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BRAULIO BRANDÃO DE OLIVEIRA LOPES

THE SYNTAX OF OBJECT MARKING IN TUKANO: A FORMAL APPROACH

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The Syntax of Object Marking in Tukano: a formal approach

BRAULIO BRANDÃO DE OLIVEIRA LOPES

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"Then I applied myself to the understanding of wisdom, and also of madness and folly, but I learned that this, too, is a chasing after the wind."
(קהלת – Ecc 1:17)

ABSTRACT

The present research will investigate the syntax of object marking in Tukano. The goal is twofold: (i) to help cover the present gap in minority language description, specifically pertaining to Tukano; (ii) to further the understanding of the syntactic phenomena discussed here, namely Differential Object Marking (henceforth, DOM) and Object Shift, by applying the theoretic assumptions of Generative Syntax to an Amazonian language. To this end, the first half focuses on some broad analyses of the language as a whole, while the second half explores the syntactic phenomena of Differential Object Marking and Object Shift in greater detail. The first chapter offers a general introduction to the dissertation. The second chapter presents some sociological and cultural aspects of the Tukano people and the linguistic family of Tukano, as well as a brief discussion about linguistic vitality, in order to highlight the relevance of works such as this one. The third chapter is about the phonology of the language, and discusses some basic structural issues of Tukano phonology, such as the phonemic inventory and the syllabic pattern, with special attention to tonal and stress phenomena, given their relevance to the morphosyntactic issues discussed in later chapters. The fourth chapter analyzes the issue of DOM, using the Dependent Case Theory to explain the morphosyntactic behavior of DOM in Tukano. The fifth chapter investigates the phenomenon of Object Shift in Tukano, using the phase model of syntactic derivation to explain the behavior of the morpheme {-re}. Finally, the sixth chapter concludes the dissertation with a few closing remarks.

Keywords: Tukano. Phonology. Syntax. Differential Object Marking. Object Shift.

RESUMO

O presente trabalho visa investigar a sintaxe da marcação de objeto na língua Tukano. O alvo é duplo: (i) ajudar a cobrir a lacuna existente na descrição de línguas minoritárias, especificamente da língua Tukano; (ii) para aprofundar a compreensão dos fenômenos sintáticos aqui discutidos, a Marcação Diferencial de Objeto (doravante, DOM) e o Deslocamento de Objeto (doravante, OS), por meio da aplicação dos pressupostos teóricos da Sintaxe Gerativa a uma língua amazônica. A fim de atingir esses objetivos, a primeira metade desta dissertação foca em algumas análises mais amplas da língua Tukano como um todo, ao passo que a segunda parte explora os fenômenos sintáticos de DOM e OS mais detalhadamente. O primeiro capítulo oferece uma introdução à dissertação. O segundo capítulo apresenta alguns aspectos sociológicos e culturais do povo Tukano e da família linguística à qual ele pertence, bem como uma breve discussão sobre a vitalidade da língua a fim de destacar a relevância de trabalhos como este. O terceiro capítulo lida com a fonologia da língua e discute algumas questões básicas da estrutura fonológica do Tukano, tais como inventário fonêmico e o padrão silábico, com um destaque aos fenômenos tonais e acentuais, dada a relevância destes para as questões morfossintáticas discutidas nos capítulos posteriores. O quarto capítulo analisa a questão da marcação diferencial de objeto utilizando-se da Teoria de Caso Dependente para explicar o comportamento morfossintático de DOM em Tukano. O quinto capítulo investiga o fenômeno do deslocamento de objeto em Tukano, usando o modelo de derivação sintática por fase para explicar o comportamento do morfema {-re}. Finalmente, o sexto capítulo conclui a dissertação com algumas considerações finais.

Palavra-chave: Tukano. Fonologia. Sintaxe. Marcação Diferencial de Objeto. Deslocamento de Objeto.

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LIST OF ABBREVIATIONS AND ACRONYMS

1	First Person
2	Second Person
3	Third Person
ACC	Accusative
AN	Animated
ANA	Anaphoric
ASP	Aspect
AUX	Auxiliary Verb
CET	Constricted Epilaryngeal Tube
CLS	Classifier
COP	Copula
COLL	Collective
DBT	Doubt
DEM	Demonstrative
DOM	Differential Object Marking
ERG	Ergative
EXCL	Exclusive
F	Feminine
FOIRN	Federação das Organizações Indígenas do Alto Rio Negro
FUT	Future
IMP	Imperative
IMPF	Imperfective
IN	Inanimate
IND	Indicative Mood
ISA	Instituto Socioambiental
IPA	International Phonetic Alphabet

LOC	Locative
M	Masculine
MOV	Movement
NOM	Nominative
NMLZ	Nominalizer
OBJ	Object
OBLS	Oblong Shape
OS	Object Shift
P	Possessor
PAST	Past Tense
PERF	Perfective
PL	Plural
POSS	Possessive
PRES	Present Tense
REAL	Realis Mood
REC	Recent
REM	Remote
REP	Reportative Evidence
SG	Singular
[+/- SG]	Spread Glottis
S	Subject
SEN	Sensory Evidence
SS	Same Subject
STF	Stiff Vocal Folds
SP	'Species of'
O	Object
TOP	Topicalizer
UNESCO	United Nations Educational, Scientific and Cultural Organization
VIS	Visual Evidence

SUMMARY

CHAPTER 1: INTRODUCTION

The present research will investigate the syntax of object marking in Tukano, an Amazonian language, spoken along the border between Brazil and Colombia. The goal is twofold: (i) to help cover the present gap in minority language description, specifically pertaining to Tukano; (ii) to further the understanding of the syntactic phenomena discussed here, namely Differential Object Marking (henceforth, DOM) and Object Shift (hereafter, OS), by applying the theoretic assumptions of Generative Syntax to this Amazonian language.

To achieve the first goal, the second and the third chapters will give a general overview of the Tukano language. The second chapter offers a brief introduction to some cultural and sociological aspects regarding the Tukano people, with the intention of giving the reader an adequate background to situate the linguistic inquiry presented by this thesis. To cover such background, this chapter includes a discussion about the origins of the Tukano people, a brief description of the Tukano language family and an analysis of the vitality of the Tukano language, highlighting the relevance of descriptive works such as this one.

The third chapter aims to present an overview of Tukano Phonology, with the intention of providing a basic understanding of Tukano phonological structure as a whole. Special attention is given to the phonological phenomena that have a direct influence on the morphosyntactic issues that are covered in later chapters. The chapter includes a

presentation of the phonemic inventory of the language and its syllabic pattern, a discussion of issues related to tone and stress, and an overview of different phonological processes that occur in Tukano.

The fourth and fifth chapters focus on the second goal of this thesis. To wit, to further the understanding of Differential Object Marking, (DOM). The fourth chapter aims to show that the Tukano language exhibits DOM, and that the triggering of the overt morphological marking {-re} is directly associated with the definiteness scale. Furthermore, based on the Dependent Case theory proposed by Baker (2015), the chapter postulates the hypothesis that {-re} is the morphological marker of the low dependent case in the TP domain, and the syntactic distribution of this suffix can be explained by the application of the dependent case assignment rule.

The fifth chapter takes an alternate approach to explain the behavior of the suffix {-re}. It includes an investigation of the properties of object shift in Tukano following a phase based analysis (CHOMSKY, 2001). The main purpose is to explain why the suffix {-re} can mark both internal arguments that occur on the edge of vP and topicalized XPs that are positioned on the edge of CP. The fifth chapter demonstrates that elements that occur on the edge of the phases CP and v*P can be assigned a definite/specific interpretation. Such interpretation is morphologically marked with the suffix {-re}. This allows us to unify the explanation regarding the syntactic distribution of the suffix {-re}, both in (in)direct constructions and in topicalized adjuncts.

Finally, the last chapter concludes with some final remarks and highlights the issues that remain to be explored by further research regarding each of the phenomena discussed.

The present research is not intended as exhaustive, and thus part of the intention of including different perspectives of related phenomena is to foster further research on them.

CHAPTER 2: PEOPLE, LANGUAGE AND LINGUISTIC FAMILY

This chapter contains a brief introduction to some cultural and sociological aspects regarding the Tukano people, with the intention of giving the reader an adequate background to situate the linguistic inquiry this thesis proposes. To achieve this goal, Section 2.1 discusses the origins of the Tukano people; Section 2.2 gives a brief description of the Tukano linguistic family and Section 2.3 analyzes the vitality of the Tukano language, to highlight the relevance of descriptive works such as this.

2.1 ORIGINS OF THE TUKANO PEOPLE

> *Neê waropɨre, di'tâ, akó, nɨkɨ̂, diâ, wa'ĩkɨrã, wa'î, neê masá maripɨ̃. Na'î-tĩ'aro di'akɨ̃hɨ niîpã. Ɨmɨkohori-Yɛ̃kɨ́ di'akɨ̃hɨ niî'kũpĩ. Tohô bahuá'kɨ niîpĩ. Ɨ'mîse wi'ipɨ niîpĩ. Ni'kâ nɨmɨ masó marîkã' na'î-tĩ'akã ĩ'yâgɨ' wãkûpĩ: "ɨmɨ́koho da'rêgɨti', akó, nɨkɨ̂ri, ɨmɨ́kohori, o'mé, wĩ'ró, masá niîrãsama" niîpĩ. Muhî-pũu mɨhátiro soperé, Apekɔ̃́-Ditara da'rêpĩ. Toopɨ́, Pa'mîri-Masa bahuápa'rã. [...]. Be'ró Pa'mîri-Yukîsɨ bahúrɛ̃', niî pe'tirã Pa'mîri-Masare niî'sãpĩ, niî'sã dutipĩ.* (PELAS ÁGUAS..., 2018)[1]

"In the beginning, there was no land, nor water, nor jungle, nor river, nor animals, nor fish, nor people. There was only darkness. The Grandfather of the Universe was alone for a long time. Thus he had appeared. He lived in a heavenly house. One day, seeing there was no creation and only darkness, he thought: 'I will create this world, and there will be

[1] Transcription made by the author.

water, jungles, days, clouds, wind and people,' he said. Near the place where the sun rises, he created the Milk Lake. There, the People of Transformation appeared. [...] After that, he made the Canoe of Transformation appear and told all of the People of Transformation to get inside it."[2] Thus begins one of the many versions of the cosmogonic myth of the Canoe of Transformation, common to several ethnic groups from different linguistic families that inhabit the northwestern region of the Amazon.

The details change from group to group (BUCHILLET, 1997), from clan to clan (SILVA, 2012), and even from narrator to narrator (CERQUEIRA, 2008), but many of the main elements remain. One of the common elements is the starting point of the journey of the Transformation Canoe, namely the Milk Lake. In the Tukano version of the myth, this is the lake where the proto-humans (called *pa'mîri-masa* 'people of transformation') emerged[3]. Though the mythical name remains the same in the myriad versions, as does its basic function of being the starting point of the journey, the proposed location for this mythical lake is varied. The Yuhupdeh, for instance, locate it in Belém, the capital of the Brazilian state of Pará, in the northeast of the Amazon (LOLLI, 2012). The Tukano, on the other hand, tend to locate the *apekõ-ditara* (Milk Lake) much further away. Those living in Colombia point to somewhere over the Pacific Ocean (FULOP, 1954), whereas those living in Brazil say it is located in Rio de Janeiro, specifically the place called *Baía de Guanabara*

[2] Free translation of the quote transcribed above.

[3] Notice that the verb used to describe the beginning of the journey is *bahuá* 'to emerge, to appear' and not *da'ré* 'to create'. This sets the tone for the whole narrative, which is centered on the idea of transformation, not creation. Meaning that this origin story is about how they became who they are today, and the stages in which this transformation happened (cf. CERQUEIRA, 2008) rather than a "creation myth" in the sense that Indo-European-influenced cultures understand the term.

in Portuguese ('Guanabara Bay'). Some would go as far as refer to all people born in Rio de Janeiro as *apekṍ-ditarakãharã* (the suffix *-kãharã* means "proceeding from," so the whole expression is akin to "Milklakeans").

Of the two hypotheses, in very general terms, the one that postulates a western point of origin receives more scientific support than the eastern origin alternative. The hypothesis that the Proto-Tukano people came to the Upper Rio Negro region from Colombia has been defended at least since Nimuendaju (1927), and the present location of the Tukano speaking groups (cf. Section 2.2 below) as well as some linguistic evidence (cf. RAMIREZ, 1997) both seem to point in that direction.

