 person pronouns, imperative/jussive/hortative modes, linkage by condition/cause/purpose margins.
- d) Expository: 3 person pronouns, equative/descriptive clauses, various tenses, linkage by sentence topic/parallelism.

1.5.2. Universe of Discourse

In real life, language users must combine semantic knowledge of language with knowledge of the world to make inferences and correctly interpret the intended meaning, which means that listeners also participate actively in the construction of meaning (Saeed 1997). Both kinds of knowledge (knowledge of the world and of language) are part of the context that helps hearers understand what the speaker says.

When a speaker makes an utterance he/she has to estimate the amount of knowledge the hearer possesses. According to Saeed (1997), this knowledge may come from three sources:

1. physical context (deixis)
2. discourse context
3. background or common knowledge

Lehmann (2014) considers that there are four ways for the speaker to create a representation of the referent in the hearer's mind. He calls these knowledge sources the *four spaces of the speech acts*, which are listed below.

1. speech situation
2. universe of discourse
3. encyclopedic knowledge
4. shared experience

The **speech situation** or physical context involves space and time. It comprises all physical objects present during the speech act (Lehmann 2014), and is coded in deictic expressions. In order to understand utterances, the hearer must be able to identify the referents of pronouns like *I* and *you*. Even though the interpretation of these pronouns is always different, the identification of referents is normally understood from context without problems. Linguistic elements that are contextually bound are part of deictic categories, which are of various kinds: temporal deixis, spatial deixis, person deixis and social deixis (Saeed 1997).

Spatial deixis refers to adverbs like *here/there* or demonstratives like *this/that*. The organization of space is different from one language to another, and the reference point of spatial deictic markers can be the speaker and the hearer. Spatial deixis is frequently used to point out information within discourse (which is then called discourse deixis), and they can also be employed to refer to time. Person deixis concerns the grammaticalization of participants (including the speaker, the hearer) and non-participants of the conversation; this information is

grammaticalized in the form of pronouns (*I, you, we, they*). Again languages differ in the kind of information that is packaged along with person, some may also include number and/or gender. Social deixis grammaticalizes information about social relationships and identity of the participants. Social deixis can be included in the system of person deixis, like the distinction between familiar and polite pronouns of the European languages (Saeed 1997).

The **universe of discourse** or discourse context is “an intensional world created, modified and maintained by interlocutors in a particular speech situation” (Lehmann 2014). According to Saeed (1997), the discourse context is given by the discourse topic, which influences the way listeners interpret the meaning of what is being said. One utterance may have very different interpretations depending on what the discourse is about. The current discourse topic provides information for the listener to make the right inferences about referents.

Encyclopedic knowledge or background refers to sociocultural and real-world knowledge that is shared by the participants in the conversation. This information is independent from any given information in the current or previous discourse, and is acquired by membership in a community (Saeed 1997). Encyclopedic knowledge is especially important as a referential anchor, given that in many cases it is the only means for listeners to understand what kind of entities are involved or what is the relation among them. This would be the case if a speaker makes an utterance like *yesterday I was visited by a colleague from Afghanistan* with no previous introduction of the referent (Lehmann 2014).

Sometimes the identification of a specific referent can only be accomplished by **shared experience**. In such cases the referent is stored in the memories of both speaker and hearer by having lived in a situation jointly, or by having had the same experience independently. Lehmann (2014) points out that shared experience and encyclopedic knowledge can overlap:

“Given the context in which we live, a subset of those entities that make up our encyclopedic knowledge, importantly comprising certain unique objects, may be part of our daily experience. This subset will then have a special status in reference. That is the case in *I must go to the market*, where in the absence of indications to the contrary, the market in our horizon is being referred to. Note that in such cases, no special operation of recall from memory is conveyed.”

In the universe of discourse of a given speech situation, the referents are anchored through different referential operations, which correspond to the four spaces of the speech act:

Table 7. Anchorage spaces		
Speech act space	Referential operation	Comment
Speech situation	Exophora (deixis)	Referent is outside the text, in the physical world, but within the universe of discourse
Universe of discourse	Endophora (coreference)	Referent is inside the text. It presupposes its existence in the UD
Encyclopedic knowledge	Concepts and representations	Referent is known by membership in a community
Shared experience	Anamnestic reference (recognition)	Referent is stored in the memories of both speaker and hearer.

CHAPTER II

THE TARAHUMARA LANGUAGE

2.1. Cultural and environmental context

Speakers of the Tarahumara language live in the state of Chihuahua, located in the Sierra Tarahumara region in North Mexico. Tarahumara people call themselves *Rarámuri*, which can be translated as “people”, as opposed to mestizos or outsiders, which are called *chabochi* (‘those who have beard’) or *yori* (Pintado 2004). The term *rarámuri* is also associated with the meaning of ‘foot runner’ or ‘light feet’, given that these people are excellent runners (Bennet and Zingg 1930).

The Sierra Tarahumara region displays an extreme weather: while temperature in the *barrancas* can reach 40°C in summer, it descends several degrees below zero in the highlands during winter. In this region, water is a scarce resource, although they do have raining periods in summer (from June to August) and in winter (from December to February) (Pintado 2004). In some areas of this region, particularly within caves, the dry atmosphere does not change, allowing for a natural mummification and preservation of corpses (Mansilla 2011). In spite of the dry conditions, the Tarahumara are able to produce corn, beans, potatoes, oranges, apples and chili, among other things.



Map 1. The Tarahumara region (Dryer, Matthew S. & Haspelmath, Martin (eds.) 2013).

Because of the extreme weather of the region, they are a semi-nomadic society, living in a summer house in the highlands, and moving to their caves in the *barrancas* to spend the winter. The Tarahumara society is co-operative, helping each other in exchange for food and *tesgüino*, a corn based beer. Men and women have very well-defined, distinctive roles, which make them mutually dependent. Men are required to work outside the home, cultivating the field, watching over the cattle, and making all kinds of things needed: hand tools, musical instruments and houses. Sometimes they go out of the community to sell or trade their products. Government and leadership are also male tasks. Woman usually stay home to look after their children and take care of the herds that will provide them with the wool needed for making blankets. Many products for daily life are homemade by women, such as baskets, pottery and cooking instruments. In addition, women must prepare food and *tesgüino* for everyday meals, as well as for *tesgüinadas*, their traditional ceremonies (Bennet and Zingg 1930).

Tarahumara religion is a fusion of their prehispanic beliefs with those of Christianity. They believe in the *arewá* ‘the soul’ or ‘energy’, which keeps them alive. According to the Tarahumara, their *arewá* is strengthened by music (Pintado 2004); consequently, music and dancing play an important role in ceremonies and celebrations.

2.2. Linguistic family

The Tarahumara language is affiliated to the Uto-Aztecan (or Uto-Nahua) family, which is divided into northern and southern languages. According to Estrada (2004), this family takes its name from the designations of the indigenous groups that lived at the two poles of its geographic distribution, as they were found by Europeans: Ute at the northern end (Arizona, California, Colorado, Nevada and Utah) and Aztec or Nahua at the southern end (Central Mexico). Tarahumara language belongs to the Tarahumara-Guarijío branch of the southern group. The organization of the entire family is shown in table 8 (adapted from Estrada 2004):

Table 8. Classification of the Uto-Aztecan family	
<i>Northern Uto-Aztecan</i>	
1.	Numic Western: Mono, Northern Paiute Central: Timbisha Shoshoni (Panamint), Shoshoni, Gosiute, Comanche Southern: Kawaiisu, Chemehuevi, Southern Paiute, Ute
2.	Takic Cupan: Cahuilla, Cupeño, Luiseño Serrano, Gabrielino-Fernandeño
3.	Tübatulabal (or Río Kern)
4.	Hopi
<i>Southern Uto-Aztecan</i>	
5.	Pimic Pima-Tohono O’odham Pima bajo (Néville) (extinct) Pima bajo (from the mountain) Northern Tepehuan Southern Tepehuan

	Tepecano
6.	Opatan Opata Eudeve
7.	Tarahumara-Guarijío Tarahumara Guarijío
8.	Tubar
9.	Yaqui-Mayo (Cahitan) Yaqui Tehueco (extinct) Mayo
10.	Corachol-Aztecán Corachol: Cora, Huichol Nahuatl

Tarahumara is one of the most widely spoken languages in Northern Mexico. It is spoken by approximately 85,316 people (INEGI 2010). The municipalities of Guachochi, Urique, Bocoyna and Balleza, in the state of Chihuahua, show the highest densities of Tarahumara speakers. About 13% of Tarahumara speakers are monolingual; they are mainly found in Guachochi, Batopilas and Balleza (INEGI 2009:121).

There are five varieties of this language, separated by natural geological formations of the Sierra Madre Occidental (Gordon 2005). Table 9 displays all five varieties along with their language code, municipalities where they are spoken.

Table 9. Tarahumara varieties (Gordon 2005)		
Variety	ISO Code	Municipalities
Southwest Tarahumara	639-3 twr	Tubare
Northern Tarahumara	639-3 thh	Santa Rosa Ariseachi, Agua Caliente Ariseachi, Bilaguchi, Tomochic, La Nopalera

Southeast Tarahumara	639-3 tcu	Chinatú, Turuachi, Balleza
Western Tarahumara	639-3 tac	Urique, Uruachi, Guazapares, Chínipas, Rocoroibo and Bocoyna.
Central Tarahumara	639-3 tar	Norogachi, Guachochi

According to **Gordon (2005)**, Northern Tarahumara has 45% intelligibility with the Central variety (tar) and 25% intelligibility with the Western variety (tac). On this matter, nothing is said about the remaining dialects. Much of the dialectal variation in Tarahumara may have its origins in the free vocalic and consonantic variations this language exhibits. One can often find the following alternations, among many others:

- (1)
- a. *bilé ~ biré ~ birée* ‘one’
 - b. *beteame ~ pereame* ‘inhabitant’
 - c. *ba’wí ~ wawí* ‘water’
 - d. *onerá ~ onora* ‘father’
 - e. *jéena ~ jináa* ‘this’
 - f. *ko’a ~ go’a* ‘to eat’

An additional common variation source is reduction of words by dropping initial or final sounds or syllables. This variation may occur within the same variant and even produced by the same speaker.

- (2)
- a. *echi ~ chi* ‘he/she/it, this’
 - b. *rotori ~ toorí* ‘hen’
 - c. *ketasi ~ ke* ‘no’
 - d. *tabilé ~ ta* ‘no’

Nevertheless, Villalpando (2010) presents some data to illustrate these differences among dialects through the comparison of some lexemes. Table 10 gathers some of the information he offers (Villalpando 2010).

Table 10. Phonological dialectal variation in Tarahumara					
	Western	Northern	Central	Southeast	Southwest
blood	<i>ela</i>	<i>la</i>	<i>la</i>	<i>la</i>	<i>la</i>
heat	<i>rahtá</i>	<i>ratalí</i>	<i>ratalí</i>	<i>ratá</i>	<i>ratá</i>
dough	<i>párisi</i>	<i>batusí</i>	<i>batusí</i>	<i>batusí</i>	<i>tusí</i>
far	<i>mehká</i>	<i>meká</i>	<i>meká</i>	<i>miká</i>	<i>mikiá</i>
house	<i>galí</i>	<i>galí</i>	<i>alí</i>	<i>karí</i>	<i>puruí</i>

Needless to say, this sort of superficial comparison is not enough to see how deep the differences among dialects are.

2.3. Word order and Alignment type

Tarahumara has a strong tendency to place the verb at the end of the clause. The most frequent constituent orders to be found in Tarahumara are APV, AVP and PVA (Cohen 1998). Another order that frequently appeared in the sample used in this work was VAP. Examples of these constituent arrangements are the following.

(3) APV

						A	
<i>a</i>	<i>bela</i>	<i>kó</i>	<i>bachá</i>	<i>rikó</i>	<i>atí</i>	<i>mukí</i>	<i>ko</i>
LOC	DP	DP	in.front.of	DIR	be	woman	DP
		P	V				
<i>walú</i>	<i>kobísi</i>	<i>nawa-yá</i>					

INT pinole make-HAB
 ‘First the woman makes pinole’
 ‘Primero la mujer hace mucho pinole’

(4) AVP

	A				V		P		
	<i>échi</i>	<i>mukí</i>	<i>ko</i>	<i>ayéna bila</i>	<i>walú</i>	<i>manii</i>	<i>échi</i>	<i>batáli</i>	<i>bá</i>
	DEM	woman	DP	CON DP	INT	put	DEM	tesgüino	CL

‘The woman also makes a lot of tesgüino’
 ‘La mujer también le hace bastante tesgüino’

(5) VAP

			A			P
<i>alí</i>	<i>katéwi-ka</i>	<i>achá</i>	<i>échi mukí</i>	<i>ko</i>	<i>basíawi</i>	
SIM	keep-STAT	be	DEM woman	DP	corn	

‘The woman puts the corn away’
 ‘La mujer deja guardado el triguillo’

Given that this language has no morphological case marking, it shows neutral alignment for full NPs; nevertheless, nominative-accusative alignment emerges in its pronoun paradigm. Pronominal forms in Tarahumara make a distinction between subject and non-subject for the first and second person, as shown in table (11). Third person pronoun, as in many other languages, is expressed by means of a demonstrative pronoun and its form is invariable (see section 2.7 on referential expressions in Tarahumara).

Table 11. Pronominal paradigm for Tarahumara (Pahuírachic, Chih.)				
	SINGULAR		PLURAL	
	SUBJ	NON-SUBJ	SUBJ	NON-SUBJ
1SG.	<i>nejee</i>	<i>tami</i>	<i>tamuje</i>	<i>tami/tamo</i>
2SG.	<i>muje</i>	<i>mi</i>	<i>tamuje</i>	<i>tamuje</i>

Tarahumara combines neutral alignment (for full NPs) with nominative-accusative alignment (for personal pronouns), which is the most frequent alignment combination found in languages of the world, according to the results of the survey made by Comrie (2013). Neutral alignment is exemplified in (3-5). Example (6) shows the nominative-accusative alignment in the pronominal paradigm.

(6) The verb ‘to give’ in Tarahumara:

<i>nejee echi aari</i>	‘I gave (it) to him’
<i>échi tamí aari</i>	‘he gave (it) to me’
<i>échi mi aári</i>	‘he gave (it) to you (sg)’
<i>echi tamoó aari</i>	‘he gave (it) to us’
<i>nejée mií aaki</i>	‘I gave (it) to you (pl.)’
<i>nejée echi aari</i>	‘I have (it) to them’

2.4. Morphological features

Following Comrie (1989) on his description of polysynthetic languages, and considering the synthetic-analytic dimension, it can be argued that Tarahumara is more inclined towards the analytical side of the continuum (Villalpando 2010:72). Words tend to be comprised by one to three syllables, Most Tarahumara verb stems take up to three suffixes, as shown in (7):

- (7) *ko ’á-r-ti-nare*
 comer-CAUS-CAUS-DES
 ‘She wants to make him eat’
 ‘Quiere hacerlo comer’ (Caballero 2008:94)

As it was previously said, this language tends to truncate phonological material from words. However, the extent to which word are reduced varies from one dialect to another. Some

dialects may drop one sound or one syllable, while others go as far as to *keep* one syllable, in some cases. Table 12 below illustrates this situation (Villalpando 2010).

Table 12. Word truncation across dialects					
	Western	Northern	Central	Southeast	Southwest
hill	<i>gawí</i>	<i>gawí</i>	<i>awí</i>	<i>kawí</i>	<i>awí</i>
pine tree	<i>okó</i>	<i>okó</i>	<i>okó</i>	<i>okó</i>	<i>ko</i>
ten	<i>makué</i>	<i>makóí</i>	<i>makóí</i>	<i>makóí</i>	<i>mkó</i>
skin	<i>wichíla</i>	<i>wi'chí</i>	<i>wichíla</i>	<i>wichí</i>	<i>chíl</i>
red	<i>setákame</i>	<i>sitákame</i>	<i>sitákame</i>	<i>sitákame</i>	<i>sitákam</i>

Regarding the fusional criterion, Tarahumara is an agglutinative language, given that morphological segmentation is normally an easy task and morphemes are generally semantically simple. Apart from the difficulties that come with free vocalic and consonantic variation, morphemes are easy to identify once one is familiarized with the language, and with the specific dialect that is being analyzed. Some dialects, by instance, would prefer the allomorphs *-li* or *-ti* for the perfective marker *-ri*, although alternation of these allomorphs may as well occur within the same variant. This is illustrated in example (8) for the Choguita variant.

- (8) a. atíj-**ri** ~ atísi-**li** ‘sneeze-PST’ (Caballero 2008:39)
 b. ritú-**r-l-o** ~ ritú-**ri-li-o** ‘freeze-CAUS-PST-EP’ (Caballero 2008:43)

This language has neither case, number nor genre markers on nouns or adjectives. It also goes without personal indexation on verbs. Tarahumara expresses syntactic function through word order: As tend to be positioned before Ps, regardless of the positioning of the verb (although pragmatic factors may allow exceptions); function may also be inferred by verb semantics. The idea of plurality is coded analytically by means of numerical elements and quantifiers such as *pé okwá* ‘a couple’, *walubé* ‘many, more’, *siné* ‘some’, *táa* ‘little’ etc. (example 9).

- (9) a. *échi pé okúa rochí*
 DEM few two fish
 ‘a couple of fishes’
 ‘unos cuantos pescados’
- b. *táa batali*
 pequeño tesgüino
 ‘a little tesgüino (beer)’
 ‘un poco de tesgüino’

Tarahumara does not have genre as a grammatical paradigm, it only makes a natural genre distinction for humans and some animals, when relevant. Feminine and masculine distinctions on humans are made through a suppletive mechanism available for nouns and some adjectives, as shown in examples (10a-f) taken from Brambila (1953:13):

(10)	Masculine		Feminine	
a.	<i>towí</i>	‘boy’	<i>tewé</i>	‘girl’
b.	<i>boní</i>	‘younger brother’	<i>waí</i>	‘younger sister’
c.	<i>očłkari</i>	‘paternal grandfather’	<i>akáčuri</i>	‘paternal grandmother’
d.	<i>si’ará</i>	‘father in law’	<i>wa’sira</i>	‘mother in law’
e.	<i>wičuwati</i>	‘crazy.M’	<i>wičulati</i>	‘crazy.F’
f.	<i>očérame</i>	‘old.M’	<i>weráame</i>	‘old.F’

When the situation requires a genre distinction to be made on animals, Tarahumara turns to an analytic mechanism: it uses a modifier of the noun that expresses the meanings of ‘male’ or ‘female’ (Brambila 1953:13):

- (11) a. *totorí owira* ‘ruster’

- b. *totorí mukira* 'hen'

Although it is generally accepted that Tarahumara has no morphological means to code person or number on verbs, Caballero (2008) has characterized the verbal suffix *-po* (~ *-bo*) as an indicator of number and time. These suffixes appear in various dialects but are not obligatory and do not occur frequently. She also identifies the prefixes *i-* and *na-* as plural markers and *ni-* as a singular marker for the variety she describes (from the municipality of Choguita). The latter morphemes are not seen consistently in other varieties. Even in the Choguita variety, Caballero (2008) mentions the verbal lexeme by itself as an alternative to code the singular (without using the singular morpheme). Examples are given in (12).

- (12) a. *rapáa-m-po* (Caballero 2008:40)
split:APPL-TR-FUT:PL
- b. *newá-bo* (Caballero 2008:46)
make-FUT:PL
- c. *i-béwa* (Caballero 2008:45)
PL-smoke:PL
- d. *na-kúri* (Caballero 2008:124)
PL-help
- e. *ni-kúri* (Caballero 2008:124)
SG-help
- f. *ku'íri* (Caballero 2008:124)

Moreover, there are some suppletive verbs that are used when a plural subject is involved in the event. This resource is not available for all verbs in the language. Although different authors have mentioned some of the verbs that count with a suppletive plural, to this day it does

not exist a list of specific verbs, so as to know how many verbs or what kind of verbs have a plural counterpart. The examples here provided (13) are taken from Caballero (2008:124) and include transitive and intransitive verbs.

(13)	Singular	Plural	Gloss
a.	<i>asi</i>	<i>močí</i>	‘sit’
b.	<i>wiri</i>	<i>hawá</i>	‘stand’
c.	<i>bo’i</i>	<i>bi’ti</i>	‘lie down’
d.	<i>bakí</i>	<i>mo’í</i>	‘go in’
e.	<i>mi’ri</i>	<i>ko’i</i>	‘kill’

2.5. Transitivity and valency

As Nariyama (2001) has proved, knowing the argumental structure and semantic/syntactic properties of predicates is helpful in the process of inferring and identifying implicit arguments. This study, however, does not offer a description of the argumental structure of predicates in Tarahumara. It merely offers an overview of some syntactic mechanisms for valency changes that may, similarly, be useful in the identification and tracking of referents for this referential study.

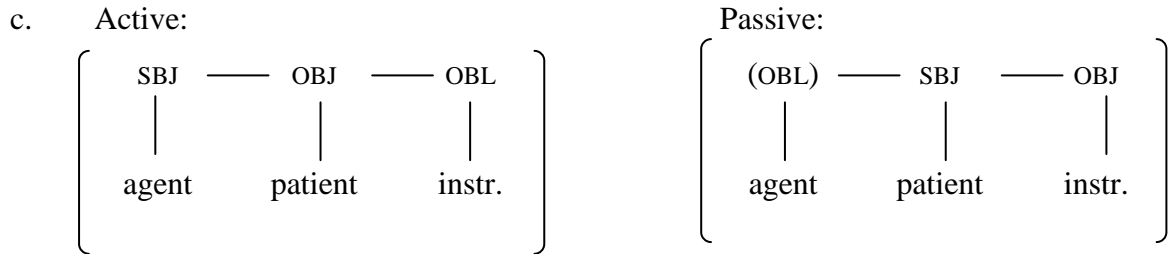
Although there are different word orders in this language (see section 2.3), the basic order is APV. In an intransitive construction, the argument precedes the verb, as in (14a); the transitive construction is shown in (14b). Tarahumara seems to tolerate only two adjacent arguments before the verb: when an oblique argument is added to an intransitive construction, it appears in second position, after the subject and before the verb (14c); when it is added to a transitive construction, it goes *after* the verb (14d).

- (14) a. *towí maá*
 boy run
 ‘the boy runs’
 ‘el niño corre’
- b. *Nejée kochí chóokame raráa-ri*
 1SG dog black buy- PFV
 ‘I bought the black dog’
 ‘yo compré el perro negro’
- c. *Echi rejói kawi-chi maa-ri*
 DEM man mountain-LOC run-PFV
 ‘the man ran on the mountain’
 ‘el hombre corrió en la montaña’
- d. *Nejee músa rarií-ki Pedro*
 1SG cat buy- PFV Peter
 ‘I bought Peter a cat’
 ‘(le) compré un gato a Pedro’

In Tarahumara we can find some valency reduction mechanisms like passive and impersonal constructions, as well as valency increasing mechanisms such as causative and applicative constructions. The **passive** construction is illustrated in (15). It is through the passive suffix *-ru* (or *-tu*) that the patient is promoted to the subject position and the original subject (the A) is omitted.