However, it is hard to investigate the matter for a couple of reasons. First of all, archaeological evidence shows that the area of the Upper Rio Negro region has been occupied by the indigenous groups belonging to the Maku, Arawak and Tukano linguistic families since time immemorial, with some of the discoveries of the human occupation of the region being dated as far back as the fourth century B.C.E (BUCHILLET, 1997). Another complication is that, while it is hypothesized that the occupation happened in waves, the Proto-Maku being the first to arrive, followed by the Proto-Arawak and then the Proto-Tukano (NIMUENDAJU, 1927), the close relationship between the different ethnic groups made their cultures interweave. It is said that a process of "arawakization" was then followed by a process of "tukanization" (BUCHILLET, 1997), creating what is today an area where many cultural values, practices, traditions and myths are shared (SILVA, 2012). The antiquity of the Tukano occupation of the region makes it hard to find historical, or even archaeological evidence to determine their origin, and the cultural blending makes

even the oral tradition unreliable, given that any of the proposed points of origin could have been influenced by the traditions of another group[4].

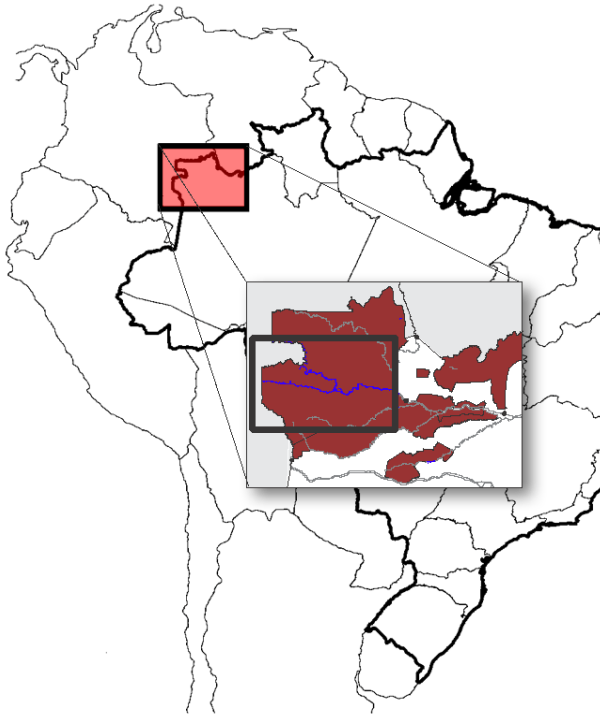
2.2 THE TUKANO LINGUISTIC FAMILY

The languages of the Tukano family are traditionally divided in three main branches. Two of those branches, the eastern and the central, are spoken mainly in the region of the Uaupés river basin, situated on the border between Brazil and Colombia, whereas the languages of the western branch are spoken along the Putamayo, Caquetá and Napo rivers, located in southwestern Colombia and near the borders between Colombia, Ecuador and Peru. Figure 1 below marks in red the areas where Tukano is spoken in Brazil (ISA, 2020), and Figure 2 marks in green[5] the places where Tukano languages are spoken in Colombia and its borders with Ecuador and Peru (BARNES, 1999).

[4] Not to mention possible influence of contact with the surrounding national (Brazilian) culture, which could very well be argued to be the reason behind a proposed eastern origin. That would legitimize the Tukano as natives to Brazil, like many other indigenous groups, which could in turn help them in political and territorial disputes across various national boundaries, in which they might be considered "Brazilians" rather than "Colombians"; or vice versa.

[5] The languages belonging to western branch of Tukano are marked in darker green, whereas the ones belonging to the central and eastern branch are marked in a lighter green, the central languages being the ones with the lightest hue of green.

Figure 1- Map of Tukano languages in Brazil



Source:ISA (2020)

Figure 2 - Map of Tukano languages in Colombia Ecuador and Peru

Source: Davius (2009)

The estimates regarding the number of distinct languages in the Tukano family varies a great deal, ranging from 7 (RAMIREZ, 1997) to 29 (CHACÓN, 2014), depending on the criteria used for classification. The classification used as a basis for Figure 2 above (BARNES, 1999), comprising a sort of middle ground, lists a total of 18 languages as detailed by the table below[6]:

Table 1-The Tukano Language Family as classified by Barnes (1999)

WESTERN			
Western north			
W1	Koreguaje	2,000	Ríos Orteguaza and Caquetá (C)
W2	Secoya	400	Río Putumayo (E)
W3	Siona	300	Río Putumayo (C, E)
Western south			
W4	Orejón	200–300	Ríos Napo, Ampi Yacú and Algodón (P)
CENTRAL			
C1	Cubeo	6,000	Ríos Vaupés, Cuduyarí, Querarí and Pirabotón (B, C)
C2	Tanimuca/Retuarã	300	Ríos Guacayá, Miritί, Oiyaká and Apaporis (C)
EASTERN			
Eastern north			
E1	Piratapuya	1,100	Río Papurí (B, C)
E2	Tucano	4,100–4,600	Río Papurí and Caño Paca (B, C)
E3	Wanano	1,100	Río Vaupés (B, C)
Eastern central			
E4	Bará/Waimajã	500–600	Caños Colorado, Fríjol, Lobo, Inambú and Yapú, Río Tiquié (B, C)
E5	Carapana	600	Caño Tí, Ríos Piraparaná, Papurí and Vaupés (C)
E6	Desano	1,000	Ríos Papurí and Vaupés (C)
E7	Siriano	250–300	Ríos Paca and Viña (C)
E8	Tatuyo	350	Ríos Piraparaná and Papurí, Caño Yapú (C)
E9	Tuyuca	725	Ríos Papurí and Tiquié, Caño Inambú (B, C)
E10	Yurutí	200–250	Caños Paca and Tí (C)
Eastern south			
E11	Barasano/Taiwano	250	Río Piraparaná (C)
E12	Macuna	350	Ríos Comeña, Piraparaná and Apaporis (C)

Source: Barnes (1999)

[6] One complicating factor that will not be addressed in this work, given that this section is only meant to be an introductory overview of the family as whole, is the lack of a definitive naming convention for the languages of the Tukano family. Therefore, the names will merely be cited as they appear in the sources, despite the incongruences.

In Table 1, the numbers in the center column give the estimated total number of speakers, whereas the names on the right represent the locations where each language is spoken (B = Brazil, C = Colombia, E = Ecuador, P = Peru).

Ramirez (1997) however, proposes a classification of the Tukano family with only seven languages, as transcribed in Table 2 below[7]:

Table 2 – Tukano Linguistic Family by Ramirez (1997)

A. Western Tukano		
	①	dialects: Orejón, Sekoya, Siona, Koreguaje
B. Central Tukano		
	②	Kubewa
C. Eastern Tukano		
C^1	③	Tanimuka
C^2	④	dialects: Makuna, Barasana
	⑤	dialects: Tatuyo, Karapanã
		dialects: Wai-maha, Bará, Tuyuka, Yuruti
		dialects: Ye'pâ-masa (Tukano)
	⑥	dialects: Wanano, Pira-tapuyo
	⑦	dialects: Desana, Siriano
† Arapaço, † Miriti-tapuyo		

Source: Ramirez (1997), translation made by the author

This classification is based on Ramirez' analysis of a series of word lists published by Huber and Reed (1992) for languages of Colombia, in which the latter gave words lists for 19 different Tukano languages. Comparing the lists, and basing his analysis on the assumption that a lexical similarity of less than 81% is the minimum required to affirm that those are, in fact, two different languages (as opposed to being distinct dialects of a single language), Ramirez arrived at the classification outlined above. In comparison, though not explicitly stated, Barnes seems to base her classification on the self-identification of each of

[7] The symbol † indicates a language is believed to be extinct.

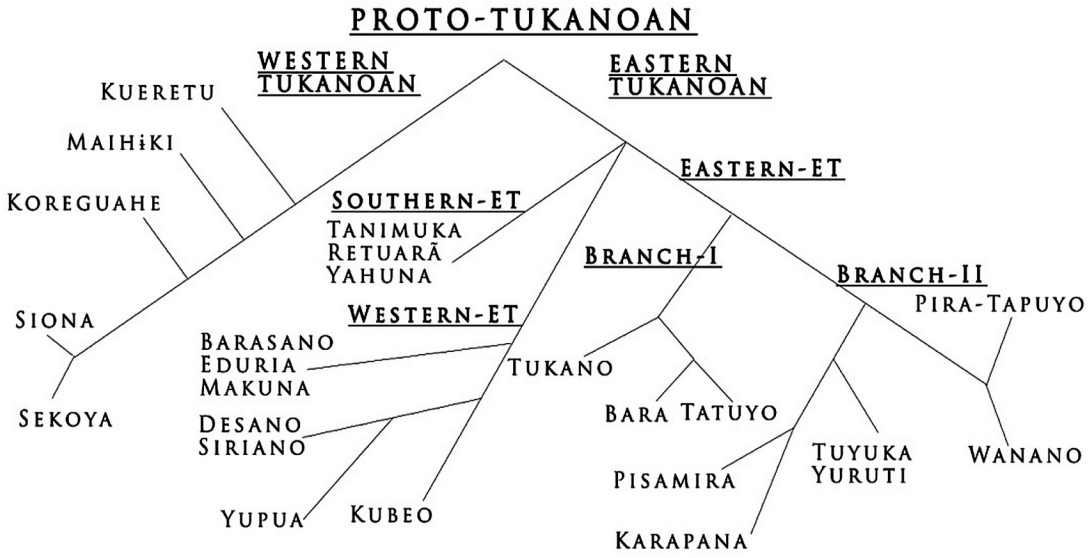
the ethnic groups[8].

Chacón (2014), takes a completely different route from Ramirez (1997), and outright states that even though some languages of the family "*might well be classified by outsiders as dialects of each other, given the limited phonological and lexical distinctions between them […], language is a very important marker of social identity of all groups in the region,*" (CHACÓN, 2014, p.1) thus justifying his position of listing a total of 29 languages in the family, eight of which are probably extinct (marked with †), namely: Arapaso,† Bará, Barasano, Desano, Eduria; Karapana, Koreguahe, Kubeo, Kueretu,† Maihɨki, Makaguahe,† Makuna, Miriti-Tapuya,† Pirá-Tapuya, Pisamira, Retuarã, Sekoya, Siona, Siriano, Tama,† Tanimuka, Tatuyo, Tetéte,† Tukano, Tuyuka, Wanano, Yahuna,† Yupua† and Yuruti.

Chacón's (2014) biggest contribution, however, is the classification of those languages into branches, based mainly on the analysis of phonological data. His revised classification is summarized in the image below:

[8] The only notable exceptions are those listed side by side in Table 1: (Animuca/Retuarã, Bará/Waimajã and Barasano/Taiwano) For those cases, Barnes explicitly states that they are not "sufficiently distinct" (BARNES, 1999 p.207).

Figure 3-Proto-Tukano Family Tree



Source: Chacón (2014)

Contrary to traditional classifications, Chacón proposes only two main branches instead of three. However, his subdivisions of the branches, especially regarding the Eastern Tukano, are considerably more fine-grained. With an entire paper dedicated to the analysis that motivated his classification (as opposed to a couple of pages, as was the case with both Barnes and Ramirez), Chacón's proposal can currently be considered the most accurate one.

However, one last list needs to be considered, given that Chacón and Ramirez do not mention the number of speakers associated with each language, and between the publication of Barnes (1999) and the present date, two detailed population censuses relevant to the Tukano-speaking groups have taken place: one in Colombia in 2005 and one in Brazil in 2010. Table 3 gives the number of speakers for each of the languages cited in

either of the censuses[9]:

Table 3 – Number of speakers by ethnic group

Ethnic Group	Population in Brazil	Population in Colombia	Total Population
Arapaço	560	-	560
Bará	20	1004	1024
Barasána	35	905	940
Coreguaje	-	3257	3257
Desána	2200	3641	5841
Karapanã	65	1040	1105
Kubéwa	380	14074	14454
Letuama	-	285	285
Makaguaje	-	24	24
Makúna	35	1962	1997
Matapí	-	618	618
Mirití-tapúya	75	-	75
Pirá-tapúya	1430	1106	2536
Pisamira	-	196	196
Siona	-	2599	2599
Siriána	70	1658	1728
Taiwano	-	123	123
Tanimuka	-	1467	1467
Tatuyo	-	1091	1091
Tukano	6250	4075	10325
Tuyúka	830	1467	2297
Wanáno	750	3312	4062
Yauna	-	105	105
Yuruti	-	969	969
TOTAL	12700	44978	57678

Source: DANE (2005), Rodrigues (2013)

While these numbers can give a very clear picture of the total population of each ethnic group belonging to the Tukano family, it is not well suited for discussing the number of speakers of each language, as those often do not coincide. As an example, while the

[9] The data compiled by Rodrigues (2013) is largely based on IBGE (2010). However, Rodrigues presents the data in a way that is easier to visualize, so his list was used as the basis for this table.

Tukano ethnic group is listed as consisting of a little over ten thousand individuals, the estimates on how many people speak the Tukano language are as high as 20,000 people (ISA, 2020). The discrepancy between the number of people belonging to the ethnic group and the number of speakers lies in two main sociological factors: its status as one of the *lingua francas* of the Upper Rio Negro (AINKHENVALD, 1999) and the cultural practice of linguistic exogamy (SORENSEN, 1969). Both are discussed, together with other factors related to linguistic vitality, in the next section.