- (15) a. *Nejée paan chikrée ripayá nati*
 1SG bread cut knife INSTR
 ‘I cut the bread with the knife’
 ‘Yo corté el pan con cuchillo’
- b. *Echi paan ripiyáa nati chikire-ru*

DEM bread knife INSTR cut-PASS
 ‘The bread was cut with the knife’
 ‘El pan fue cortado con un cuchillo’



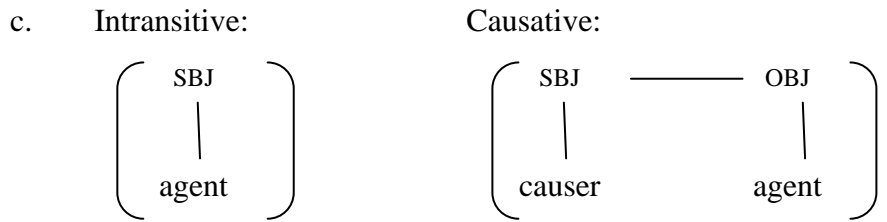
Valdez (2013) recognizes the morphemes *-ia/-riwa/-wa* as additional passive markers, indicating that they can occur with transitive and intransitive verbs, but receiving an impersonal interpretation in the case of intransitive verbs. In this study they are treated solely as **impersonal** markers that make reference to a non-specific person, like the English *one* (as in “one must cultivate one’s garden”). Thus, impersonal constructions are less transitive in the sense that they do not code a specific lexical referent. Nevertheless, valency is not really affected, since the agent/subject of the clause is still explicitly present (as a non-specific referent) through the impersonal suffix. Similarly, the **applicative** *-lta* (or *-la, -ra*) codes a non-specific patient.

- (16) a. *a bilá ko échi bela owirú-ame bela manú-wa échi batáli*
 LOC DP DP [DEM one heal-NMLZ] DP put-IMPRS [DEM tesgüino]
 ‘one makes the batali for the healer’
 ‘así pues, se le pone al curandero el tesgüino’ (Trabajos-C1109)
- b. *ayéna chukú échi mukí pákia-la ba*
 CONJ AUX [DEM woman] drain-APPL CL
 ‘also this woman drains (the beverage)’
 ‘también se pone esta mujer a colar (el maíz molido)’ (Trabajos-C180)

In the **causative** construction the causer is introduced in subject position and the causee (the agent) takes the second position; this is exemplified in (17). The causative marker takes the form of *-ri* (or *-ti*). Caballero (2002) adds the allomorphs *-ri*, *-re*, *-tia*, *-ria*, registered in the Ojachichi variety; however, the morpheme *-ria* (along with its allomorphs *-lia* and *-ya*) seem to perform another function closer to an aspectual marker, in the varieties that have been analyzed in this work.

(17) a. *towí maá*
 boy run
 ‘the boy runs’
 ‘el niño corre’

b. *mukí ranára maa-r-ti*
 woman child run-CAUS-PFV
 ‘the woman makes the child run’
 ‘la mujer hace correr a su hijo’



Causativity may also be expressed syntactically, using verbs like *orá*, ‘make’, as shown in (18).

(18) *echi mukí orá-ri mapu towí kochi-méa*
 DEM woman make-PFV SUB boy sleep-IRR
 ‘The woman put the boy to sleep’
 ‘La mujer hizo que el niño se durmiera’

2.6. Nominal grammar

Given the analytical nature of this language, nouns are generally not very complex; they often consist of a lexeme by itself. This is not to say that there is no nominal inflexion at all. Nouns may take the locative suffix *-achi* (or *-chi*) or the possessive suffix *-wa*. The locative morpheme usually appears with names of places, common nouns that refer places/physical spaces, and nouns that refer temporal spaces. It can also be used to refer events or to index body parts.

- (19) a. *kawi-chí* ‘at the mountain’
 mountain-LOC
- b. *napí-chi* ‘on the fire’
 fire-LOC
- c. *wíwa-achi* ‘harvesting season’
 to:harvest-LOC
- d. *alíwa-achi* ‘in the evening’
 evening-LOC
- e. *batáli-chi* ‘at the batali party’ (tesgüinada)
 batali(beer)-LOC
- f. *ropa-chí* ‘in the stomach’
 stomach-LOC

The locative suffix also appears with verbal forms, producing nouns, as in (20):

- (20) a. *biti-chi* ‘house’
 to:live-LOC

b.

The possessive suffix does not seem to be obligatory, since there is also a possessive pronoun. Sometimes both the possessive pronoun and the possessive suffix appear around the noun, and sometimes only the possessive pronoun is used. The possessive suffix, however, does not appear on its own.

- (21) a. *kini panero* 'my husband'
 b. *kita retéma* 'our people'
 c. *kípi kúchu-wa* 'her children'

Many nouns in Tarahumara have a *-li* or *-i* ending, however this is not a rule.

- (22) a. *kobísi* 'pinole (beverage)'
 b. *napíwili* 'corn' (sp. nixtamal)
 c. *mukí* 'woman'
 d. *rejói* 'man'
 d. *muní* 'beans'
 e. *namúti* 'thing'
 f. *pachí* 'small garden' (sp. milpa)
 g. *rochí* 'fish'

Even though it is unusual, this ending can adhere to verbal lexemes in order to make nouns. In example (23a), the modifier *walú* 'big', and the fact that the construction has a transitive verb (along with its subject) corroborate that the word *nóchali* 'work' is in fact functioning as a noun, meaning that the suffix *-li* is working as a nominalizer, perhaps by analogy. In (23b) we have the same modifier preceding the word *omáwali* 'celebration', which appears as the subject of an existential construction. However, this assertion of *-li* being a nominalizer should be further studied in order to see if this mechanism actually comes from this nouny ending. Another possibility is that it comes from the perfective suffix *-ri*, which has *-li* as one of its allomorphs. It could be that the perfective marker has been producing participles that are then used as nouns.

- (23) a. *ayéna bela walú nócha-li níwi échi bilé mukí*
 CONJ DP big to:work-NMLZ have DEM one woman
 ‘And this woman has a lot of work (to do)’
 ‘También pues tiene mucho trabajo una mujer’
- b. *walú omá-wa-li niru-li-sa siné kaachi*
 big to:celebrate-IMPR-NMLZ to:be-PFV-COND some times
 ‘Sometimes when there are big celebrations’
 ‘En ocasiones cuando hay grandes festejos’

A very productive nominalizer in Tarahumara is the suffix *-ame*. This suffix can be attached to nominal and verbal lexemes to produce nouns and adjectives. Examples (24a) show the suffix *-(k)ame* with a nominal base and in (24b-d) appears with a verbal base, all receiving a nominal meaning.

- (24) a. *bantéli-ame* ‘the one who carries the flag’ (sp. el abanderado)
 flag-NMLZ
- b. *ko’a-ami* ‘food’
 eat- NMLZ
- c. *wilí-ame* ‘leader’
 put(in charge)-NMLZ
- d. *newá-ami* ‘maker, manufacturer’
 make-NMLZ

Yet another nominalizer is the suffix *-ka*. A couple of examples are given in (25).

- (25) a. *napabu-ka* ‘gathering’
 gather-NMLZ
- b. *mani-’i-ka* ‘food’
 put-PRF-NMLZ

This marker has traditionally been accepted as a stative/progressive morpheme in the literature, although it has been tagged in many ways. Nevertheless, there is currently some discussion over the real meaning of and adequate tagging for this morpheme and the former morpheme *-(k)ame*. Table (13) makes a comparison of the different meanings/tags that have been assigned by different authors to each one of these suffixes.

Table 13. Interpretations and tagging for <i>-ka</i> and <i>-(k)ame</i>				
Guadalajara (1683)	Brambila (1953)	Lionnet (1972)	Burgess (1984)	Caballero (2008)
	<i>-rame ~ -kame</i> Stative, Participial pres. <i>-reama ~ -keama</i> Participial. perf.	<i>-me ~ -mi</i> Participial, Adjective	<i>-ame ~ -me</i> Participial	<i>-ame</i> Participial
<i>-go ~ -ga</i> Pluscuamperfect		<i>-ga ~ -ka</i> Durative present	<i>-ga</i> Simultaneous, Continuative, Stative	<i>-ka</i> Gerund

It is also questionable whether they should be considered nominalizers or exclusively aspectual/temporal markers. Thus, the discussion is not a trivial one, and is not limited to the semantic domain, since the different interpretations of these morphemes may affect the morpho-syntactic description of this language.

2.7. Referential expressions

As seen in section 1.2.1, languages manage to code referents specifically, non-specifically, or as general concepts; and they do this using a wide range of constructions and resources that have

different degrees of complexity. The degree of complexity is dictated by pragmatic factors, as well as situational and discursive context.

Tarahumara uses bare nouns mostly to code non-specific or general concepts. Indefinite entities may also be coded by the quantifier *bile* (or *bileana*) ‘one’.

- (26) ***bilé** mukí ko **bilé** rawé náli wika nátame nócha*
 [one woman] DP [one day] COMMIT mány ways work
 ‘a woman can work in many ways in one day’
 ‘una mujer en un día llega a trabajar en diferentes maneras’

It makes use of demonstratives as determiners when referring to a specific entity. Some frequent determiners are *echi* and *jenaí*, among others. The demonstrative *echi* may also function as a third person pronoun, accordingly it can occur by itself, referring to humans and to all kinds of entities. Demonstratives/determiners, quantifiers and possessive pronouns precede the noun.

- (27) a. ***jenaí** ayé ralámuli-chi ko*
 DEM CONJ rarámuri-LOC DP
 ‘here where the raramuri (live)’
 ‘aquí en donde (estamos) los rarámuris’
- b. *ayéna raíchi-ka cho **échi***
 CONJ hablar-STAT LOC DEM
 ‘also (she is) talking to them’
 ‘también platicando con ellos’

The following examples illustrate the diversity of referential constructions available in Tarahumara. It attempts to cover all kinds of referential expressions that are applicable to this language, taking Table 5 (list by Ariel 1990 and Lehmann 2012) as a guide, and using the discursive texts that were analyzed for this work as the resource for data.

Table 14. Referential mechanisms in Tarahumara.	
a.	<p>clause (completive, e.g. the Obj of a say verb)</p> <p><i>∅ ané-lta ruá ru pi napawí-sa</i> [A] say-APPL CIT CONJ [gather-COND] ‘(they) told them they should gather’ ‘les dijeron que se juntaran’ (Tubali-C19)</p>
b.	<p>(common) noun phrase with head and (clausal or adjectival) attribute</p> <p><i>pachákie muchúa tiwéli láname sunú welí ramé-kame</i> inside to:be.PL there [yellow corn big kernel-NMLZ] ‘inside was the yellow corn (with) big kernel’ ‘ahí adentro estaba el maíz amarillo (con) grandes granos’ (Tubali-C137)</p>
c.	<p>(common) noun phrase with head and lexical possessive specifier</p> <p><i>kípu rana gará kú sawí-li lá ba</i> [POSS son] good DP heal-PFV CL ‘her son healed well’ ‘su hijo se curó bien’ (Trabajos-C1114)</p>
d.	<p>(common) noun phrase with head and determiner</p> <p><i>jériká bila kó nócha la échi mukí ko bá</i> like:this pues DP work [DEM woman] DP CL ‘this is (how) the woman works’ ‘pues así trabaja la mujer’ (Trabajos-C1116)</p>
e.	<p>proper name</p> <p><i>Tubáli ábaga riwéwi échi rijói</i> [Giant] like:that call [DEM man]</p>