2.3 THE VITALITY OF THE TUKANO LANGUAGE

One of the goals of the present research is to contribute to the preservation of the language that serves as its object of study. As is the case of many of the indigenous languages of the American continent, Tukano can be considered an endangered language. To uphold this claim, the present section will consider all of the 9 major evaluative factors of language vitality proposed by UNESCO Ad Hoc Expert Group on Endangered Languages (2003).[10]

2.3.1 ABSOLUTE NUMBER OF SPEAKERS

As mentioned in Section 2.2 above, it is estimated that around 20,000 people speak Tukano (ISA, 2020), which is essentially double the amount of the total population of the

[10] Unless stated otherwise, the analysis contained in this section is based on the author's own information and observations acquired during his prolonged contact with the Tukano people.

Tukano ethnic group, currently estimated to be just slightly above 10,000 (DANE, 2005; IBGE, 2010). The reason behind this fact is that many people from other ethnic groups also speak Tukano. In fact, Tukano is not the only language spoken by more than one indigenous group in the Upper Rio Negro region. Multilingualism is very common there, to the point where most of the inhabitants of the region speak three or more languages (SORENSEN, 1967). There is a variety of reasons why this happens. One of them is the sheer number of different ethnic groups, many with their own language, inhabiting the area. There is an estimate of at least 28 different ethnic groups currently inhabiting this area, speaking at least 20 distinct languages (FOIRN and ISA, 2006)[11]. Since many of these groups have been inhabiting the region for centuries, possibly millennia, before the European arrival on American shores (BUCHILLET, 1997), the intense interaction between those people meant they would end up either learning each other's languages, or adopting a common language to establish contact. The ethnic groups of the Tukano family, as well as groups from other families that maintained a close relationship with them, (such as Tariana and Hupdä) use Tukano as their *lingua franca* (AIKHENVALD, 1999; EPPS, 2007). The Hupdä learn Tukano from an early age, due to the frequent contact and trade with Tukano speakers (EPPS, 2008). On the other hand, the other groups of the Tukano family and the Arawakan Tariana usually learn Tukano from one of their parents due to linguistic exogamy.

[11] The number used here is less than that given before in Section 2.2 because the Tukano family is spread throughout other areas as well (cf Figure 2).

2.3.1.1 Linguistic Exogamy

Exogamy, as opposed to endogamy, is the anthropological term traditionally ascribed to the societies in which it is forbidden (i.e. considered incest) to marry another individual of the same group (BIRX, 2005). The definition of "group" varies depending on the context, but for the Upper Rio Negro region it is usually what Sorensen (1967) called "language group" (SORENSEN, 1967). Linguistic exogamy, then, can be defined as "*a case of prescriptive marriage between individuals who spoke different languages from one another*" (FLEMING, 2016, p.10). Obviously the language in question is the first language of the individual, meaning that the boundaries between ethnic groups are traced based on the language that each group defines as their own. To use Jackson's (1974) terminology, the languages are used as "badges of identity".

In this sense, the Tukano people, as well as many of its neighboring ethnic groups, are strictly exogamic (AINKHENVALD, 1999)[12]. Consequently, a system of marriage exchange was established among the indigenous groups of the Upper Rio Negro region (FLEMING, 2016), in which different groups would settle near each other and the individuals of one group would marry those of the neighboring village. Thus, it is very common to hear Tukano speakers calling the neighboring group by the name *pẽ'yarã́* ('in-laws'). This structure is sustainable because the Tukano culture is patrilinear (i.e. the ethnic

[12] Traditionally at least. While some authors would claim that an endogamic Tukanoan marriage is unheard of (RAMIREZ, 1997), the author of the present thesis knows at least two such cases personally. There are authors that recognize this kind of complexity, and more refined models of kinship have been proposed (e.g. LEIRNER, 2018). However, a fine-grained exploration of the subject would fall outside the scope of the present dissertation and, therefore, the discussion will adhere to the well-known generalizations.

identity is inherited from one's father), meaning that the sons and daughters of a Tukano father will be considered Tukano, regardless of the ethnicity of their mother (SORENSEN, 1967). Conversely, the children of a Tukano mother would never be considered Tukano (barring cases that would be traditionally considered incest). Thus, such marriage alliances between two groups of different ethnicities could potentially go on for generations. In fact, the ideal marriage in Tukano culture is between cross-cousins, and the traditional form of marriage proposal begins with the father of a young man asking his brother-in-law for permission before the young Tukano would go himself to ask his cousin in marriage.[13]

Traditionally, one of the things that would prevent those two intermarried groups of merging into a single large village is the language boundary itself. Each group would seek to preserve its own identity, values and customs by clinging to their own language. Thus, both languages would be learned and spoken by everyone, since each individual would have learned one from their mother and another from their father, but in the communal areas and activities in each village only the language of that particular group would be spoken (AIKHENVALD, 1999). However, multilingual systems such as this carry a certain instability with them, namely a tendency to have the languages of higher prestige gradually supplant the others (WÖLCK, 2008). Such gradual shift is readily apparent in the Upper Rio Negro region. Nowadays, many individuals from other ethnic groups, such as Miriti-

[13] The proposal itself usually takes the following form: The young man would go fishing and would offer a fish he caught to his cousin. If she accepted the fish, cooked it and invited her cousin to eat it, that would mean she accepted the proposal. Apparently, cases where the woman refused are rare (perhaps because the first conversation between the parents are meant to prevent that), but they happen nonetheless.

Tapuyo, Arapaço, Tariano (RAMIREZ, 1997), to name a few, no longer speak their ethnic languages, but have instead adopted Tukano as their first language.[14]

These two factors (*lingua franca* status and linguistic exogamy) then, readily explain why the number of speakers of Tukano is higher than the number of individuals of the Tukano ethnic group. This does not mean, however, that the absolute number of speakers of Tukano could be considered high, when taken as an evaluative factor of language vitality. As the proponents of the evaluative factors themselves put it: "*It is impossible to establish a hard and fast rule for interpreting absolute numbers*" (UNESCO, 2003, p.8). On the one hand, compared to the other languages of the region, it is relatively large, and therefore more secure. On the other, it is still small enough that a single catastrophe (such as a global pandemic, for instance)[15] could seriously threaten its survivability. However, the relevance of the total number of speakers for the vitality of a language are better discussed when considered relative to the total of the surrounding population, which is the next factor to be considered.

2.3.2. Proportion of Speakers within the Total Population

"*The number of speakers in relation to the total population of a group is a significant indicator of language vitality, where 'group' may refer to the ethnic, religious,*

[14] Other factors, like the influence of missionaries (OLIVEIRA, 1983; EPPS, 2008), have certainly contributed to that.

[15] At the moment that this thesis is being written the number of COVID-19 cases among the indigenous population is still growing.

regional or national group with which the speaker community identifies" (UNESCO, 2003, p.9). The definition of this factor alone provides four different possible analyses, depending on what is being defined as "group." Going by ethnic group, the vitality of Tukano would be considered outstanding, as the number of speakers is higher than the total population, as mentioned[16]. However, going by regional population, the vitality status decreases considerably. The total population of São Gabriel da Cachoeira, the municipality that contains the absolute majority of indigenous territories inhabited by Tukanos in Brazil[17], is 45,564 (IBGE, 2019). Using UNESCO's (2003) proposed scale of evaluation from 0 to 5, that would put Tukano at grade 2, meaning it is considered *severely endengered* given that even a traditional *lingua franca* like Tukano is only spoken by the minority of São Gabriel da Cachoeira residents. If the national group is used, Tukano's vitality grade would go even further down and it would be considered *critically endangered.*[18] The larger scope has to be considered, because the national languages (Portuguese for the Brazilian side, and Spanish for the Colombian side) are spoken alongside Tukano in basically every situation and, as the next sections demonstrate, this has a fairly large impact on the vitality of Tukano.

[16] Superficially, at least. As it will be discussed in section 2.3.8, there are actually Tukano people that do not speak Tukano. However, as there is no numerical data for this discussion yet, the issue will not explored further in this section.

[17] From this point on, both for the sake of simplicity and for the lack of available data on many of the issues, the discussion will be focused on the Brazilian side.

[18] The only group proposed by UNESCO that remains to be discussed is the religious group. Even though religion has a significant impact on the vitality of a language, the issue is too complex to be accurately dealt with in such a short section and therefore will be considered outside the scope of the present thesis.

2.3.3. Shifts in Domains of Language Use

For this factor, the shifts in the domains in which Tukano is spoken, what is taken into account are the different places, social contexts and even themes and subjects for which the language is used. This is especially relevant for multilingual contexts such as the one under discussion. As is the case of most minority languages, all of the "official domains" such as governmental buildings, public offices, schools, hospitals, etc. all need to be accessed by the use of the national language, Portuguese. In and of itself, this would not be so dire, as it would still put Tukano very high on the vitality scale, at grade 4 out of a maximum of 5 (UNESCO, 2003). However, given that some of those "official domains" are actually present in the villages themselves, not only in the surrounding cities, Tukano has been literally "losing ground" to Portuguese.

The mere introduction of Portuguese into the Tukano villages, a language with higher prestige, means that Tukano is now in the same position as the other indigenous languages supplanted by it. The very existence of another option for *lingua franca*, one that could also be used for communication with indigenous groups from different families like Arawak and Yanomami, as well as the non-indigenous people that inhabit the neighboring cities, means that Tukano is already being supplanted in that regard and might lose its position as a language of contact in a couple of generations (or even sooner).

This is being magnified by the aforementioned fact that these "official domains" are present in the Tukano villages. The schools, for instance, whether lead by missionaries or by the Brazilian government, have the absolute majority of its classes, sometimes all of

them, taught in Portuguese. There is a variety of reasons for this. Firstly, in order to have access to the government and all the benefits of the city, the Tukanos themselves want to learn Portuguese and want their children to learn it as well. So, the classes in Portuguese are being encouraged by the community itself. Additionally, many of the teachers do not speak Tukano, despite the majority of them being indigenous,[19] meaning that Tukano is not an option for language of instruction.

The side-effect of this is that the Tukano children are more and more exposed to Portuguese at an early age. So much so, that they start to talk to each other in Portuguese and, therefore, even in Tukano homes, Portuguese is being spoken. The current state of Tukano vitality, concerning this factor, is very well described by what UNESCO (2003) defines as "dwindling domains:"

> The non-dominant language loses ground, parents begin to use the dominant language at home in their everyday interactions with their children and children become *semi-speakers* of their own language (*receptive bilinguals*). Parents and older members of the community tend to be productively bilingual in the dominant and indigenous languages: they understand and speak both. Bilingual children may exist in families where the indigenous language is actively used. (UNESCO, 2003, p.10)

Another factor that contributes to the introduction of Portuguese to Tukano homes is that of exposure to media, discussed in the following section.

[19] Most indigenous schools of the region are taught by indigenous teachers. But, given the sheer diversity of the Upper Rio Negro region, having a teacher from a different group in a given village is a very common occurrence, and since there are no rules stipulating that the teacher should know the language of the village, many of the indigenous schools, with indigenous students and teachers, never teach in the indigenous languages for lack of mutual understanding.

2.3.4. Response to New Domains and Media

What is considered in this factor is how well a language reacts to the arrival of new domains and new forms of media. With most of the villages having access to electricity in one way or another, and consequently having access to television and even internet in some cases, this is a very relevant factor to consider for Tukano.

Currently, basically every new domain and new form of media that has been introduced to the villages is presented in Portuguese. Movies, music, soap operas, cartoons, soccer games, everything is being broadcast in Portuguese. That would classify Tukano as an *inactive* language in this regard, with the lowest possible grade, 0 out of 5 (UNESCO, 2003).

In the villages where access to those new domains is limited (cases where, for instance, the community would have enough fuel to power the generator only for one hour a day) it is not a major influence. But wherever there is constant access to electricity (e.g. in the villages located in T.I. Balaio[20]) that is far more threatening to Tukano's vitality.

2.3.5 Availability of Materials for Language Education and Literacy

One of the hindrances to the improvement of vitality for Tukano in regards to the previous two factors discussed is precisely the lack of materials for education in Tukano. Basically, all textbooks used in Tukano schools are written in Portuguese. There have been

[20] TI stands for *Terra Indigena* (Indigenous territory) and it is the official nomenclature for the lands reserved for the indigenous population.

some attempts at the production of teaching material in Tukano, some by missionaries, some by NGOs, even some by the Tukano teachers themselves. However, these are still too few and far between and would only put Tukano at grade 1 out of 5, where "*a practical orthography is known to the community and some material is being written*" (UNESCO, 2003, p.12).