	<p>‘Giant was the name of that man’ ‘Gigante, así se llamaba ese hombre’ (Tubali-C11)</p>
f.	<p>bare common noun</p> <p>\emptyset <i>napíwili</i> <i>batú-a</i> [A] [corn] grind-PRS ‘(she) grinds corn’ ‘(ella) muele maíz nixtamalizado’ (Trabajos-C17)</p>
g.	<p>emphatic pronoun</p> <p>\emptyset <i>machí binói</i> <i>ko</i> <i>mápu-ali</i> <i>nayuu-sa</i> <i>échi</i> <i>taa</i> [S] know same/self DP SUB-SIM get:sick-COND DEM small ‘(she) knows (by) herself when the little (kid) gets sick’ ‘(ella) misma sabe cuando se enferman los pequeños’ (Trabajos-C197)</p>
h.	<p>neutral pronoun</p> <p><i>mukí rarámuli</i> <i>ko</i> <i>a</i> <i>bilá</i> <i>taá</i> <i>nócha-ka</i> <i>rejói</i> <i>cho</i> <i>pa</i> [woman rarámuri] DP LOC DP [1PL] work-STAT man LOC CL ‘we, the raramuri women, work like men’ ‘las mujeres rarámuris, nosotras trabajamos como el hombre’ (Trabajos-C12)</p>
i.	<p>clitic person form</p> <p>N/A</p>
j.	<p>bound person form (affix)</p> <p><i>na</i> <i>jaré</i> <i>iná-lta</i> <i>ruá ru tibulua</i> <i>ka</i> <i>chio</i> PART [some] burn-APPL CIT [last] EMPH too ‘some (of the giants) were burnt, it is said, the last one too’ ‘algunos los quemaron a los últimos también’ (Tubali-C148)</p>

k.	<p>ZERO person form</p> <p><i>ayéna cho ø newá kowa-ami beá</i></p> <p>CONJ LOC [A] make [eat-NMLZ] early</p> <p>‘(she) also makes food early’</p> <p>‘y también hace comida temprano’</p> <p style="text-align: right;">(Trabajos-C19)</p>
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CHAPTER III

MATERIAL DESCRIPTION

The linguistic materials used for this work are discursive texts that were taken from different sources. The text “*Trabajos de la mujer*” was documented in the city of Chihuahua by Dr. Zarina Estrada Fernandez during field work in September 2012, as part of her project entitled “Syntactic complexity and typological diversity in northwestern languages of Mexico” (“Complejidad sintáctica y diversidad tipológica en lenguas del noroeste de México”). It was transcribed and translated by Luis Sandoval, a bilingual speaker of Tarahumara and Spanish; the gloss and morpho-syntactic analysis, as well as the English translation has been proposed by Ana Tona.

The text “Tubali” was previously analyzed by Edgar Adrián Moreno Pineda in his master’s thesis entitled “*Chabé nirúame natári: Análisis de los referentes en el discurso mítico ralámuli*” in 2013. The English translation for this text has also been proposed by Ana Tona. Additionally, some changes to the original gloss have been made in order to be consistent with the other text used in this work and for the sake of comparative referential analysis.

In sections 4.1 and 4.2 we will take a look to both texts in terms of discourse typology: their expected behavior and the challenges they posed in their analysis.

3.1. The text “Trabajos de la mujer”

The text “trabajos de la mujer” contains a total of 118 sentences². The narrator is a Raramuri woman who was a teacher at Gabriela Mistral School located in Norogachi; she is now living in Pahuirachic, Chihuahua. In this text she talks about the Raramuri women, focusing on their duties within the community; some of the activities are well described, whereas others are only mentioned. The following text is the translation I have proposed for this text; it is presented here in order to better understand which entities appear and what is the relationship among them.

According to the taxonomy of texts presented above, the one used here belongs to the procedural text type. Although it has a logical linkage, rather than a chronological one (since it is explaining how the work and house chores are done), it shows all the other features of a procedural text:

1. Most of the references in subject positions are non-specific persons (see table 22: Referential type of references), as it talks about the Raramuri woman in general; they appear in the text either as bare/indefinite nouns, or as impersonal markers (-*wa*).

- (28) a. **mukí** **rarámuli** ko a bilá
 woman rarámuri DP LOC DP
- taá nócha-ka rejói cho pa
 1PL trabajar-STAT man LOC CL
 ‘we, the raramuri women, live working like men’
 ‘las mujeres rarámuris pues nosotras vivimos trabajando como el hombre’
- b. échona biti-chí échi ona kawi-chí ayé
 LOC vivir-LOC DEM LOC monte-LOC CONJ
 ‘in the house, at the mountain’
 ‘en nuestras casas, en nuestro monte también’

² This text was analyzed by sentences, to be consistent and comparable with the text “Tubali” which was analyzed the same way: each sentence may contain from one to three clauses. The text “Trabajos de la mujer” contains up to 169 clauses.

c. mápu ona ∅ ichi-wá má
 SUB donde [P] sembrar-IMPRS LOC
 ‘where we sow’
 ‘donde se siembra’

2. Patient orientation is reflected in the high number of overtly mentioned patients in the text (see table 4: References by weight and function).

Table 15. References by weight and function (PT)

	S	A	P
w=0	25	56	13
w=1	1	9	1
w=2	0	0	0
w=3	1	0	5
w=4	11	4	28
w=5	0	0	0
w=6	22	18	35
w=7	5	1	2
w=8	5	0	4
Overt Ref.	45	32	75

3. The present and customary tenses are used throughout the text, which in Tarahumara can be seen in the forms of the present marker *-a*, the habitual marker *-ya*, and the stative marker *-ka*.

(29) a. mápu-reká ∅ beá asísi-**ka**
 SUB-así [S] temprano levantar-STAT
 ‘for instance, getting up early...’
 ‘por ejemplo, levantándose temprano’

b. biré mukí a chukú sakí newa-**yá**,
 uno mujer LOC AUX esquite hacer-HAB
 ‘a woman makes corn’
 ‘una mujer hace esquite (para hacer pinole)’

c. ∅ a chukú remé-**a**
 [A] LOC AUX tortilla-PRS
 ‘(she) makes tortillas’
 ‘está haciendo tortillas’

These characteristics raise certain expectations in relation with the behavior of the text.

3.2. The text “Tubali”

This text has a total of 79 sentences³, the narrator is a Raramuri woman from the Chínibo locality. She tells a myth about a one-legged giant who ate children from that same community.

This text has its place within the group of narrative discourse:

1. Although there are some first person references, most of the references in subject position refer to a third person.
2. In this text, the subject appears as an experiencer (S or P) most of the times (see table 19).
The most agentive references include the giant (only a few times) and a group of men that watched and took care of the people in the village.

Function	Human	Inanimate
S	59	17
A	31	0
P	17	16

3. Throughout the text, the past and the (historical) present markers are used. As we have seen in the typologic analysis of the previous text, the temporal markers take the form of the suffix *-ri* (*-li*, *-ti*) for the past tense. The present tense marker is *-a*, the progressive or habitual is *-ya*, and the stative marker is *-ka*.

³ I have respected Moreno’s organization of the text, which is analyzed by sentences rather than individual clauses: one sentences may be simple or complex, containing from one to three clauses).

(30)

a. *Tubáli ábaga riwéwi éch rijói, riwá-la níká ka iyén-ti*
Gigante así llamar DEM hombre nombre-POSS así EMPH andar-PFV
'Giant was the name of that man, that was his name'
'Gigante, así se llamaba ese hombre, ése era su nombre'

b. *chabé ka ma ku wiká-li jípe ka*
antes EMPH ya otra:vez perder-PFV hoy EMPH
'long time ago, today (he) is lost/gone'
'hace mucho, hoy ya no está'

(31) *ke ka nokó-ya ichúa-li ko ba chió ko'á-ya*
no EMPH mover-PROG sentar-PFV EMPH CL también comer-PROG
'(they) didn't move / they were sitting / (and) eating too'
'no se movieron, estaban sentados y estaban comiendo'

3.3. Observations: difficulties in the interpretative process

Different discourse types embody a variety of challenges and levels of difficulty in discourse analysis. In the case of a procedural text, for instance, clause structures are very consistent, making referent identification and referential tracking an easy task. In the procedural text "Trabajos de la mujer", referential continuity is maintained throughout the text and newly introduced entities are then easily processed. A narrative text, on the other hand, presents a wider variety of clause structures where referents are treated in many different ways, giving place to more ambiguity.

As we have seen in section 2.5.2, the interpretation process in discourse implies a series of inferences that are possible due to the hearer's knowledge about the language and the world. In this matter, theory assumes that speaker and hearer (or in a given case, narrator and reader) share a series of knowledge about the world. It is therefore assumed that both of them have access to the same referents in such way that the hearer (or reader) can make the correct

inferences, according to what the speaker (or narrator) wanted to communicate. But what happens when speaker and hearer are not members of the same socio-cultural group and do not have access to the same referents?

Even though it is possible to do a linguistic analysis solely based on linguistic data and pertinent theories, sometimes they are insufficient for *discourse* analysis. Occasionally, semantic interpretation (for instance, participants' semantic role or referent identification) can be obscured by the unawareness of certain possibilities within a linguistic system and of specific sociocultural features of the communities where the languages in question are spoken. This unawareness can mislead the interlocutor so as to make false inferences. When a linguist is confronted with a text, his/her interpretation is limited by his knowledge of the language and the community where it is spoken. These inconveniences are not limited to the semantic aspect of linguistic analysis; it also affects syntactic analysis, as we will see.

During the process of interpretation of the myth "Tubali" some sentences emerged with different possible interpretations, where choosing one or another possibility would change the story entirely. Some of the ambiguities of this text are related to the identification of the referents, mainly, the agent of the event. In other cases the ambiguity was associated to the nature of the events or state of affairs.

3.3.1. Syntactic and semantic ambiguity

The ambiguities related to referent identification are generally connected to the use of zero anaphor. However, this is not the only source for ambiguity. It was previously mentioned that the discourse topic creates a scenario that limits the possibilities for interpretation (Saeed 1997). In the myth "Tubali", the discourse topic consists of a giant man that was supposedly cruel with the

could be equally agentive or equally patientive; in sum, they are all competing as possible referents. Table 17 shows the referential weight and distance of the discourse topic.

Table 17. Referential weight and distance of the discourse topic “the giant” (r1).

Mention	Referential weight	Function	Sentence
1.	6	S	1
2.	0	S	2
3.	7	A	3
4.	0	A	4
5.	0	S	4
6.	0	P	5
7.	0	S	6
8.	0	P	7
9.	0	A	23
10.	0	A	23
11.	3	S	30
12.	0	S	32
13.	0	S	32
14.	8	S	58
15.	0	A	59
16.	3	S	60
17.	1	P	60
18.	1	P	60
19.	8	S	61
20.	0	A	62
21.	0	S	63
22.	1	P	64
23.	0	S	65
24.	0	S	66
25.	0	S	66
26.	0	S	67
27.	0	S	67
28.	3	S	68
29.	0	S	68
30.	0	S	69
31.	0	S	69
32.	0	S	70
33.	0	S	70
34.	0	S	71

summon them to gather in order to do something about it. However, this interpretation raises many doubts about the referents; neither the agent nor the patient are explicitly mentioned, except for an applicative mark. Then, what is burning and why? Doubts persist after revising the discourse context: before this sentences there are no hints of this kind of scenery, and in the following sentences there are no mentions of damages caused by fire, nor is it mentioned again in the story. Clearly, there has to be an interpretation error, or the text is not very coherent. I am inclined to think there is an interpretation error, since the speaker is less likely to produce such semantic faults.

(34)

- a. \emptyset *ané-lta* *ruá ru pi* *napawí-sa* *mina* *ikoú-lta* *ruá ru*
 decir-APPL REP CONJ juntar-COND allá quemar-APPL REP
 ‘they say they told them to gather, (something) was burning over there’
 ‘dicen que les dijeron que se juntaran, allá se estaba quemando (algo)’

Once one is familiarized with some cultural and world facts about the Tarahumara region, it is possible to make some sense out of this sentence, which is actually somewhat idiomatic. In this region, the weather and minerals of the earth contribute to mummify corpses by a natural process. In the view of the Tarahumaran people, the aspect of a mummy is the same of someone who has been burnt, hence the expression of “something being burnt”, which actually refers to dead people. The correct interpretation of the sentence would be as shown in (34b).