The aforementioned issue of orthography is actually part of the problem, as many different orthographies have been proposed, but a single orthography is yet to be accepted and adopted by all speakers of the language. Usually what has happened is that a linguist would work with a specific village, or a group of villages, and those included in the process would accept and use the resulting orthography. However, the Tukano speakers from different communities, which usually means that they belong to different sibs and clans, would reject it, and either create their own proposal or just outright refuse to use any material produced with that particular orthography. In practice, what it means is that any pedagogical material produced with the help of a certain community (village, sib, clan, etc.) would only actually be used by that community, therefore reducing the impact and relevance of the materials that already exist.

A solution to this problem would be a sort of orthographic accord, decided by gathering leaders from as many communities as possible with some sort of government support to legitimize the orthography produced. Such a procedure has already been proposed (cf. MENEZES and RODRIGUES, 2014) but has yet to be put into practice, probably because of the magnitude of the endeavor. Considering the sheer number of

different Tukano villages that exist[21] and how distant they are from each other, just trying to gather representatives for all of them would be a herculean task. Success in such an attempt would certainly require active support by the local government which, as discussed in the next factor below, is not something that can be counted on currently.

2.3.6. GOVERNMENTAL AND INSTITUTIONAL LANGUAGE ATTITUDES AND POLICIES, INCLUDING OFFICIAL STATUS AND USE

As with many democratic nations with periodic elections, the governmental policies in Brazil change rather frequently and those changes can be felt in all sorts of areas, linguist policies included. In the recent past, linguistic researcher Kristine Stenzel, while analyzing the state of multilingalism in the Upper Rio Negro, claimed that there was a "*growing process of political empowerment [...] currently underway*" (STENZEL, 2005); whereas more recently, the (then) head of the Ministry of Education and Culture was recorded saying in an official meeting: "*I hate the term 'indigenous people,' hate the term. Hate it. Or 'Gypsy people'. There is only one people in this country [...] the Brazilian people [...]. Put an end to this peoples and privileges thing. There can only be one people.*"[22] (WEINTRAUB, 2020).

[21] There is no data to be found on the total number of Tukano communities, but they are probably in the hundreds.

[22] Free translation. Original: "Odeio o termo povos indígenas, odeio esse termo, odeio. Ou povos ciganos. Só tem um povo nesse país [...] é povo brasileiro [...] acabar com esse negócio de povos e privilégios. Só pode haver um povo".

On a more local level, the municipality of São Gabriel da Cachoeira passed a law that recognized three indigenous languages, Tukano being one of them, as "co-official" languages for the municipality (SÃO GABRIEL DA CACHOEIRA, 2002). The law itself, as well as another law passed four years later (SÃO GABRIEL DA CACHOEIRA, 2006) that went into further detail about the regulation of the previous law, had the potential to elevate the prestige of the indigenous languages, but according to Silva (2013), little was actually put into practice. Silva carried out extensive research on the effects of the aforementioned laws, including interviews with the indigenous people. Among her conclusions, she found that many of those interviewed had never heard of these laws and, though others considered them a huge victory, many said that, in practice, nothing had changed (SILVA, 2013).

Considering all these factors related to the official status of Tukano, on the scale proposed by UNESCO (2003), Tukano would be best described at grade 3, called *passive assimilation*:

> The dominant group is indifferent as to whether or not minority languages are spoken, as long as the dominant group's language is the language of interaction. Though this is not an explicit language policy, the dominant group's language is the *de facto* official language. Most domains of non-dominant language use do not enjoy high prestige. (UNESCO, 2003, p.13)

This assessment is based on the present state of the national and local governmental attitudes. In light of these facts, Tukano could easily move to grade 5, *equal support*, if those local laws were ever fully enforced and converted into practice; on the other hand, it

could move to grade 1, i.e. *forced assimilation*, if the national political tendencies remain on their current course.

2.3.7 COMMUNITY MEMBERS' ATTITUDES TOWARDS THEIR OWN LANGUAGE

For this factor there is a major divide. The Tukano speakers that belong to the Tukano ethnic group have a radically different attitude towards the language compared to others. This is expected, given, as previously mentioned, that language is used as a badge of identity (JACKSON, 1974). To use the UNESCO (2003) terminology, those who identify as Tukano "*value their language and wish to see it promoted*" whereas those who use Tukano as a second language or identify as members of another ethnic group are mostly indifferent towards language maintenance, and some even prefer to see their children speaking Portuguese[23]. Given that there is an almost even split between those two groups, numerically speaking (cf. section 2.3.1), that would place Tukano squarely in the middle of the scale, between grade 2 and grade 3, concerning this factor. Such attitudes towards the language directly influence the next factor, intergenerational transmission.

2.3.8 INTERGENERATIONAL LANGUAGE TRANSMISSION

The factor of intergenerational transmission is considered by linguists who specialize in issues of language vitality and documentation. such as Dr. Seyfeddinipur, to

[23] This observation is based on the interaction of the author of this thesis and many individuals of those ethnic groups that intermarry with Tukano.

be the most important one (2019, verbal communication)[24]. As a matter of fact, this factor reflects and summarizes much of the previous discussion. Thus far, we have seen that 1) a large number of speakers, would prefer to see their children speaking Portuguese (cf. Section 2.3.7); 2) similarly, the current national government prefers the same (cf. Section 2.3.6); 3) schools basically teach only in the national language (cf. Section 2.3.3) 4) that this is due to the serious lack of pedagogical material in Tukano, among other issues (cf. Section 2.3.5); 5) new access to media is limited to Portuguese language materials (cf. Section 2.3.4). Given these challenges, although alarming, it is not surprising to discover that in some Tukano villages, like Balaio and Tumbira (OBERT, 2019 p.c.)[25], many of the Tukano children and teenagers no longer speak Tukano. As a matter of fact, it is very common to see parents speaking to their children in Tukano but be answered in Portuguese, i.e passive bilinguals.

In those communities at least, Tukano is to be considered *definitively endangered*, by the UNESCO (2003) standard, which leads to the urgency of the final factor.

2.3.9 Type and Quality of Documentation

Considering that the vitality of Tukano has been at the lower end of the scale, with the average grade below 2 on a scale of 0 to 5, the urgent need for better quality documentation must be taken seriously. Such a need is acknowledged by the community

[24] Based on Dr. Seyfeddinipur's speech during the intensive course "Theory and practice of language documentation", given in the University of São Paulo, in October 7th, 2019.

[25] OBERT, Karoline (personal comunication, October 10, 2019)

itself. The fear of loss of their traditional knowledge and culture, and the subsequent impossibility of rescue due to lack of documentation is something the Tukano are vocal about[26], especially given that what has been documented is not readily available to them. Following the UNESCO (2003) scale that considers only the existence of texts, grammars and recordings of the language, Tukano would be placed somewhere between grade 2 and 3, between *fragmentary* and *fair*; At least one good grammar exists (RAMIREZ, 1997), along with a reasonably complete dictionary, and many attempts to record the language have been made (though the quality varies wildly). However, not much of that is easy to access, especially for the Tukano communities. Several Tukano villages have never seen any grammar or dictionary written in their language. A high number of those who recorded some aspect of the language and culture have never returned to the community with the results. Even within the scientific community, high quality recordings are not at all easy to find. Without more effort dedicated to the production of higher quality and easily accessible documentation, all the encoded knowledge of the Tukano language might be lost in a couple of generations.

A research endeavor such as the present one cannot hope to significantly impact most of the factors discussed in this chapter. However, a contribution to the improved documentation of Tukano is well within reach for linguistic researchers. This is, in fact, one of the goals of the present thesis. The contribution may be indirect (i.e. the more this language is discussed academically, the higher the chance of gathering scientific interest,

[26] The author of the present thesis has heard such concerns being voiced in basically every Tukano village he has been to, by multiple individuals.

and, consequently, of inspiring further research); however, any such improvement to the body of documentation would count as success for this research.

2.4 FINAL REMARKS

In this chapter, a brief overview of some cultural and sociological aspects regarding the Tukano people was given. The first section offered an account of the origins of the Tukano people, the second presented the Tukano linguistic family and the third section analyzed Tukano's linguistic vitality. With a basic background on the Tukano people laid out, the next chapters can focus on a more strictly linguistic discussion. Chapter 3 will give an overview of Tukano phonology.

CHAPTER 3: PHONOLOGY

This chapter aims to give an overview of the Phonology of the Tukano language, with the intention of giving the reader a basic understanding of the phonemic structure of the language.

This chapter is subdivided in four parts, as follows: Section 3.1 presents the phonemic inventory of the language; Section 3.2 presents the syllabic pattern, with a brief discussion of issues of restrictions of occurrence of phonemes in certain syllabic contexts; Section 3.3 deals with issues related to tone and stress; finally, Section 3.4 explores the different phonological processes that occur in Tukano.

3.1 PHONEMES

Welch and West (1967) have described Tukano as having 18 phonemes, whereas Ramirez (1997) has identified 16.[27] Nonetheless, these studies agree that Tukano has a total of 6 vowels, so the difference lies in the number of consonantal phonemes identified.

[27] An even smaller phonemic inventory could be postulated based on Salinas (2014), since her proposal regarding laryngeal features (cf. section 3.3.2 below) implies that /h/ is not phonemic.

3.1.1 VOWELS

As stated above, previous studies agree that Tukano has 6 different phonemic vowels, with a dual height contrast (high versus low) and a triple tongue position contrast (front, central and back). The phonemic vowels are shown in the table below:[28]

Table 4 – Phonemic Vowels

	Front	**Central**	**Back**
High	**i**	**ɨ**	**u**
Low	**e**	**a**	**o**

Source: West and Welch (1967); Ramirez (1997)

It is important to point out that the low vowels /**e**/ and /**o**/ correspond to the IPA symbols /ɛ/ and /ɔ/, respectively. The data in (1) to (4) below illustrate the phonemic contrast between the vowels shown in Table 4:[29]

(1) a. *bi'í* [ᵐbi̯ʔí] 'mouse'
b. *bɨ'ɨ́* [ᵐbɨ̯ʔɨ́] 'piranha'
c. *bu'ú* [ᵐbu̯ʔú] 'peacock bass'
d. *ba'â* [ᵐba̯ʔá] 'to eat'

[28] The table itself is adapted from Welch and West (1967), but it uses the orthography proposed by Ramirez (1997). The only actual difference between this orthographic convention and some other proposals, in this instance, is the central high vowel (**ɨ**) that can be also written as **u**.

[29] Since the goal of these examples is to showcase height and posteriority distinctions in vocalic segments, the phonetic transcriptions in (1)-(4) is somewhat simplified and standardized, especially regarding tone, length, laryngealizsation and devoicing. The complexity of those issues will be discussed (albeit, superficially) in later sections of this chapter.

(2) a. *ehâ* [e̯há] ‘to hit’
b. *ohâ* [o̯há] ‘to paint’
c. *uhâ* [u̯há] ‘to curse’
d. *ɨhá* [ɨ̯há] ‘hunger’

(3) a. *mɨsâ* [mɨ̃ɨ̯sã́] ‘you (pl.)’
b. *mosâ* [mɔ̃o̯sã́] ‘annatto’
c. *masâ* [mãa̯sã́] ‘people’
d. *mesa* [mɛ̃e̯sã̀] ‘pile (of something)’

(4) a. *wií* [ʋìí] ‘to whistle’
b. *wɨ́ɨ́* [ʋɨ̀ɨ́] ‘to fly’
c. *weé* [ʋèé] ‘to do’
d. *waá* [ʋàá] ‘to withdraw’

The sample above is merely a fraction of the extensive data given in both accounts to support this six-vowel inventory. Additionally, this array seems to be the norm for the other languages of the family (BARNES, 1999). Therefore, it is rather uncontroversial to assume the vowel table presented above is correct. However, even though it correctly assesses the phonological distinctions regarding height and position (as well as roundness, depending on the theoretical assumption), there are other issues that affect vowels, such as length, tone, laryngealization, devoicing and nasalization. Each of these phonetic traits are relevant in one way or another to understand Tukano phonology. None of these qualities have been considered intrinsic to the vowels in Tukano by any of the aforementioned studies, however. Therefore, these issues will be discussed in later sections of this chapter.

It is worth noting, though, that different analyses might imply in a much larger set of phonological vowels.

The next section aims to investigate the phonetic properties of the Tukano consonants.