(34)

- b. \emptyset *ané-lta* *ruá ru pi* *napawí-sa* *mina* *ikoú-lta* *ruá ru*
 decir-APPL REP CONJ juntar-COND allá quemar-APPL REP
 ‘they told them to gather, as there were dead people’
 ‘les dijeron que se juntaran, que allá había quemados (había muertos)’

With enough cultural information and world knowledge available, we can now make the correct inferences about the meaning of the sentence and the true course of the story that is being told.

CHAPTER IV

REFERENTIAL DENSITY IN TARAHUMARA

In this section I present a referential analysis of two texts in Tarahumara, as well as a comparison between them in terms of referential behavior and information management. The analysis seeks to answer some questions about referentiality in discourse:

- iv. What does RD say about informativeness in Tarahumara?
- v. How is referential information managed in Tarahumara?
- vi. How does information structure relate to discourse genre?

Furthermore, I propose to take into consideration some additional phenomena in the analysis of discourse, specifically the functions performed by elements of narration such as direct speech, according to each discourse/text genre. In some texts it is necessary to account for them, whereas others can leave them out of the referential analysis of the discourse

4.1. Methodology

The methodology used in this study is based on the Referentiality Project started by Lehmann in 2012. The criteria for the identification of referential expressions and data management are very similar to the ones used for the Referentiality Project, whereas name tagging or labeling may differ from it. Differences originate from the nature of both studies: the Referentiality Project is a crosslinguistic study that is designed to include many typologically different languages, as well as texts of different sorts. This work, by contrast, is a comparative study among two different text genres of the same language. Thus, tagging differences seek a simpler, more transparent

terminology and comprehensive paradigms that adapt to the language in question, in this particular analysis.

Referential density values were obtained by identifying, classifying and counting all referential elements, following the list of possible referential expressions from Lehmann (2012), which include: noun phrases, pronouns, verbal indexation and deictic elements that denote physical entities (people, things, places). It also considers abstract entities, which are entities with no physical existence like *knowledge* or *soul*, temporal location and manner, when expressed as entities like ‘one day/October/the celebration’, ‘this way/many ways’. All sorts of predicates such as verbs, adjectives and nominal predicates were excluded, provided that they constitute non-referential expressions, according to Lehmann’s approach (see section 2.3).

Each reference or referential expression received several tags to account for different features it may have in relation to other references within the clause and along the entire text. Firstly, references were assigned an identification number called *referential index*. Only first mentions of entities receive a new referential index, elements that are coreferential to a previously introduced referent receive the same (corresponding) referential index. However, two generic NPs may have the same referential index, as they refer to the same group. Two non-specific references should have different referential index, as they refer to random members of the same group, which may or may not be the same in a given situation. In the case of non-specific references, the linguistic system is open for both possibilities of semantic representation, that of same or different referent.

References are then tagged by its *referential type*. This tag classifies all references according to the degree of individuation, which is manifested by means of linguistic coding (e.g.

presence/absence of determiners, etc.). This classification is based on the individuation scale shown in table 1 (section 1.2.1); therefore, available tags for referential type are:

Table 18. List of tags for referential type

- a. Generic reference (gen)
 - b. Non-specific reference (nspec)
 - c. Specific reference (spec)
 - d. Unique reference (uni)
-

Referential expressions also received a tag that corresponds to its *semantic type*. The semantic type of references was defined by its place within the animacy hierarchy (by Croft 1991), but adding other kinds of entities that are being accounted for in this study (e.g. physical and temporal location, manner, textual deixis). This expansion of possible semantic types renders the following possible tags:

Table 19. List of tags for semantic type

- a. human (hum)
 - b. animate (anim)
 - c. inanimate (ina)
 - d. physical location (loc)
 - e. temporal location (temp)
 - f. manner (man)
 - g. textual deixis (text)
 - f. action
-

Additionally, references were characterized by its *syntactic function* within the clause.

Available functions are:

Table 20. List of tags for syntactic function

- a. Subject (S)
- b. Agent (A)

- c. Patient (P)
 - d. Oblique (OBL), including benefactive, theme, instrumental, committative, origin, receptor
 - e. Locative (LOC)
 - f. Time (TM)
 - g. Manner (MN)
-

Finally, referential expressions received a *referential weight* value, depending on its complexity or explicitness degree as explained in section 2.3. Table (21) shows one example for each level of explicitness in Tarahumara, (see table 14 in section 3.7 for complete sentences) along with their corresponding weight values.

Table 21. Referential weight in Tarahumara			
	Explicitness degree	Example in Tarahumara	Referential weight
l.	clause (completive, e.g. the Obj of a say verb)	<i>napawí-sa</i> gather-COND	9
m.	(common) noun phrase with head and attribute	<i>láname sunú welí ramé-kame</i> yellow corn big kernel-NMLZ	8
n.	(common) noun phrase with head and possessive specifier	<i>kipu rana</i> POSS hijo	7
o.	(common) noun phrase with head and determiner	<i>échi mukí</i> DEM mujer	6
p.	proper name	<i>Tubáli</i> Giant	5
q.	bare common noun	<i>napiwili</i> corn	4
r.	emphatic pronoun	<i>binói</i> same/self	3.5
s.	neutral pronoun	<i>taá</i> 1PL	3

t.	clitic person form	N/A	2
u.	bound person form (affix)	<i>iná-lta</i> burn-APL	1
v.	ZERO person form	∅ [A]	0

In sum, each reference was tagged for referential index, referential type, semantic type, syntactic function and referential weight. Example (35a-c) illustrates how referential expressions were tagged within each clause along both texts.

- (35) a. *mukí rarámuli ko a bilá taá nócha-ka rejói cho pa*
 woman rarámuri DP LOC DP 1PL work-STAT man LOC CL
 r3 r4 r5
 gen nspec gen
 hum hum hum
 S S OBL
 8 3 4
 ‘we, the raramuri women, live working like men’
 ‘las mujeres rarámuris, nosotras vivimos trabajando como el hombre’
- b. *échona bití-chí échi ona kawí-chí ayé*
 LOC live-LOC DEM LOC hill-LOC CONJ
 r6 r7
 gen gen
 loc loc
 LOC S
 4 4
 ‘in the house, at the mountain’
 ‘en las casas, en el monte también’
- c. *mápu ona ∅ ichi-wá má*
 SUB where P sow-IMPRS LOC
 r8 r9
 gen nspec
 ina hum
 P A
 0 1
 ‘where one sows’
 ‘donde se siembra’

4.1.1. Methodological problems: headless phrases and direct speech.

During the classification and counting process of referential expressions, there were two main referential devices that made the analysis somewhat complicated: the occurrence of headless phrases and first person pronouns (direct speech). Neither one had a high percentage of occurrences; nevertheless, their treatment and inclusion/exclusion in the analysis invariably has an impact on the results on referential density values.

4.1.1.1. Headless phrases

While examining the referential mechanisms of the texts, there emerged some cases where an argument of the verb was implicit (zero anaphor) but its modifiers remained. In other words, there were cases of headless phrases. According to Croft (1996), the head of a phrase is a word “whose form-class is the same as that of the phrase”. In a sentence like *all this fresh milk*, the head of the phrase is *milk*. A phrase that somehow refers a noun but lacks a word of that category is then a headless noun phrase. In the texts we can find constructions like the ones illustrated in examples (37) and (39) below where arguments are omitted, leaving behind modifiers like adjectives and quantifiers, which do not denote properties. Instead, the property denoted is specified for the entity omitted, and the presence of that entity is contextually understood.

With the modifier in place, and knowing that it belongs to a noun which can be tracked in discourse and related to that modifier, the referential weight of such referential mechanisms cannot be easily assigned. Even though there is no overt noun, such referential expressions raise the possibility for zero anaphora to have a referential weight different than zero. However, they

could not take the same referential weight as those referential expressions with an overt noun (a head) and its modifier because they lack the head.

The following is an example from the text “Trabajos de la mujer”. In (36) we can see an overt referential expression with a demonstrative, an adjective and its head referring to “the little boy”. We can compare this example to the one in (37), where the noun is absent.

- (36) *mápu-alí* *ropa-chí* *rikáachi* *okó-sa*
 SUB-SIM estomago-LOC ocasión doler-COND
- échi* *taa* *towí,* *taa* *tewé* *kere*
 DEM pequeño niño pequeño niña POSP
- when (his/her) stomach hurts sometime to the little boy, (or) a little girl’
 ‘cuando le duela la panza a este niño (o) a una niña’

- (37) *mápu-alí* *échi* *náli* *taa* \emptyset *majá-sa*
 SUB-SIM DEM PREP [pequeño] temer-COND
- siné* *kaachi* *biléana* *bají-chi*
 algunos ocasión INDEF aguaje-LOC
- ‘when a little (kid) gets scared sometime at a baji’
 ‘cuando un pequeño (niño) se asusta alguna vez en algún aguaje’

There were 10 instances of headless referential expressions in the text Tubali. Example (38) is one of them; here the noun comes with the adjective *kúchi* ‘small’, and the quantifier *jaré* ‘some’. Then we have the headless phrase on (39), which also comes with a quantifier.

- (38) *pi* *kúchi* *jaré* *ba* *ochúla ka* \emptyset *ochúla rítea*
 CONJ pequeño algunos CL huesos ENF [A] huesos ver
- ‘and some small bones,(I) have seen bones’
 ‘y algunos huesitos, huesos es lo que vi’

- (39) *wiká* \emptyset *iníla* *pi* *ichúa* *ta* *kalí* *itíwela* *bo*
 mucho junto CONJ estar.PL chica casa como:nosotros CL
- ‘many (bones) were in a small house like ours’
 ‘muchos (huesos) juntos estaban en una casita como la nuestra’

These modifiers do not function as predicates in these constructions, and they certainly do not stand alone. They appear in an argumental position (or more exactly, by a zero anaphor), but are not nominalized either.

Headless phrases like these ones are not included in the list of referential mechanisms in Table 5 (scale of complexity of referential expressions); only noun phrases with different kinds of overt nouns are taken into consideration, with the exemption of zero anaphora. For this reason, headless phrases were simply counted as zero anaphora in this study. Nevertheless,

4.1.1.2. Direct speech

Although they were equally analyzed and received a referential index, deictic personal pronouns that refer to the speaker (direct speech) were treated differently, depending on its function within discourse: they were left out of the computation for the procedural text “Trabajos de la mujer”, since they scarcely occurred and do not make part of the procedural text per se (36a). In this procedural text direct speech was only used at the beginning of discourse as a means for introducing the subject or topic. In the myth “Tubali”, however, direct speech is used as a means to make evaluations related to the story (36b).

- (36) a. jípi ko naa mi che ø ráichi-ma la bá
 today DP LOC LOC LOC 1SG.S talk-IRR DP CL
 échi mukí ralámuli kítira
 DEM woman rarámuri POSP
 ‘Today I will talk about the raramuri woman’
 ‘Hoy voy a hablar sobre la mujer rarámuri’ (Trabajos-Stnc1)
- b. *ijínti ko ba laya ijínili nijé ka we uchúa opória*
 maybe EMPH CL think maybe 1.SG EMPH very be grave
 ‘I think maybe there is a grave’
 ‘Tal vez, yo pienso, ahí está una tumba’ (Tubali-Stnc43)

Direct speech is also used to defend the relevance of the events described in the myth into the present, as shown in (37).

- (37) a. \emptyset *napeti* *olá* *ko'á* *itú,*
 A together make food quick
- \emptyset *jemi* *biré* *nomi* *basóli* *kosá*
 A DEM one place pozole eat
 ‘together (they) quickly made food, (they) ate pozole somewhere’
 ‘juntos hicieron comida rápido, en algún lugar comieron pozole’
 (Tubali-CI52)
- b. *chiyó* *nokwá-la* *tamujué,*
 also make-apl 1.PL
- \emptyset *ko'á* *warú* *biré* *nomi* *basóli* *kosá*
 A eat much one place pozole eat
 ‘we make (food) too/ we eat much pozole, somewhere’
 ‘nosotros también hacemos comida/comemos mucho pozole’
 (Tubali-CI53)

Consequently, in the text “Tubali” first person references were not left out of the computation when relevant to the story or the community traditions (as in 37), but they were set aside when used to make evaluations (as in 36b). Additionally, complement clauses of saying verbs were rather analyzed as separate/independent clauses whenever such verbs constituted reportatives (e.g. *people say he came late that day*), as in (38).

- (38) a. [*chió* \emptyset *napawíp-sa* *éna*] ***ruá*** *ko* *ba*
 also S gather-COND go REP EMPH DP
 ‘(they) were also together, that’s what they say’
 ‘también andaban juntos, es lo que dicen’ (Tubali-CI21)
- b. [*boná-ka* *mawé-ru* *ba*] ***ania*** ***ani*** ***ochérame*** *ka*
 rip:out-STAT cut-PASS CL say say old:people EMPH
 ‘(it was) ripped out and cut, old people say’
 ‘(fue) arrancado y rozado, dicen los ancianos (Tubali-CI45)

- c. [chabé ka \emptyset napawí-ka rijóla] ruá ru
 befor EMPH S gather-STAT man REP
 ‘it is said that long ago men (were) together’
 ‘antes todos estaban juntos, dicen’ (Tubali-CI73)

This kind of reportative forms were very frequent throughout the text “Tubali” and counting them as one reference, without analyzing its arguments, would leave out much of its real content (content concerned with the events and referents of the story that is being told).

4.2. Analysis of the text “Trabajos de la mujer”

In the procedural text “Trabajos de la mujer” there are a total of 293 references of different kinds: human, inanimate, spatial location, temporal location, nouns that refer manner (e.g. this way), and nouns that refer actions (e.g. the celebration, work). There were also textual deixis, as in “they do *these things* (mentioned before)”.

4.2.1. Referentiality in a procedural text

Most references are non-specific in this text, which is due to the type of text, as we have seen in section 3.1. The only specific references are deictic pronouns that take their meaning from situational context or from discourse. The four specific references that are reflected in table (22) (Referential type of references) correspond to textual and locative deixis.

Table 22. Referential type of references (PT)

Ref Type	Occurrences	Percentage
specific	4	1.4
non-specific	198	67.6
generic	90	30.7
other	1	0.3
Total	293	100

References for human and inanimate referents are of main importance here, since they are the kind of referents that typically occupy central positions. They can also appear in non-central positions (receptor, benefactive, theme, instrument, comitative) that could, at some point, take a central role in discourse through diverse syntactic mechanisms. Textual references are also important, as they tend to take central positions, completing the meaning of the clause. References that mention location, time and manner are of adverbial nature and are hence not relevant in the same way; however, its importance in the communicative process must not be underestimated, as we will see (in 4.2.2).

Out of the 258 (246+12) argumental referential expressions, 152 were human, 104 were inanimate, and 2 were textual references (see table 23: Semantic type of references).

Table 23. Semantic type of references (PT)

Sem Type	Ocurrences	Percentage	Total
human	152	51.9	
animate	0	0	
inanimate	104	35.5	
text	2	0.7	258
location	5	1.7	
temp loc	21	7.1	
manner	2	0.7	
action	7	2.4	35
		100	293

Human referents come first in the animacy hierarchy; thus, they are usually the ones in S and A positions. Likewise, inanimate entities tend to be patients. Both assertions are attested in table (24):

Table 24. Distribution of functions (PT)⁴

Function	Human	Inanimate	Total
S	47	18	65
A	86	2	88
P	14	70	84
REC ⁵	1	0	1
BEN	1	0	1
COMIT	0	2	2
THEME	1	3	4
INSTR	0	2	2
ORIGIN	0	1	1
	151	98	249

4.2.2. Function: the importance of adverbial expressions

As can be seen in table (25), out of the 293 references, 246 were central arguments of verbs constituting 84% of references, in sum, which is not unexpected. Only 12 references were non-central arguments, and 35 were adverbial expressions (location, time or manner).

Table 25. Function of references (PT)

Function	Ocurrences	Percentage	Total
S	70	24	
A	88	30	
P	88	30	246
OBL	12	4.1	258
LOC	13	4.4	
TM	20	6.8	
MN	2	0.7	35
		100	293

⁴ There are 6 inanimate references and 1 human reference that function as LOC. Also, there are 4 Ps and 5 Ss that are not human nor Inanimate, hence the discrepancy in the totals of humans and inanimates, and in the counting of S and P

⁵ Oblique arguments are separated by type and Adverbial references are left out of this table.

The distribution of adverbial expressions should not be overlooked: 57% of adverbial references expressed time location, which is very important in a procedural text where the ordering of ideas in a logical, consecutive or chronological way is crucial to the understanding of the procedure described.

4.2.3. Referential density: topicality

The density and distribution of the references points out to a clear difference in status among them. “Raramuri woman” is by far the most persistent referent from the beginning to the end of the text, with 102 mentions, as can be seen in table (23). It is followed by a group of referents that are maintained active in small sections of the text. The number of mentions for these referents ranges from 5 to 19. All the remaining references in the text have only four mentions or less.

Table 26. Main Referents of the text (PT)

	implicit	explicit	total
woman	68	34	102
child	4	15	19
corn	4	11	15
<i>batali</i>	1	14	15
<i>sanali</i>	6	9	15
healer	4	7	11
IMPRS	0	7	7
<i>basiawi</i>	2	5	7
food	0	5	5

As we have said in section 1.3.2, discourse topics are referents maintained active throughout discourse by diverse devices (Saeed 1997). The more active a referent is in discourse, the less linguistic material it requires. This fact is reflected in the number of explicit versus

implicit references in table (23): more than half of the mentions for “woman” are implicit (that is, zero anaphor). According to Givón (1995: 51), zero anaphors and unstressed pronouns are the unmarked coding choice for discourse topics. They code currently activated referents.

The entities with which the “raramuri woman” interacts as the Agent correspond in most cases to the sentence topic. The group of referents with 5-19 mentions is more salient than the rest of the referents in the text, but less salient than the discourse topic (the raramuri woman). It is worth noticing that these referents (child, healer, corn, *batali*, etc.) are cultural objects, entities that are present in the reality of every raramuri woman. She interacts with some of these entities on a daily basis, while other entities have a special/ritual value (like the *sanali*) and belong to specific occasions/celebrations.

Thus, the “the raramuri woman” is unquestionably the *discourse topic* of this procedural text. The entities affected or manipulated by “the raramuri woman”, on the other hand, are the *sentence topic* or focus of individual clauses and sentences. The focus is usually the new argument introduced in a clause (Givón 1983). Although the raramuri woman is the topic and main actor of almost every activity described, the entire text is actually focused on her work: the activities she does, the objects she produces and the things she knows. Let us remember that, as part of a co-operative society, her importance as woman is defined by her work and participation within the community (see chapter 2, section 2.1, cultural and environmental context).

4.3. Analysis of the “Tubali”

In the narrative text “Tubali” there are a total of 166 references of different semantic types: human, animate inanimate, spatial location, temporal location. This text lacks nouns that refer manner, nouns that refer actions and textual deixis. However, the presence of reportatives is abundant and first person pronouns are also relatively frequent.

4.3.1. Referentiality in a narrative text

In this text again, more than half of the references were non-specific. Out of the 51 specific references, 34 belong to the main character of the story, the giant man. 6 of them correspond to textual deixis, and the remaining correspond to other entities mentioned in the story. In a narrative text, one would expect more characters to be specific; however, this is not a story about one giant and one hero or one victim. The myth tells a story about a group of brave men (not one specific person) that get involved in a battle against the giant, and at the same time, they look over women and children of the community. Here, we can once again perceive the co-operative nature of this community. Generic references were used to mention entities like men, bones and food.

Table 27. Referential type of references (NT)

Ref Type	Occurrences	Percentage
specific	51	30.7
non-specific	97	58.5
generic	18	10.8
other	0	0
Total	166	100

As it was previously mentioned (in section 1.5.2, typology of texts), the expectation of having an agentive topic is not fulfilled in this text. The narrator mostly speaks about the topic (the giant) and other characters in a very neutral way, focusing more on the state of affairs than on the actions perpetrated by them. This tendency is reflected in the high number of occurrences of S (intransitive constructions), as opposed to A.

Table 28. Distribution of functions (NT)

Function	Human	Inanimate
S	59	17
A	31	0
P	17	16
REC	1	0
BENEF	0	0
COMIT	0	0
THEME	0	0
INSTR	0	0
ORIGIN	0	0
Total	108	33

Naturally, humans play a main role in this narrative, which is manifested in the percentage of human references (65.1%). Even some of the inanimate entities are also related to human references, as they refer parts of the body such as feet, blood and bones. This is not to say that all inanimate referents are like that, other sorts of entities (like corn, grave) are also mentioned. However, all interactions described in the text happen between humans, and other entities are part of the context.

Table 29. Semantic type of references (NT)

Sem Type	Occurrences	Percentage	
human	108	65.1	
animate	2	1.2	
inanimate	33	19.9	143
text	6	3.6	
location	16	9.6	
temp loc	1	0.6	
manner	0	0	
action	0	0	23
Total	166	100	

As it was conveyed in the analysis of the procedural text, contextual or background information should not be overlooked. It is worth noticing in this particular story, that when we compare table 28 and 29, adverbial elements emerge as significantly more relevant than oblique arguments (receptor, benefactive, instrumental, etc.).

4.3.2. *Function: the importance of adverbial expression*

Locative references are very important in a narrative text, since every story usually happens in a specific setting or context. Moreover, spatial location in this myth is very particular since the story that is being told supposedly happened in that same place, or very near. For this reason, in addition to having nouns referring to places (like house, barn and cave), we can find demonstratives like *jémi patú* ‘up there’.

Spatial location is in fact relevant in the understanding of the events as the characters move around. References of spatial location represent 9.6% of all references in the text, and 70% (16/23) of references other than human, animate and inanimate (the ones that can take central positions), as can be observed in the data presented in table (26) of the previous section.

Temporal location would usually be part of the setting of a narrative text. Nevertheless, this myth is narrated simply as something that occurred a long time ago, and the narrator makes no emphasis on time. She rather makes a contrast between that time and the present, especially in the beginning and at the end of the story. No nouns are used to code the past, only the adverb *chabé* ‘before (in relation to another event)’ is employed. The only temporal reference reflected in the table corresponds to the temporal locative *jípe* ‘today’ (meaning ‘nowadays’, in this context).

(39) *Tubáli ábaga riwéwi échi rijói, riwá-la níká ka iyénti*
 Giant so call DEM man name- POSS like:this EMPH andar
 ‘Giant was the name of that man, that was his name’
 ‘Gigante, así se llamaba ese hombre, ése era su nombre’
 (Trabajos-C11)

chabé ka ma ku ø wiká-li jípe ka
 before EMPH now again S lost- PFV today EMPH
 ‘long time ago, today he is gone’
 ‘hace mucho, hoy ya no está’
 (Trabajos-C12)

4.3.3. Referential density: topicality

The myth “Tubali” revolves around the giant, and it is seemingly the most mentioned referent. However, it is very closely followed by a group of referents who are the actual agents of the story; this group of referents comprises “men”, “watchmen” and “pascolas”, which add up to 39 mentions. The indefinite codification of referents makes it difficult to make a clear distinction between these three groups, consequently their members seem to overlap as the story progresses.