3.1.2 CONSONANTS

As mentioned above, Tukano has either 10 or 12 contrasting consonant phonemes (RAMIREZ, 1997; WELCH and WEST, 1967).[30] The contrasting features include [labial], [coronal], [velar], [dorsal], [voice], [continuant], [sonorant] and [spread glottis] (HALL, 2007). The consonant phonemes are summarized in the following table:

Table 5 – Phonemic Consonants

		Labial	Alveopalatal	Velar	Glottal
Plosive	**Voiceless**	**p**	**t**	**k**	
	Voiced	**b**	**d**	**g**	
Fricative			**s**		**h**
Glide		**w**	**y**		

Source: Ramirez (1997)

The labial glide /**w**/ equates with the IPA symbol /**ʋ**/ (a labiodental approximant), while the alveopalatal glide **/y/** stands for /**j**/ (a palatal approximant). The data in (5) to (7) highlight the phonemic contrast between these consonants:

[30] These numbers are not considering the possible implications of the different analyses given to the behavior of laryngeal features, as these are discussed below on Section 3.3.2. Accepting Salinas's (2014) proposal regarding them would subtract the glottal fricative /h/ from the phonological inventory, giving a final total of 9 consonants, whereas accepting West and Welch (2000) revision on the aspiration phenomena would add a set of aspirated voiceless plosives /p^h, t^h, k^h/, pushing the phonological inventory to a total of 15 consonants.

(5)	a. *pi'í*	[pi̯ʔí]	'basket'
	b. *bi'í*	[ᵐbi̯ʔí]	'mouse'
	c. *wi'í*	[vi̯ʔí]	'house'
	d. *tií*	[tìí]	'this'
	e. *di'í*	[ⁿdi̯ʔí]	'meat'
	f. *siî*	[síí]	'that'
	g. *yiîru*	[jíírù]	'cricket (sp.)'
	h. *ki'í*	[ki̯ʔí]	'to have curly hair'
(6)	a. *sa'kâ*	[sa̯ʔká]	'beetle (sp.)'
	b. *sa'gá*	[sa̯ʔgá]	'to be loose'
	c. *sa'bá*	[sa̯ʔbá]	'to be muddy'
(7)	a. *pekâ*	[pèe̯ká]	'firewood'
	b. *pesâ*	[pèe̯sá]	'to be placed upon'
	c. *petâ*	[pèe̯tá]	'harbor'

Welch and West (1967) proposed a different analysis regarding the Tukano consonant inventory in the sense that they included two additional segments, the glottal plosive /ʔ/ and the alveolar flap /ɾ/. However, Ramirez (1997) disagrees. He argues that, since laryngealization is a tonal phenomenon, the glottal plosive should then be excluded from the consonant inventory (cf. Section 3.3 for further discussion). Additionally, he excludes the alveolar flap from the consonant phonemic table, since it is better analyzed as an allophone of the alveolar plosive (cf. Section 3.4 for further discussion).

Based on Ramirez's (1997) analysis, I will assume, hereafter, that Tukano has 16 phonemes, comprising ten consonants and six vowels.

3.2 SYLLABIC PATTERN

Ramirez (1997) proposes that the syllabic pattern of Tukano is (C)V(V). This notation basically means that: (i) Tukano allows onset-less syllables; (ii) only one consonant is allowed per onset; (iii) codas are optional; (iv) only vowels can occupy the coda position. Consequently, such a pattern implies that there are no consonant clusters in Tukano and all monomorphemic vowel clusters are to be interpreted as monosyllabic.[31] The data in (8) below illustrates the possibilities:

(8)	a. V.CV	*ogé*	[ɔ̀.gɛ́]	'speak without clarity'
	b. CVV	*tií*	[tìí]	'this'
	c. VV	*ɨá*	[ɨ́á]	'want'

It should be clear from the data shown so far that there are obvious exceptions to Ramirez' (1997) proposal.

It is worthwhile to compare his proposal with the Welch and West (1967) analysis. According to these authors, Tukano has three possible syllable patterns: CV, V and CVʔ. Their proposal, then, agrees with Ramirez (1997) regarding the structure of the onsets, but differs on the way codas are structured. Vowel length, for instance, is treated as a consequence of the syllable position (word initial versus medial and final), and the interplay between stress and tone. In Ramirez (1997), however, long vowels are analyzed as two consecutive vowels in the same syllable, one occupying the nucleus and the other in the

[31] There seems to be no restrictions on vowel clusters that occur across morphemic boundaries, but Ramirez (1997) offers no comments on this.

coda.[32] Moreover, Welch and West (1967) treat all vowel clusters as hiatus (i.e. polysyllabic), in contrast with Ramirez (1997). To illustrate the contrasting views on both vowel length and vocalic clusters, compare Welch and West's analysis in (9) to Ramirez' analysis in (10):

(9)	a. /dí/	[ⁿdíːʰ]	CVː	‘meat’
	b. /dìápōà/	[ⁿdì.á.pō.àʰ]	CV.V.CV.V	‘head’

(10)	a. /diî/	[ⁿdíí]	CVV	‘meat’
	b. /diâpoa/	[ⁿdíá.pɔ̀à]	CVV.CVV	‘head’

The major distinction between the two accounts is that Welch and West (1967) propose that the only coda allowed in Tukano is the one filled by the glottal plosive /ʔ/, whereas Ramirez proposes that coda position can only be occupied by vowels. Compare the examples of (11), derived according to Welch and West (1967) and (12), according to Ramirez (1997):

(11)	a. /yàʔpí/	[jàʔ.pí]	CVʔ.CV	‘slick’
	b. /pu̱dɨ́ʔbɔ̀/	[pu̱.nɨ́ʔ.mɔ̀]	CV.CVʔ.CV	‘hammock rope’

(12)	a. *ya’pî*	[jàa̱.pí]	CVV̱.CV	‘slick’
	b. *pũû nɨ’mo*	[pṹ nɨ̰̃.mɔ̰̀]	CV CVV̱.VV	‘hammock rope’

[32] Ramirez (1997) proposal regarding what he terms the “bimoraic structure” of Tukano words and roots will be discussed in Section 3.3 below.

The coda position is, cross-linguistically, very restricted (cf. BIONDO, 1993; BURQUEST, 2006; PRINCE and SMOLENSKY, 1993), and even Ramirez (1997) includes a restriction on the coda in Tukano, namely, that only vowels can occur there. However, as the reader might notice, Welch and West's proposal raises a problem: the consonant they allow in the coda (ʔ) *never* occurs in contexts that cannot be interpreted as a laryngealyzed vowel.[33] In this instance, Ramirez' (1997) treatment of the glottal plosive as a consequence of laryngealization, rather than a distinct phoneme, has a clear advantage. This issue will be explored in more detail in the next section.

3.3 TONE

In Tukano, tone is contrastive. There are, at least, two distinct register tones, high [H] and low [L], and one contour tone, ascending [LH]. Phonetically speaking, of course, one might find a greater variation, but the phonological threefold distinction can be easily seen in examples like those in (13-16) below:[34]

(13) a. *ũyû* [ṹj̃ṹ] 'avocado'
b. *ũyú* [ṳ̃j̃ṳ̌] 'jeju'

[33] This affirmation is based on the functional approach to phonological analysis (e.g. BURQUEST, 2006) that treat the sequence (C)Vʔ as ambiguous in the sense that it could be interpreted as a laryngealized vowel (V̰). In fact, functionalists tend to treat the simple onset syllable (CV) as the only unambiguous context, given its universality. The usage of such terminology in this thesis is not to be taken as deliberate defense of functionalism. Rather, since Welch and West (1967) is a distinctively functionalist account, this analysis results from an application of their own standards.

[34] The phonetic transcription was based on Ramirez (1997).

(14) a. *werê* [ʊɛ́ɾɛ́] ‘to warn’
b. *weré* [ʊɛ̀ɾɛ̌] ‘to clean’

(15) a. *omâ* [ɔ̃mɐ̃́] ‘frog (sp.)’
b. *omá* [ɔ̃̀mɐ̃̌] ‘to run’

(16) a. baâ [ᵐbɐ́ɐ́] ‘to soar’
b. baá [ᵐbɐ̀ɐ̌] ‘to swim’
c. baa [ᵐbɐ̀ɐ̀] ‘DBT’

As is shown in the data above, Tukano has a relatively simple tonal contrast system (compared with, for instance, Tikuna that might have as many as ten different tones; cf. BERTET, 2018). However, the complexity of the Tukano system comes from its interaction with stress and with glottalic features.

3.3.1 TONE AND STRESS

Looking closely at the data presented in (13) to (16) above, the attentive reader might think that the examples given are incomplete. First, all of the data are comprised of bivocalic words.[35] Second, not all of the logical possibilities are covered. Assuming that each vowel represents a tone bearing unit (TBU), as it seems to be implied by the phonetic notation, then we only have three patterns represented: [H,H], [L,LH] and [L,L]; whereas

[35] More precisely, bivocalic roots, as the verbal roots are bounded. The choice of presenting them without any of the necessary extra morphology is purely didactic (i.e. to present the complexity of the issue step by step).

logically, assuming each TBU could receive any of the tones, the list should be at least three times as long.[36] As a matter of fact, why is there no descending tone [HL]?[37] As it happens, even though there are more possibilities, at least phonetically, the examples in (13-16) are not actually insufficient, rather it is the association of tone and TBU that is considerably restricted in Tukano.

To adequately explain the tonology of Tukano, the TBU needs to be more precisely described. The tone bearing unit of the Tukano is the mora (μ) (RAMIREZ, 1997), which is a syllable weight unit. Basically, a syllable without a coda and with a simple nucleus (i.e. consisting of one short vowel) is considered monomoraic (light), whereas a syllable with a coda, or with any sort of complex nucleus (e.g. long vowel, diphthong, etc.), is considered bimoraic (heavy) (CRYSTAL, 2008). In Tukano, there seems to be no monomoraic roots (RAMIREZ, 1997). In fact, all of the monosyllabic roots show a lengthening on their vowels (RAMIREZ, 1997; WELCH and WEST, 1967). This leads to the conclusion that all roots in Tukano are bimoraic, and this theoretical proposal is explicitly defended by Ramirez (1997).

Nevertheless, as it was previously mentioned, a bimoraic root structure could still produce many more possibilities of association than those exemplified in (13-16). However, those examples are, in fact, considerably representative. Ramirez (1997) refers to those three patterns as *tonal melodies*. They are shown in more detail in (17) below.

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[36] This number is achieved using the simple permutation rule n^r, where n=number of different types (in this case, the number of different tones) and r=sample (i.e. how many where chosen, in this case number of TBUs). The full list of possibilities would be: [H,H],[H,L],[H,LH],[L,H],[L,L],[L,LH],[LH,H],[LH,L] and [LH,LH].

[37] The addition of the descending tone [HL] to the formula of footnote 36 would result in 16 distinct possibilities.

(17) Tonal melodies of Tukano, according to Ramirez (1997):

a. High melody – [H,H]

b. Ascending melody – [L,LH]

c. Low melody – [L,L]

Contrasts between words with high and ascending melody are very common. Low melody is a special case, however, as it is not very prevalent in the Tukano tonology and seems to be restricted to (phonologically and/or morphologically) dependent morphemes (RAMIREZ, 1997). Ramirez calls it an *atonic melody,* which points to one of the possible ways to adequately explain such a restricted distribution of tones; namely, this leads one to assume that Tukano is actually a pitch-accent language.

The theoretical assumption that Tukano is a pitch-accent language basically means that tonal contrast would be a reflection of stress marking. A stressed element is the one that is most prominent. Prominence in this case is a "relative property, based on the correlation of different phonetic elements, such as duration, intensity and tone"[38] (CHACÓN, 2009, p.4). Therefore, in Tukano, the high tone (H) would be assigned to the stressed mora, and the three melodies would be the natural outcome, given the bimoraic structure of lexical morphemes in Tukano. In other words, there are two tonic melodies because there are two possibilities of stress marking, the high melody being the consequence of having the first mora as tonic, and the ascending melody being the result of tonicity on the second mora. Obviously, certain phonological processes would have to take

[38] The translation is mine."Original: "Proeminência é uma propriedade relativa, baseada na correlação de diferentes elementos fonéticos, como duração, intensidade e tom"

place in order to derive the observed melodies. The derivation in (18) below illustrates what has to happen to generate the pair *ũyû* 'avocado'(18a) and *ũyú* 'jeju'(18b):

(18) a. ũ.j̃ũ → ũ.j̃ũ
| | |
H H H
b. ũ.j̃ũ → ũ.j̃ũ → ũ.j̃ũ
| | |
H L H L H

The derivation in (18a) of *ũyû* is a simpler one as it requires only one process: the progressive spreading of the high tone from the first to the second mora. The derivation in (18b), however, implies that the low tone has an unmarked status, and has two steps to it. First, the unmarked low tone is assigned to all moras lacking the high tone. After that, a progressive spreading takes place, this time creating a double association and, consequently, a rising tone.

The low melody, contrastively, does not need any sort of phonological process, as it is basically the result of atonicity and the consequent lack of a high tone, as illustrated in (19) below for the example in (16c):

(19) ^{m}bàà → ^{m}bàà
| |
LL

The analysis presented here, of Tukano as a pitch-accent language, is based on Ramirez (1997), where it is presented as one of three analytical alternatives. Despite

Ramirez deciding not to commit to it (nor to any of the other two, for that matter), the fact that other languages of the family are described in similar terms grants credibility to such possibility (e.g. GOMEZ-IMBERT and KENSTOWICZ, 2000).

However, this is not the full picture, insofar as there are some exceptions to the three melody paradigms shown above. This exception can be demonstrated by words that exhibit a descending melody, such as those in (20) below:

(20)	a. *yiîru*	[jíɾù]	‘cricket’
	b. *paâtu*	[pátù]	‘coca’
	c. *ûhuri*	[úhùɾì]	‘tortoise’
	d. *peêru*	[pɛ́ɾù]	‘manioc beer’

Examples like those in (20) are relatively scarce and are usually either loanwords or polymorphemic; (20a) probably comes from Portuguese *grilo* (or Spanish *grillo*) and (20b) most likely comes from Nhengatu *ipadu* (cf. NAVARRO, 2011), (20c) is probably polymorphemic, as the existence of the word *uû* (turtle) suggests.

Another very notable exception to the paradigm comes from words in which tonal assignment interacts with glottalic features. This was hinted at in the previous sections, when dealing with inventory of consonants and syllabic structure, and will be discussed in detail in the next section.

3.3.2 INTERACTION WITH LARYNGEAL FEATURES

Tukano has two distinct laryngeal features, [spread glottis] and [constricted glottis], that are not only present in glottalic consonants, such as /ʔ/ and /h/, but also influence the voiceless plosives, /p/, /t/ and /k/ as well as the vowels, producing devoiced and laryngealized variations of all six phonological vowels. Given that differences in pitch are produced in the same area of the articulatory system as those two features, it is not surprising that they will influence each other. Consider the examples in (21) to (25) from Ramirez (1997):

(21) a. *petá* [pɛ̀ɛ̰̀tă] 'bullet ant'
b. *petâ* [pɛ̀ɛ̰̀tá] 'harbour'

(22) a. *mipí* [mĩ̀ḭ̃̀pĭ] 'coati'
b. *mipî* [mĩ̀ḭ̃̀pí] 'açaí'

(23) a. *ohó* [ɔ̀ɔ̰̀hŏ]~[ɔhɔ̰̀ŏ]~[hɔ̀ŏ] 'dive'
b. *ohô* [ɔ̀ɔ̰̀hó]~[ɔhɔ̰̀ó]~[hɔ̀ó] 'banana'

(24) a. *we'é* [ʊɛ̰̀ĕ]~[ʊɛ̰̀ʔĕ] 'genipap fruit'
b. *we'ê* [ʊɛ̰̀é]~[ʊɛ̰̀ʔĕ] 'knead'

(25) a. *tu'kú* [tùṵ̀kŭ]~[tùṵ̀ʔkŭ] 'to be angled'
b. *tu'kû* [tùṵ̀kú]~[tùṵ̀ʔkŭ] 'a certain fruit (sp.)'

The common thread among all of these examples is that the first mora is tonally low. An addition tonal melody could be proposed ([L,H]), but apart from the theoretical problems that would arise from that, one simple fact remains: there are no high counterparts to any of these examples. There is no [pɛ́ʂtá] or [ʊʂʔɛ́]. Furthermore, these cases are predictable. Whenever there is an intervocallic voiceless consonant, the first mora becomes [L], regardless of underlying tonal melody,[39] as shown in (21-23). Additionally, whenever the vowel of the first mora is laryngealized (or whenever it is succeeded by a glottal plosive /ʔ/, depending on the analysis) it also becomes [L], regardless of tonal melody, as evidenced by (24) and (25). The common outcome (i.e. lowering of the tone in the first mora) suggests a common cause, as Salinas (2014) proposes. However, the phenomenon is complex enough to justify separate consideration before proposing a unifying analysis.

3.3.2.1 Aspiration, devoicing and the status of the glottal fricative

As it was previously stated, both Ramirez (1997) and Welch and West (1967) treat the glottal fricative /h/ as a phoneme. Their corresponding treatment of the devoicing process is also very similar. Thus one can state that in certain contexts, a voiceless consonant will trigger a partial devoicing of the vowel that precedes it. At first, Welch and West (1967) actually proposed that the phonetic variant of the CV syllable pattern is the one where a "*voiceless consonant onset plus simple vowel peak with low pitch plus*

[39] Besides the last mora being [LH], there are other ways to verify that the roots in (a) are all ascending (i.e. stressed on the second mora), such as by observing its behavior when suffixed. However, given the introductory nature of this dissertation, tonal shift will not be discussed. The reader is directed to Ramirez (1997) for further inquiry on the subject.

voiceless offglide (CVh) [...] occurs preceding a stressed syllable with voiceless consonant onset" (WELCH and WEST, 1967, p.20). However, Welch and West (2000) agree with Ramirez (1997) in that the context in question is intramorphemic (without any extraneous mentioned of stress and tone) and the result is actually a partially devoiced vowel rather than a voiceless offglide (i.e. [VV̥] instead of [Vh]).

Their treatments of aspiration on plosives, however, are quite distinct. In their first proposal, Welch and West (1967) stated in essence that aspirated plosives were free variations of voiceless plosives[40]. In their most recent analysis, though, Welch and West (2000) argues that /pʰ/, /tʰ/ and /kʰ/ are actually contrastive with /p/, /t/ and /k/, and they present the following representations as empirical evidence in favor of this proposal (WELCH and WEST 2000):

(26) a. /wɨi-pʰɨ́/
fly-CLS
'airplane'

b. /wɨʔɨ-pɨ́/
house-LOC
'in the house'

c. /tʰa/
'repetition'

d. /tá/
'grass'

c./pahi-kʰɨ/
'big-CLS'

e./bɨkɨ/
'old man'

[40] "Voiceless stops have varying degrees of aspiration according to speaker or utterance. Aspiration is more pronounced preceding /u/ and /ɨ/." (WELCH and WEST, 1967, p.14)

As Salinas (2014) points out, the alleged minimal pairs in (26) are, at the very least, suspicious. Two of three examples have the aspirated counterpart occurring in a suffix (both classifier suffixes, which is even more specific)[41]. This means that aspiration could very well be a result of a morphophonological process. In fact, this is the proposal posited by Salinas (2014).

Ramirez (1997) launches a distinct explanation from that of Salinas (2014). According to Ramirez, whenever the consonant that triggers the aforementioned process of devoicing is a glottal fricative /h/, that consonant "*assumes the quality of the preceding vowel, triggering a metathesis*" (RAMIREZ, 1997, p.29).[42] Whenever this happens in a syllable with a consonant in the onset, the result is a consonant cluster (CVhV→ChVV), as the examples below illustrate:

(27) a. *pahî* [pàa̰hí]~[pha̰í] 'to be big'
b. *pehâ* [pèḛhá]~[pèhḛá]~[phèá] 'to put'

Ramirez (1997), then, deals with words like those in (26) simply by postulating the existence of an identical vowel (i.e. /wɨ̰-pʰɨ́/ is written as *wɨ̰pɨhɨ́*, repetition as *taha* and big as *pahikɨhɨ́*). Salinas (2014) confirms this analysis, registering many instances in which the same variation found in (27) can be observed in situations where the vowel that precedes /h/ is the same as the vowel that follows. According to the Tukano speakers consulted by

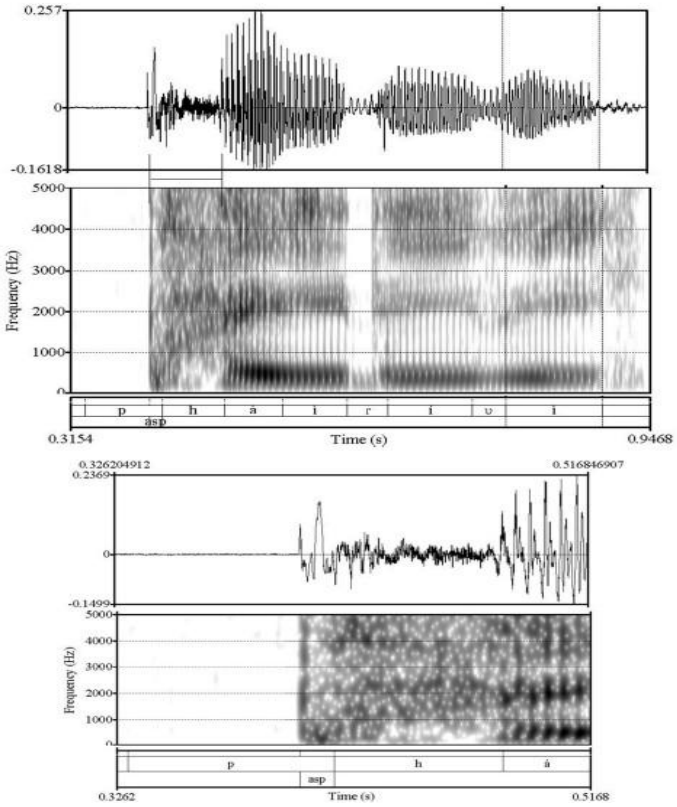
[41] The third example of contrastive aspiration is the morphological mark of iteration. In other words, none of the examples are lexical morphemes.
[42] The translation is mine. Original: "assume a qualidade da vogal precedente dando a metátese.".

Salinas (2014), the cause of such alternation was one of formality, as shown in (28) below:[43]

(28)		Quick speech	Formal speech	
	a.	[ɔ̀ʂˈsɔ-phàˈkɬ́]	[ɔ̀ʂˈʰsɔ-pàhàˈkɬ́]	‘big bat’
	b.	[pháhìɾíʋì]	[pàhìɾíʋì]	‘big house’

Furthermore, Salinas’s (2014) analysis of the quick variant of (28b) proves that [ph] is indeed a consonant cluster (rather than merely an aspirated consonant [pʰ]), as shown in the spectrogram of Figure 4 below:

Figure 4 - Salinas' (2014) analysis of the quick variant of (30b)



[43] Data and phonetic transcription by Salinas (2014)

Although Salinas (2014) confirms Ramirez' (1997) statement about metathesis, she does not agree with his analysis. In fact she proposes the existence of a laryngeal suprasegment, as follows:

> […] is realized in a subset of root morphemes with syllabic patterns (C)VhV and (C)Vh(C)V. This segment is assigned to the first mora of the root and must be represented by the bundle of features [-stf][+sg][-cet]. When it is assigned, the syllabification processes are triggered, causing the laryngeal gesture to occur either in coda or onset, depending on the form of the root. In any case, when this gesture occurs the vowel V_1 is realized in a low tone. (SALINAS, 2014, p.136)[44]

Even though this proposal has a clear advantage, aligning the analysis of /h/ with the one of /ʔ/, some descriptive issues still remain to be addressed.

Salina's (2014) divergence from the analyses of Ramirez (1997) and Welch and West (1967, 2000) is primarily based on the previous studies of the process of devoicing. According to Salinas (2014), the theories of Ramirez (1997) and Welch and West (1967, 2000) cannot be correct for the following reasons: (i) not all voiceless consonants are preceded by a devoiced vowel and (ii) the sequences V̥V are not to be considered one single stretched vowel, but rather two different vowels with identical features except voicing. Salinas justifies this first assertion with the empirical data shown in (29):

(29) a. [pìˈká-gà] 'biribá'
b. [ˈpátù-gɨ̀] 'coca branch'

[44] Free translation mine. Original: "[...]se realiza num subconjunto de morfemas de raiz com padrões silábicos do tipo (C)VhV e (C)Vh(C)V. Este segmento é assinalado à primeira mora da raiz e deve ser representado com o conjunto de traços [-stf][+sg][-cet]. Quando assinalado, são ativados processos de silabificação, fazendo com que [sic] gesto laríngeo ocorra em posição de coda ou ataque dependendo do formato da raiz. Em qualquer caso, quando o gesto ocorre a vogal V_1 é realizada em tom baixo."

However, these are the only two examples cited in Salinas (2014), and they are not enough to sustain her proposal. The first example is listed in Ramirez' (1997) dictionary as *pi'kâga*, which implies the phonetic transcription [pìì̯kágà] and readily explains the lack of devoicing by the presence of laryngealization. There are no spectrograms for (29a) in either of the works, so either author could be correct concerning this particular lexeme.[45] However, Salinas (2014) does provide a spectrogram for (29b) which successfully proves that there is no devoicing in that morpheme. That does not help Salinas' (2014) proposal, though, since (29b) is a loanword from Nhengatu (cf. NAVARRO, 2011), and this process, like some others, clearly does not apply to loanwords, as the examples in (30) below indicate:

(30) a. *mutúru* [mu̍̃túrù] 'engine' (from Portuguese *motor*)
b. *dutúru* [ⁿdùtúrù] 'doctor' (from Portuguese *doutor*)
c. *pisána* [pìsa̍̃nà] 'cat' (from Portuguese *bichano*)

Salinas' second reason is much better sustained, as she successfully proves that the second vowel of the sequence VV̥ is of basically the same duration as the first one (cf. SALINAS, 2014, p.135). The problem with this analysis is that her proposal is too dependent on the first claim, as the postulation of the glottal suprasegment is based on the affirmation that both the unvoiced vowels [V̥] and the glottal fricative [h] appear in the same context: after the first vowel of a subset of morphemes. Without data to support her

[45] Though my own recordings corroborate Ramirez (1997) dictionary, in that there is an audible creaky voice on the vowel [i], it is not impossible to imagine that some speakers might pronounce it the way Salinas (2014) transcribed. Nonetheless, the very existence of a variant in which there is a largyngealisation makes this particular word unreliable as a support for her claim.

claim that some voiceless consonants are not preceded by devoiced vowels, the proposal that both [V̥] and [h] are variants of the same suprasegment, the former occurring in codas, and the latter appearing in onsets, does not make sense.