Table 30. Main Referents of the text (NT)

referent	implicit	explicit	total
giant	25	9	34
men	14	10	24
watchmen	9	1	10
towns people	7	2	9
child	4	3	7
house	0	6	6
pascolas	3	2	5
bones	3	2	5

Town's people and children are the next most mentioned entities in the story; they are the ones being protected by watchmen.

CONCLUSION

Throughout this work we have observed the details and complexities of referential analysis (mainly informativeness and information structure) in discourse by means of referential density and semantic analysis. Several factors may take part in making a thorough referential analysis, so as to exploit the totality of the data while being loyal to the communicative purposes of speakers and the structural properties of the language. We have also seen that even though many good referential studies have been produced, studies in this area and discourse studies in general still have some problems that need to be addressed.

One proposal that is made in this work is considering different text genres of one language, at different levels of analysis, including syntactic, semantic and pragmatic aspects of discourse. It is through the comparison of different text types of the same language that generalizations can be made. For typological studies, having a clear view of the behavior of discourse elements within languages is central to the advancement towards a contrastive analysis crosslinguistically. Nevertheless, it is easier said than done, and several factors contribute to prevent the production of full systematic discourse studies. Disregarding or underestimating some information that emerges in discourse is one of these factors.

Cultural information and world knowledge has traditionally been left out of discourse analyses, or have been relegated to foot notes or small annotations to clarify the meaning of a word or idiomatic sentences. This study demonstrates that such information is valuable in discourse analysis (see section 3.3). Let us remember that languages are not isolated systems that exist for their own sake: languages are tools used by speakers with specific communicative purposes in particular contexts. Additionally, not much has been said about the treatment of direct speech and headless phrases in discourse analysis. As we have seen in chapter IV, both

phenomena can complicate the analysis of a text and affect the results of referentiality studies. It is important to carefully analyze these phenomena along with others that have already been included in discourse studies.

In the case of direct speech, I propose to take a closer look at the functions performed by direct speech in specific discourse genre of particular languages. All languages behave differently as they serve communicative purposes within different socio-cultural contexts. For this reason, it is impossible to affirm that X discourse genre behaves in a particular way in all languages. Hence, the decision of including or excluding direct speech references may not completely rely on the discourse genre. Ideally, each discourse must be analyzed not only in terms of syntactic structure and referentiality, but also in terms of cultural context, keeping in mind that cultural information implies specific world knowledge and perhaps different views or interpretations of that knowledge. Moreover, communicative necessities vary depending on socio-cultural properties, which may lead to a diversity of features in discourse genre across languages.

Regarding headless phrases, for the sake of consistency with the methodology and theoretical framework, they were counted as implicit references or zero anaphora in this work. However, I consider that they should be accounted for along with the other referential expressions. In my view, adjectives and quantifiers that are left in a headless referential expression can function as specifiers. Filling an argumental place with a modifier that is more appropriate to one specific referent than other active competing referents help in the identification or tracking of referents. Therefore, headless referential expressions should be analyzed as *explicit* references, with a referential weight greater than zero.

Other components of languages that are typically overlooked in discourse studies are adverbial expressions. Locative and temporal expressions have been carefully studied in many languages; nevertheless, they always manage to stay out of discourse studies. Locative and temporal expressions are generally assumed to be coded by adverbs and other mechanisms different than nouns. Consequently they are not considered as referential expressions. This presupposition is not always correct, locative and temporal notions may well be expressed by various mechanisms, including nouns. In languages where this is true, locative and temporal expressions should be included in referential studies, as they do refer things: places in space and places in time. Additionally, they are always regarded as non-central information in clauses as well as in discourse. This non-centrality is correct at a clause level, as they normally fill oblique positions; very few predicates require locative expressions as central arguments. However, locative and temporal information can be very important in discourse, as we have seen in chapter IV.

In sum, this work intends to instigate the expansion of discourse analysis through the revision of different aspects of referentiality. Referential analyses have much to offer to typological studies; however, some concepts required to make an exhaustive analysis are still obscure. Similarly, methodological tools for analysis depend on theoretical bases, which depend on the results of typological studies, which likewise depend on available data analyses. This seemingly endless dependency circle could perhaps be interrupted by the contributions of more language-specific studies that are open to different language phenomena. However, being open to structural differences is not enough: it is also essential to confront the data as it is and try to describe everything that we *observe*, instead of limiting the results to everything we can explain, because *that* is what will enrich typological studies.

APPENDIX

Procedural text: “Trabajos de la mujer” (PT)	
Tarahumara	English
<p><i>Jípi ko na a mi che raíchi-ma la bá échi mukí ralámuli kítira: mukí rarámuli ko a bilá taá nóchaka rejói cho pa, écho na bitichí échi ona kawichí ayé mápu ona ichiwá má. Bilé mukí ko bilé rawé náli wika nátame nócha, mápureká beá asísika, biré mukí a chukú sakí newayá; a chukú reméa beá asísika; napíwili batúa, kobísi newayá, ayéna cho newá kowaami beá mápu kíte kóama kípi kúchuwa .</i></p>	<p>Today I will talk about the Raramuri woman: we, the Raramuri women, live working like men in the house and at the mountains where it is sown. A woman can work in many ways in one day, for instance, as she gets up early, a woman makes corn; she makes tortillas when she gets up early; she grinds corn, she makes <i>pinole</i>, and she also makes food early so that her children eat.</p>
<p><i>Má pé rawé ko bilé mukí ayéna si á nikúuru siné káachi, mápualí wasachí ayé nirúlisa nóchali, mapuriká namúti ichirúame, mápuriká nócha cho échi muní iyéri, reyáwi boneyá nócha cho; échi muní iyéri napóa. Nócha cho siné kaachi échi mápualí kuuchi pachí jáwi, reyáwi cho boneyá. Napóa má. Ayéna cho nócha échi mukí nikúuru cho mápualí má sono rékiachi jú, mápualí má wíwaachi jú, mápualí má boniwá, échi muní má kalá rakésa échi ná wasachí ayé mápuoná ichiwá.</i></p>	<p>During the day a woman also goes to help out sometimes, when there is work to do on the field, for instance, when something was sown, like working on the beans, pulling up the weed; she works there cleaning the weed from the beans. Sometimes they work, when a small garden is set, by removing the weed. She weeds there. They also work and help there when it is time to cut the cane, or when it is harvesting season, when we weed, when the beans sprout there in the field and where we sow.</p>
<p><i>Jériká nikúrisa échi mukí chécho kú alíwaachi kó ayéna a chukú-ro napíwia; napíwili newayá reméa má. Kowáami newayá, muní waseyá. Jériká isimí mápualí nochása la: nikúruka iyéna, kuírosa échi kípu kunála sine cho rikáachi. Ayéna mukí a nócha mápualí namúti newaami nísá échi mukí: púra iyéri machisá newayá, walí iyéri newáami nísá, sekolí iyéri newáami nísá, kemáka newáami nísá.</i></p>	<p>Once she has helped like this, the woman again in the evening also makes corn; she makes corn and tortillas. She makes food and boils the beans. That’s how she goes when she works: she goes around helping, she helps her husband. Sometimes a woman also works when she is a product manufacturer: if she can make belts, is she is a basket producer, a pot maker, or a blanket maker.</p>

<p><i>Ayéna bé échi mukí beá sébali namúti nochása, ma karewésa namúti: kowámi iyéri, remé iyéri muchuwása, kobísi achása kíti kalá ku níwima kowáami échi kuuchi. Ayéna a chukú échi mukí ko newayá échi púra, newayá échi kemáka, newayá échi sekolíki. Sébali námuti machi, machíame nisa bilé mukí ayéna bela á. Ká rewesa échi namúti bitichi nocháliame, ayéna bela chukú pa rawé ko newayá jépu na namúti.</i></p>	<p>A woman also works early on other things, she arranges everything: the food and tortillas are made, she cooks <i>pinole</i> so that her children have good food. A woman does make the belt too, she makes the blanket and the pot. She knows other things, a woman is also wise. Everything looks right concerning the house chores, as she does these things during the day.</p>
<p><i>Shine kaachi bile mukí mápuali omawaaliachi nirúlisa. bilé wilíame niisa échi rejói wala, ayéna bela walú nócha-li níwi échi bile mukí. Mapualí maná batáli... mápuali manámare échi mukí batáli, a bela kó bachá rikó atí mukí ko. Walú kobísi newayá... walú newása échi kobísi bachá rikó. Ayéna bela á paké échi shunú pa mápu batáli newáma ba.</i></p>	<p>Sometimes, when there is a celebration and the husband is a chosen leader (for the celebration), then the woman also has a lot of work. When she makes <i>batali</i>...when the woman is going to make <i>batali</i>, the woman is there first. She makes a lot of <i>pinole</i>...she makes a lot of <i>pinole</i> first of all. She also soaks the corn which will make <i>batali</i>.</p>
<p><i>Ayéna bela á amíba échi sunú mápu gará awisá repa, ayéna pakésa sunú má moá kíti gará awiméa échi tói. Má gará awésa échi tói eneríame, má bilá chukú échi mukí ko matárlí batúa ba. Ayéna bela á sebárisa ba. Mápu uchulú kulusá re échi bile wasí, má wasé échi nail batusí pa—tói batúsa bachá ba. Ayéna iyéna mukí ko bawí túa, manaáya napíchi. Páki échi nail sanalí napíchi ayé, ayéna bile rawé aliché, échi mukí ko tibúa échi sanalí napíchi kíti gará wasiméa, kíti gará kétási ikóta ma.</i></p>	<p>Also, one looks for the corn that has grown tall, then she soaks the corn and puts it in the pot so that the corn pops up well. When the so-called <i>toi</i> has popped up, the woman sets to grind it with a <i>metate</i>. Then she is done there. When the beverage starts to thicken, she boils it with the ground corn—the corn she first ground. The woman goes to fetch water and puts it on the fire. She drains the <i>sanali</i> from it by the fire, and for one day the woman watches over the <i>sanali</i> on the fire so that it is well done, so that it doesn't burn.</p>
<p><i>Má wasésa échi mukí ko échi sanalí, má su'ubúla aliiwachi bá. Má bokowíachi chukúru échi mukí ko sanalí su'ubúa kíti rulabaama. Ayéna wikaná bila amána bá kíti gará rulabaama échi sanalí pa. Arí maa chukúru la ramea bá.</i></p>	<p>When the woman has boiled this <i>sanali</i>, she takes it out in the evening. In the evening the woman is taking out the <i>sanali</i> so that it cools down. And she puts it in many places so that it cools down very well. Meanwhile she makes tortillas.</p>
<p><i>Chécho a kóa chukúru cho kípú kúchuwa kípú panéro má, alíi bila isába échi mukí bá, risiká</i></p>	<p>Her child and her husband eat again, while the woman rests. She is tired as she does</p>