This does not necessarily mean, however, that Salinas' (2014) proposal is totally wrong. It only indicates that there is currently insufficient reliable data to support her theory. As it stands, it is a promising hypothesis that needs confirmation.

3.3.2.2 Laryngealization and the status of the glottal plosive

As it was previously mentioned, Welch and West (1967) treat the glottal stop /ʔ/ as phonemic. To support their analysis, they provide the following examples:[46]

(31) a. /bə̃sə́/ 'people'
b. /bə̃hə́/ 'macaw'
c. /bə̃ʔə́/ 'trail'

Welch and West mention that "Laryngealization may occur on vowels preceding ʔ or separated by ʔ" (WELCH and WEST, 1967, p.22). Therefore, for them, laryngealization on the vowels is an optional consequence of the interaction with the glottal stop.

Ramirez (1997), however, takes the opposite approach and postulates that the glottal plosive is the optional consequence of the laryngealization that "may appear in a formal

[46] The examples are adapted to IPA. Welch and West (1967) presented them originally in APA. The adaptation was made both for ease of transcription and for comprehension.

style" (RAMIREZ, 1997, p.66).[47] His hypothesis is confirmed by the speakers of Tukano,[48] who will often correct the use of the glottal plosive in everyday conversation by saying things like "there is no need to be this formal."[49] For Ramirez (1997), laryngealization is considered, like nasalization, suprasegmental (cf. Section 3.4 below).

Salinas (2014), in this regard, follows Ramirez by treating the laryngealization as suprasegmental. In her proposal this has the added benefit of aligning the treatment of laryngealization with that of devoicing.

3.3.2.3 A unified treatment of suprasegmental laryngeal features

After expressing her agreement with the previous studies that defended the suprasegmental nature of laryngealization, Salinas (2014) then goes another step further and proposes that both [h/V̥] and [ʔ] are variations of the same laryngeal suprasegment "*whose function is to highlight prosodic boundaries: the bimoraic limit in the interior of the syllable and the syllabic limit in disyllabic patterns*" (SALINAS, 2014, p.165).[50] To say that they are not contrastive, though, is a step too far in the generalization, considering data like (32-34) below:[51]

[47] Translation is mine. Original: "Em estilo formal pode aparecer uma oclusão glotal depois da laringalização"

[48] At least the ones the author of the present thesis came in contact with.

[49] Implying it is not wrong to use /ʔ/ after a laryngealised vowel, but it is far too formal for everyday conversation.

[50] Free tranlation is mine. Original: "sua função é a de marcar fronteira prosódica: limite bimoraico no interior da sílaba e limite silábico em padrões bissilábicos".

[51] The following examples are transcribed following Ramirez' (1997) patttern.

(32) a. *weé* [ʋèɛ̌] ‘to do’
b. *we’é* [ʋe̯ɛ̌] ‘genipap’
c. *wehé* [ʋèe̯hɛ̌] ‘to fish’

(33) a. *waá* [ʋàă] ‘to scoop’
b. *wa’á* [ʋa̯ă] ‘to leave’
c. *wahá* [ʋàa̯hă] ‘to row’

(34) a. *oá* [ɔ̀ă] ‘possum’
b. *o’á* [ɔ̯ă] ‘to sweep’
c. *ohá* [ɔ̀ɔ̯hă] ‘to go through the jungle’

Given such examples, Silva’s (2015) proposal for Desano is an improvement over Ramirez (1997): there are two different, contrastive, laryngeal suprasegments, one of which has the feature [+constricted glottis] and the other [+ spread glottis] (SILVA, 2015, p.301).

A proposal for Tukano based on Silva (2015) is much more adequate, but it still lacks the necessary data to support it, especially concerning the [+spread glottis]. Further investigations on this issue are necessary.

3.4 PHONOLOGICAL PROCESSES

As was previously mentioned, in order to understand the composition of the Tukano phonological inventory, various phonological processes need to be explained. Devoicing and laryngaelization were covered in last section, thus explaining why neither the glottal

fricative /h/ nor the glottal stop /ʔ/ are considered phonemic consonants, as well as why the vocalic inventory does not include voiceless or laryngealized vowels. However, an adequate analysis of nasalization is still necessary to explain why neither nasal consonants nor nasalized vowels are part of the Tukano phonological inventory. Furthermore, an exposition of lenition is needed to account for the absence of the alveolar flap /ɾ/ in the consonant chart.

3.4.1 - NASALIZATION

The attentive reader has probably noticed that nasalization is a contrastive feature in Tukano. In fact, phonetically speaking, this contrast can be seen both on the vowels and on the consonants of the Tukano language. Consider the data in (35) to (38):

(35) a. *yaî* [jáí] ‘jaguar’
b. *yãî* [j̃ã́ĩ́] ‘wither’

(36) a. *watî* [vàa̰tí] ‘dandruff’
b. *wãtî* [ṽãa̰t̃ĩ́] ‘demon’

(37) a. *ba’â* [ᵐba̰á] ‘to eat’
b. *ma’â* [ma̰ã́] ‘path’

(38) a. *dɨkî* [ⁿdɨ̰kɨ́] ‘cassava stem’
b. *nɨkî* [nɨ̰̃kɨ́] ‘jungle’

As it is clear by the examples above, the words in Tukano tend to be either completely nasalized or entirely oralized. For this very reason, basically all of the proposals (cf. WELCH and WEST, 1967; RAMIREZ, 1997) treat nasalization as a suprasegment. Welch and West (1967) assume that nasalization is a suprasegment that attaches to the first vowel and spreads to the right. In Ramirez (1997) it is considered a property of the morphemes, in the sense that each morpheme is either nasal or oral[52].

Another facet regarding nasalization that lends credibility to the morpheme-bound approach is the interaction that is established between roots and suffixes. Compare the data (39) to (41) below:

(39)	a.	*mɨ'ɨ̂*	*yɨ'ɨ̂-re*	*ĩ̖'ya-ápɨ*
		[mɨ̰̃ɨ̃̀́	jɨ̰̀ɨ́-ɾɛ̀	ɪ̰̃̀jã̀-ã́pɨ̀]
		2SG	1SG-ACC	see-REC.PAST.VIS.2
		'You saw me'		
	b.	*yɨ'ɨ̂*	*mɨ'ɨ̂-re*	*ĩ̖'ya-ápɨ*
		[jɨ̰̀ɨ́	mɨ̰̃ɨ̃̀́-ɾ̃ɛ̃̀	ɪ̰̃̀jã̀-ã́pɨ̀]
		1SG	2SG-ACC	see-REC.PAST.VIS.1
		'I saw you'		
	c.	*kɨ̃ɨ̂*	*marî-re*	*ĩ̖'ya-ámi*
		[kɨ̃́ɨ̃́	mã́ɾ̃ĩ́-ɾ̃ɛ̃̀	ɪ̰̃̀jã̀-ã́mĩ̀]
		3MSG	1PL.INCL-ACC	see-REC.PAST.VIS.3MSG
		'He saw us'		
(40)	a.	*kɨ̃ɨ̂*	*kii-gá-re*	*ba'a-ámi*
		[kɨ̃́ɨ̃́	kìì-gá-ɾɛ̀	bà̰à-ã́mĩ̀]
		3MSG	manioc-CLS-ACC	eat-REC.PAST.VIS.3MSG
		'He ate the manioc'		

[52] Ramirez (1997) builds his analysis based on Kaye (1970), who proposed this very notion for Desano.

b. *yɨ'ɨ̂* *ɨ̃rê-ga-re* *ba'a-ápɨ*
[jɨ̰̀ɨ́ ɨ̃́ɾɛ̃́-ŋã̀-ɾɛ̃̀ bà̰à-ápɨ̀]
1SG peach.palm-CLS-ACC eat-REC.PAST.VIS.1
'I ate the peach palm fruit'

(41) a. *wi̖'ma-gó* *diâ-pɨ* *baa-mó*
[ʊ̃ḭ̃̀mã̀-ŋɔ̃́ díá-pɨ̀ bàã̀-mɔ̃́]
child.FSG river-LOC swim-PRES.VIS.3FSG
'The girl swims in the river'

b. *wi̖'ma-rã́* *makâ-pɨ* *apê-ma*
[ʊ̃ḭ̃̀mã̀-ɾã́ mã̀ḁ̃̀kã́-pɨ̀ àḁ̀pɛ̃́-mã̀]
child-PL village-LOC play-PRES.VIS.3PL
'The children play in the village'

Similar to what happens in roots, suffixes can also be intrinsically oral (e.g. {-pɨ} 'LOC', {-re} 'ACC') or nasal (e.g. {-rã́} 'PL', {-mo} 'PRES.VIS.3PL'). However, as nasality is a property assigned at the morpheme level, in full sentences like (39) to (41), it is possible to observe what happens when there is interaction between nasal and oral morphemes. Specifically, it is observed that spread of nasalization occurs in both progressive and regressive direction. The progressive spread is iterative, as it can be seen in (40b), even though it does not apply across word boundaries and can be blocked by the presence of a voiceless consonant at morphemic boundaries (e.g. {-pɨ} in (41)). Regressive spread is far more restricted, as it only applies to one oral syllable in the preceding morpheme, as can be seen on the last vowels of the verbs of (41). According to Ramirez (1997) the regressive spread is less frequent than the progressive one.

One last argument in favor of the interpretation of nasality as a suprasegment comes from the existence of alternations like those demonstrated in (42) below:

(42) a. *ɨ'tâ* [i̱tá] 'feces'

b. *ɨ̃'rã̂* [ĩ̱r̃ã́] 'to defecate'

Such morpheme-bound nasality is very pervasive in Tukano. An issue that remains to be discussed is pre-nasalization. Whenever a voiced plosive occurs at the beginning of a sentence, in an oral word, it becomes pre-nasalized (i.e. *ba'â* is pronounced either [^{m}bą̀á], sentence-initially, or [bą̀á], if mid-sentence). In isolation, such examples could be used to argue that the voiced plosives are, in reality, intrinsically nasal, becoming oralized in an oral context (i.e. preceding an oral vowel). The problem with this analysis is that it would entail a process of oral assimilation, in which a [-nasal] feature spreads. This would be problematic both descriptively, as this would be the only case of oral spread in Tukano[53], and theoretically, as it has been argued that the [nasal] feature is not actually binary[54] (cf. STERIADE, 1993). Pre-nasalization is, then, something that still needs to be investigated by future research.

3.4.2 - LENITION

Lenition is a general term used to represent any phonological process that "*weaken the overall strength of a sound*" (CRYSTAL, 2008, p.274). In this case, it is used to refer to the process that makes the voiced alveolar stop /d/ become an alveolar flap /ɾ/

[53] In contrast to the many instances of nasal spread that were seen in this section.
[54] I.e. only [+nasal] exists.

intervocalically. The complementary distribution is explained in general terms in (43) and the process is formalized using dyadic features (CHOMSKY and HALLE, 1968) in (44):

(43) /d/ → [ɾ]/V_V

(44) [- sonorant]
[- continuant] →[+ sonorant]/[+ syllabic]_[+syllabic]
[+ coronal]

This process explains why the alveolar flap /ɾ/ is not included in the phonological consonant chart in section 3.1. In fact, the processes described in the section, added to the discussions presented in the previous sections, should be enough to give the reader a general understanding of Tukano phonological structure.

3.5 FINAL REMARKS

In this chapter, a brief overview of Tukano phonology was given. Section 3.1 established the phoneme inventory, Section 3.2 displayed the syllabic pattern, Section 3.3 discussed the tonology of Tukano and Section 3.4 reviewed the phonological processes essential to a basic understanding of the phonology of the language.

In general, the tonal system, specially its interaction laryngeal features, seems to be the one that mostly needs to be further investigated, though many of the claims made regarding nasalization or the licensing of codas, for instance, still warrant a deeper inspection.

With the basic phonological structure of the language exposed, the next chapters can focus on the syntax of object marking in Tukano. Specifically, Chapter 4 will deal with the phenomenon of Differential Object Marking in the Tukano and try to explain the behavior of the suffix {-re} using the Dependent Case theory (BAKER, 2015).