<p><i>bilá maná ba, mápualí walú maná ko bile batáli. Walú omáwali nirulisa sine kaachi, ayéna ba'alí miko chécho a chukú échi mukí ko. Chécho batúa échi tói, má karewésa, má achása échi batusí ki. Ayéna chukú échi mukí pákia la ba, mápu rapáko nalaka wasíli échi sanalí ki. Échi sanalí má ruláami ma roá be echo ná sekolíchi kíti gará ronoméa kíti gará rikútaame níma la echi batali. Bilé mukí gará machiame manayá, wabé bilá alá waseká roá sekolíchi ba échi sanalí. Ayena cho mápualí má kuwaní la échi muki ba, waséa échi sanalí.</i></p>	<p>everything, when she makes a lot of <i>batali</i>. Sometimes if there are big celebrations, then again the woman makes <i>batali</i>. Again she grinds the <i>toi</i>, then she arranges everything, then she cooks this ground corn. Also this woman drains (the beverage), the <i>sanali</i> she cooked yesterday. She puts the cold <i>sanali</i> into the pot so that it cools down very well so that it makes you drunk. A woman knows well how to make <i>batali</i>. She puts the <i>sanali</i> into the pot very well cooked. Then, when this woman finishes, she boils the <i>sanali</i>.</p>
<p><i>Má chukúpa échi basiáwi anelíame batúa ba, tá bila kasalá júpa mápu wabé bilá juerte newá échi batáli ba. Siné kaachi échi achésiwa. Wabé bila chukú échi mukí matárli batúa échi nali basiáwi anelíame. bachá rikaachi napabúa achása échi basiáwi mápualí nirúla baláa pá. Alí katéwika achá échi mukíko basiáwi kíti gará n'wimala bá mápuali newámare bile batáli ba sine kaachi</i></p>	<p>One sets to grind the so called <i>basiáwi</i> (wheat), which is a small herb that makes the <i>batali</i> stronger. Sometimes this herb is added. The woman grinds a lot of this so called <i>basiáwi</i> on the <i>metate</i>. First we put together the <i>basiáwi</i> when there is (any) in summer. The woman puts away the <i>basiáwi</i> so that it is good at the time when she makes some <i>batali</i>.</p>
<p><i>Maa lá kuwanísaka échi batáli waséa, má simí échi mukí la ba o rejói má bajurésia la ba, échi ná mápu oná peré la ba, bajuréka bela bakía ba, échi siame bá échi koliame la batáli ba ne. Jérika ju echo na batálichí nirá ko.</i></p>	<p>Once she is done cooking the <i>batali</i>, then the woman or a man go get the guests, there where they live, the invitees, the guests, the visitors drink <i>batali</i>. That's how it is at a <i>batali</i> party.</p>
<p><i>Ne wika nátame bela jú échi mukí nocháa la ko, a bilá ko machi cho échi kuuchi tibúa ba; machiká bilá ináro cho échi kuuchi kito weelia bá. Machí binói ko mápuali nayuusa échi taa, a machiká ináro échi reyáwi; píri reyáwi owáami bajirisa reke échi taa mápualí wítabóasa, mápualí we ratálisa, mápualí rosowása, mápualí ropachí rikáachi okósa échi taa towí taa tewé kere.</i></p>	<p>It is in many ways that a woman works, she knows how to take care of her children; she knows how to educate the children. She knows when the little kid gets sick; she knows the herbs, which healing herb is the one she must give to the little kid when (s)he has diarrhea, when (s)he has fever, when (s)he is coughing, or when his/her stomach hurts sometime.</p>
<p><i>Ayéna bilá machiká ináro chabée jonsa cho, kípú wénowala be ko benérili cho a échi mápu</i></p>	<p>Woman go around wisely since long ago, her parents taught her how to use healing herbs. A</p>

ikí reyáwi owáami náti ko. Ayéna bila a tibúka laináro échi mukí ko kípú kúchuwa, ayéna ráichika cho échi, échi ónami la ba échi ónami la ba owirúame ba mápu gará tibúka inároma kípú kúchuwa. A bilá ko échi bela owirúame bela maníwa échi batáli, sine kaachi ówiisa la échi taa bá, mápualí échi nail taa majása sine kaachi biléana bajíchi. Ayéna bilá ruyelíwa échi owirúame bá mápu ku machí, paama échi alewála. Ayéna kalá ku sawisá échi taa, échi mukí ko ayéna bila walú manii échi batáli bá, ayéna kowáami cho a kóá échi owirúame. Kipu rana gará kú sawíli lá ba. Jériká bila júpa ne. jériká bila kó nócha la échi mukí ko bá, échi mukí ralámuli ko ba, jénaí ayé ralámulichi ko né. Matétera bá.

woman also takes care of her children by talking to them, to the doctor, the doctor, the healer, so that her children go around safely. One makes the *batali* for the healer, sometimes when he heals the little kid, when this little kid gets scared sometime at a *baji*. Then the healer is told so that he knows (that the kid is scared), and releases the soul (of the child). And if the child is well cured, the woman also makes a lot of *batali* and also food that the healer eats, so that he is well pleased. Her son healed well, This is how. This is how the woman works, the Raramuri woman, here where the raramuri live. Thank you.

Narrative Text “Tubali”

Narrative text Tubali (NT)	
Tarahumara	English
<p><i>Tubáli ábaga riwéwi échi rijói, riwála niká ka iyénti, chabé ka ma ku wiká-li jípe ka. We a 'lá riwáti ke éche rijówi, chisíme we a 'lá riwáti. Birépi raláti pi simíli ka riká, nawólaruá kárga rolomáchi niwála ruá. We rigá wilíga ruá ru kárga rolomála ruá ru.</i></p>	<p>Giant was the name of that man, that was his name long time ago, today he is gone. His name was well known, it was a good name. He had only one foot, that's how he walked. His foot was completely destroyed, it was broken, cut off, they say. They say he was standing when it was completely cut off.</p>
<p><i>Muséchi ko'ubá ruá, tumó ke napáwisa ka. Jémi noba ruá basíkolo; We a 'lá suwá sirimé nawá ruá raléti. Anélta ruá ru pi napawísa miná ikoúlta ruá ru. Ke ka nokóya ichúali, ko ba chió ko'áya. Chió ichúa chírria rijóle ke suwábsa ka. Ichuála chabé piréme chió Biré a iyéntala ra'ícha, pi ichúa tibúka umuwí pocháme. Rikóchi muchúa niséla ruá ru, kúchi ma sísaga chabé ka pi makóí ralámuli muchúa ruá ru tibúka.</i></p>	<p>They say people from Munerachi went to kill him, they gathered. There they saw pascolas; all governors got there from the bottom (of the cliff). They told them they should gather because there were dead people. They didn't move, they sitted eating. Those men were siting like that, and woud not finish. Before them were the people too. One of them spoke, they were looking after a pregnant woman. They were sitting in the barn, they say, and the child was born too soon; ten men were there watching.</p>
<p><i>Biré nomí ka koyá énachi, tibúria bitichí ma ke itibú ko'á ruá ru. Pi usánipi muchása ka biréna bitichí, aria ómpa ko'á ruá ru. Ábaga pe wampi inla mapijí churú tamujué. Inárkake ochúla ka chió achúkarke wiká ka la ruá ko ba. Chió napawípsa éna ruá ko ba. Napawípsa ka énalá ruá, wiká ka ka pi usántiri kichátiri</i></p>	<p>They were eating somewhere, watching over the house, and they would not stay to eat. Only six were in the house, so they could eat, they say. That way they are strong, like we are. Their bones were different and also their blood, they say. They were together, they say. They were together. They were many many, six or seven.</p>
<p><i>Sinémi kúchi kalá timútuka chumisá kúchi. je ne laláya inlábo kúchi ruá. Pikúchi jaré ba ochúla ka ochúla rítea, pi kúchi ka itíwela bo a rosánarka na iwílabo onákie. Wiká iníla pi ichúa ta kalí itíwela bo. Píri ga itíweli pachákie karíla.</i></p>	<p>First they took a child, they suck the child. I believe he was small, they say. There are some small bones; I have seen bones, small bones like our own, yes, white and strong, over there. Many bones were in a small house like ours. Like us, they were inside the house.</p>
<p><i>Pi échi yobi ichua karga, mo'ola we rosána ji iwíla ruá ru. Je mi onáye Ayórarle ka, chabéka tamí ta ka, chiká a'la suwérika itiwéli. Wiká</i></p>	<p>This same man was like this, his head very white and strong, they say. Yes, over there in Ayorare, long ago he was small like me; he</p>

<p><i>nirú chabé ka chomí, bitóli ma ke biri telépa jipé ka. Sunú jiwé ichúa matókela ruá. échi ka we pe we rojoránti sunú wilpa. Pachákie muchúa tiwéli láname sunú welí ramékame. We rojoranti níli ko ba, layá ijínti nijé ka. Pi jikúlitiri níli ko ba we konáteri a bitia itiweli onákie, rosochí pi ke chi jiki ko ba. we rosochí ka pachákie rosochí; konáka a ma wéka wiká koyánti. Ijínti ko ba laya ijínili nijé ka we uchúa opória, aní ruá ochérame ka we jiwétire ko ba.</i></p>	<p>was beautiful like us. There were many things over there, now there is not one bowl left. The big corn was taken on the shoulder. Very, very hard is the corn standing. Inside was the big, yellow corn with kernel. It was very hard, I think. Some time ago there was a lot of corncob like ours over there, nothing could go into the cave. Deep inside the cave was his house; he was eating lots of corncob. I think maybe there is a grave, that's what old people say.</p>
<p><i>Bonáka mawéru ba, ania ani ochérame ka; owísua ka maweya ania aníla ochérame, ke tibi ka. Pi mawétisa suwábalta ruá ru. Na jaré inálta ruá ru tibulua ka chio. Bitichí pi ma mulúbe mi ku, sisia suwíla ruá ru. We korúkame inla lepa chírika kumáya pichí yiri kumóya ji muchíla. Napeti olá ko'á itú; jemi biré nomi basóli kosá.</i></p>	<p>They ripped out and cut (the corn), old people say; the men asked for help to cut it, old people say, nothing was left. It is said that everything was cut. It is said that some (of the giants) were burnt, the last one too. It is said that very close, back in the house, he arrived and they died. He was eating, probably very hungry, and was eating this kind of food. Together they quickly made food; they ate pozole over there, somewhere.</p>
<p><i>Chiyó nokwála tamujué, ko'á warú birénomi basóli kosá; échi abe ka raísa anía anéla ba. Ke obé ichúsa ka chabé piréame komé jémi patú milílta ría. Niwái jeme patú milílta ría niwái</i></p>	<p>We make it too, we eat lots of pozole somewhere; they say it was delicious. Men are not eaten anymore. People from before are not watching, they were killed up there. They say they were killed up there, that's what people say.</p>
<p><i>Kanó anilíame ke chi olówame kária anía, narké awéme téri ka ría níli. Éche na ju ba rikábalta ría nia. nakárke ju ba rikábalta ruá. Échi kanó anilíame awéme ka ruá ru, awéme karí riá napé yíri wakási pi ikósa ka rikábalta ría.</i></p>	<p>The so-called giant was not tough. He also had a small horn, it was like that. He was there and was defeated like that. He was last one and was defeated. It is said the so-called giant has a horn, a horn like that of a cow and he was burnt, defeated.</p>
<p><i>Na karké jo'lú rosorása ikósa ga rikábalta ría. Na karké ke machíniga Asála ría. Niná karké we majála. Jolúla níla chukúya ría. Eche nolá-ya li na pi ke machíni ka. Asála majáya nabí biré ripisa ka. Miná ke machíti ka asala majaya pi ma ka nila kuba na kúchi suwábsa ka.</i></p>	<p>The big nest was also burnt, it was destroyed. He did not go out, he stayed like that. He was scared, very scared. He was the chief and was like that. He commanded but didn't go out. He was scared when he was left alone. He didn't go out, he was afraid, and in the end he was small.</p>
<p><i>Wiká chíó níla ka napawíka rijóla ruá ru. Chabé ka napawíka rijóla ruá ru. Chabé ka</i></p>	<p>It is said that many men were together. It is said that long ago men were together. Long</p>

<p><i>achúá tami ke riwémela Pi ría ka muchúa chiké awénili. Ta niráma wiká ka rijóla ruá ru Chabé ka pi makói ka we ralámuli rijóla ruá. Chabé ka tibúya noléla ruá ru.</i></p>	<p>ago I was not allowed to be all alone. Few people wandered around, but there were many men, it is said. Long ago there were ten very brave men. It is said that long ago they went around watching.</p>
<p><i>Rikóchi jiena jicho ka jiena ta nalácha lachi. Rikóchi nalánti aria irápa wisá ria ruá ru jaré nomí.</i></p>	<p>There at the barn, they hit small kids when they cry. Crying babies are taken away, to the barn.</p>

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