CHAPTER 4: DIFFERENTIAL OBJECT MARKING

The purpose of this chapter is to investigate the phenomenon of differential object marking (DOM) in the Tukano language. In general, DOM is connected to the scale of definiteness in transitive sentences, particularly in transitive clauses when the theme object is marked with the case suffix {-re}. In such context, the referent of the object is interpreted as definite. However, if the referent is not definite, but indefinite, the object remains unmarked. Compare the examples below.

(1) *Ɨ'ta nuhuro* *kero-ré* *pihî-pɨ'*
beetle firefly-ACC call-REM.PAST.REP.3MSG
'The beetle called the firefly.'

(2) *Naâ* *akó* *sĩ'ri-má*
3PL water drink-PRES.VIS.3PL
'They drink water.'

(3) *Kɨ̃ɨ̃* *wa'î-re* *ba'â-mi*
3MSG fish-ACC eat-PRES.VIS.3MSG
'He eats the fish'

(4) *Naâ* *paharɨ̃́* *wa'î* *boká-parã*
3PL many fish find-REM.PAST.REP.3PL
'They found many fish'

(5) *Wi'i-ré* *weé-'*
house-ACC build-PRES.VIS.1
'(I) build the house.'

(6) *Ni'kâ* *wi'i* *da'rê-gɨ'* *wee-mí*
one house make-SS.MSG do-PRES.VIS.3MSG
'(he) is making a house'

As the reader may notice, definite nouns can be marked by the Case suffix {-re} in the examples above, regardless of it being countable or uncountable, thereby suggesting that the occurrence of this suffix is not constrained by the cardinality[55] (or lack thereof) of the noun that heads the DP. The data above also show that the presence of the Case morpheme {-re} may be viewed as one of the strategies that Tukano uses to encode the definiteness features in the noun phrases.

Another context where the Case suffix {-re} can also appear is in double object construction, hereafter DOC. In such syntactic context, only the recipient (GOAL) is marked, whereas the THEME remains unmarked, as follows:

(7) *Numiô* *sĩ'i-ré* *ɨmîtihisé* *wa're-ámo*
woman DEM.AN.MSG-ACC perfume apply-REC.PAST.VIS.3FSG
'The woman applied perfume on that one.'

(8) *Yɨ'ɨ̂* *kɨ̃ɨ̂-re* *su'tí* *o'ô-apɨ*
1SG 3SG-ACC clothes give-REC.PAST.VIS.1
'I gave him clothes.'

Based on the data presented above, the reader might get puzzled for why it is the recipient (GOAL) that is marked with the Case suffix {-re} and not the THEME. A possible solution to this problem might be achieved if one pursues a syntactic explanation in something related to what Baker (2015) calls dependent Case[56]. In order to achieve a logical answer to this question, this chapter will pursue the hypothesis that the Case suffix {-re} is

[55] This is important to acknowledge given how much definitess and cardinality intersect (cf. LYONS, 1999). However, given the scope of this chapter, this issue will not be pursued any further here.
[56] In this chapter, abstract Case will be spelled out with capital letter, while morphological case will remain with lowercase letter.

a low dependent Case marker (ACCUSATIVE) that is activated whenever the object, regardless of whether it corresponds to the THEME or the GOAL argument, is in the same Spell Out domain as the subject. This analysis entails that the morpheme {-re} corresponds to an abstract Case that is assigned to the lowest DP within the CP domain. In order to develop this analysis, we will be adopting Baker's (2015) Dependent Case theory, according to which some DPs can be assigned a structural dependent Case, depending (i) on the Spell-Out domain they are located and (ii) on the structural (i.e. c-command) relationship that they establish with other nominals that are also positioned in the same domain.

The present chapter is organized in four sections. Section 4.1 outlines the theoretical assumptions on which the analysis will be based. Section 4.2 presents the relevant data on DOM, showing how the definiteness scale is crucial to the phenomenon. Section 4.3 postulates the hypothesis that {-re} marks the low dependent case (ACCUSATIVE) in the domain of the CP phase, having as reference Baker's (2015) theoretical proposal. Section 4.4 concludes the chapter.

4.1 THEORETICAL ASSUMPTIONS

The syntactic phenomenon investigated here has been called differential object marking, hereafter DOM, by authors such as Bossong (1985) and Aissen (2003). Essentially, it is observed that languages that have explicit morphological Case markings to indicate that a certain NP is the direct object do not necessarily need to overtly mark *every single* object. In addition to encoding the syntactic position the argument may occupy, Case

marking can also be used to highlight semantic and pragmatic features, such as the definiteness and the animacy of the core arguments in the transitive sentences. Aissen (2003, p. 2), proposes that "*[t]he higher in prominence a direct object, the more likely it is to be overtly case-marked*". Within the typological literature (GIVÓN 1976; COMRIE 1989; CROFT 1988; 1990), it has been assumed that the relevant semantic features that trigger DOM are the ones that occupy a higher position in the hierarchies below.

(9) Definiteness Hierarchy:
definite > specific > indefinite > non-specific

(10) Animacy Hierarchy:
human > animate > inanimate

Languages that overtly case-mark objects in order to encode definiteness include Hebrew (MINUSSI, 2008), Hindi (BUTT and KING, 2004) and Kotiria (STENZEL, 2008). Compare the examples below:

HEBREW

(11a) *Dan* *kara* ***et*** ***ha****-sefer*
Dan read ACC DEF-book
'Dan reads the book.'

(11b) *Dan* *kara* *sefer*
Dan read book
'Dan reads a book.'

(MINUSSI, 2008)

HINDI

(12a) *nadya=ne* *gar-i* *cɑla-yi* *hɛ*
Nadya.F.SG=ERG car-F.SG.NOM drive-PERF.F.SG be.PRES.3.SG
'Nadya has driven a car.'

(BUTT; KING, 2004, p. 7-8)

(12b) *nadya=ne* *gar-i=ko* *cɑla-ya* *hɛ*
Nadya.F.SG=ERG car-F.SG=ACC drive-PERF.F.SG be.PRES.3.SG
'Nadya has driven the car.'

(BUTT; KING, 2004, p. 7-8)

KOTIRIA

(13a) *hi-piti-ro* *chʉa* *na-ta-ra*
COP-COLL-SG food get-come-VIS.IMPERF.2/3
'Everyone brings food'

(STENZEL, 2008:160)

(13b) *ti-na* *na-sã'a* *chʉa-re* *yoa-ra*
ANPH-PL get-MOV.inside food-OBJ do/make-VIS.IMPERF.2/3
'They take the food inside and eat (it)'

(STENZEL, 2008:161)

The Kotira data above is especially relevant to our analysis, given the fact that this language and Tukano belong to the same linguistic family. According to Ramirez (1997), Kotira is quite similar to Tukano, sharing with it a lexical similarity of 82%.

To explain DOM in the Tukano language, we will be assuming Baker's (2015) theory of Dependent Case, in order to explain the syntactic distribution of the Case marker {-re}. The dependent Case theory was originally proposed by Marantz (1991) as "*an alternative procedure to assign morphological case to NPs that does not depend on agreement with a functional head*" (BAKER, 2015, p.78). Such procedure does not dispense with the standard Chomskyan view (CHOMSKY, 2000; 2001), according to

which structural case is assigned to an NP by a nearby head category, when a syntactic agreement relation holds between a head F^{o} and that NP. In line with this view, the choice of either specific option must be treated as a parametric alternative procedure that some languages may use. In this sense, Baker (2015, p.79) proposes that the general rule of dependent Case assignment can be stated as follows:

(14) If XP bears c-command relationship Y to ZP in local domain WP, then assign case V to XP.[57]

Given the fact that the rule in (14) gives rise to many parametric possibilities and that the Case morpheme {-re} attaches itself only to one DP per clause, one way to constrain it is to propose that the dependent abstract Case is assigned to an object in the following way:

(15) If DP1 bears c-command relationship Y to DP2 in local domain TP, then assign case V to DP1.

Given the rules above, Baker argues that the concept of c-command relationship Y yields, at least, four logical syntactic possibilities, as follows:

(16) a. If DP1 c-commands DP2 in the same TP domain, then assign ERGATIVE case to DP1.

[57] The local domains referred by this rule are, essentially, the Spell Out domains proposed by Chomsky (2000, 2001)

b. If DP1 is c-commanded by DP2 in the same TP domain, then assign ACCUSATIVE case to DP1.

c. If there is no other DP, DP2, in the same TP domain as DP1 such that DP2 c-commands DP1, assign (marked) NOMINATIVE to DP1.

d. If there is no other DP, DP2, in the same TP as DP1 such that DP2 is c-commanded by DP1 assign (marked) ABSOLUTIVE to DP1.

According to Baker (2015), all the possibilities listed above have been attested cross-linguistically. A language that sets positively the parameter (16a) exhibits an ergative system[58]. Examples of languages of this type are, for instance, Shipibo and Greenlandic, as follows:

SHIPIBO

(17) *Jose-kan* *ochiti* *ben-ai.*
Jose-ERG dog seek-IMPF
'José is looking for a/the dog.'

(BAKER, 2015, p.20)

GREENLANDIC

(18) *Umiarsu-up* *Qaaurtuq* *aqqusaar-paa.*
ship-ERG Qaqortoq stop.by.at-IND.3SGS.3SGO
'The ship stopped at Qaqortoq.'

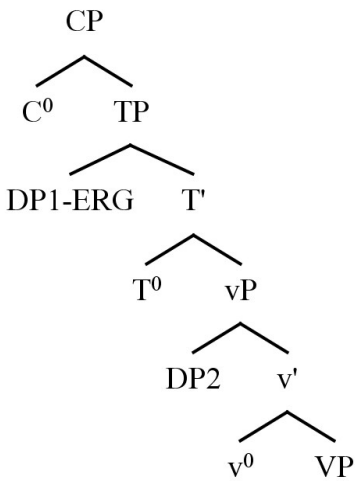
(FORTESCUE, 1984, p.210)

According to the parameter (16a), the syntactic derivation of the sentences above entails that the subject receives the ergative Case, since it is the dependent Case in these

[58] The reason for split-ergativity, which is also fairly common, will mostly have to do with other spell-out domains (cf. BAKER, 2015, p.155-162), but since Tukano is a nominative language, this chapter will not delve deeper into that.

subtypes of ergative languages. Thus, the sentences above must have the syntactic structure depicted below:

(19)



Sakha is a good example of a nominative-accusative language in which the parameter (16b) is set. In such situation, the direct object receives the accusative dependent Case, since it is sitting in the same domain as the subject. The syntactic tree in (21) shows how the Case system of the sentences below is derived.

SAKHA

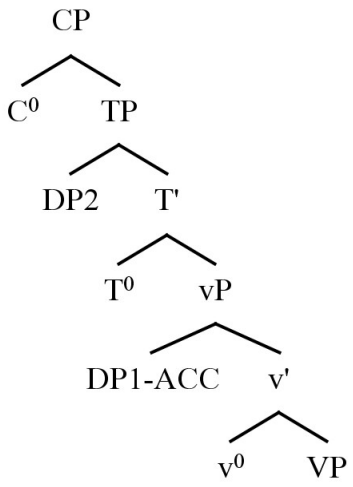
(20a) *Masha* *salamaat-y* *türgennik* *sie-te.*
Masha porridge-ACC quickly eat-PAST.3sS
'Masha ate the porridge quickly.'

(BAKER, 2015, p.5)

(20b) *Erel* *kinige-ni* *atyylas-ta.*
Erel book-ACC buy-PAST.3SGS
'Erel bought the book.'

(BAKER, 2015, p.112)

(21)



One example of a language that combines the parameters (16a) and (16b), thereby making a tripartite Case system emerge, is, for instance, Nez Perce. In such a Case system, two dependent Cases are activated: the ergative and the accusative. According to this proposal, the subject receives the ergative Case and the object gets the accusative Case owing to the fact that both of them are in the same Spell-Out domain. The syntactic derivation of the sentence (22b) is shown in (23).

NEZ PERCE

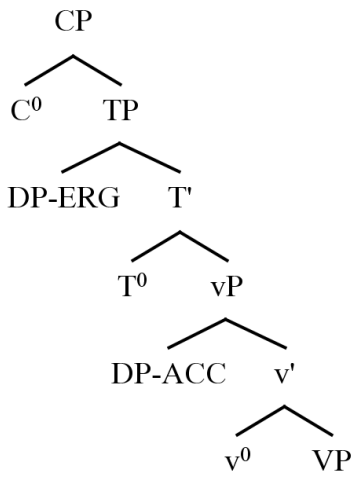
(22a) *Hi-páay-na* *háama.*
3S-arrive-ASP man
'The man arrived.'

(RUDE, 1986, p.126)

(22b) *Háama-nm* *hi-necé-'wi-ye* *wewúkiye-ne.*
man-ERG 3S-PL.O-shoot-ASP elk-ACC
'The man shot the elk(PL).'

(RUDE, 1986, p.127)

(23)



Parameter (16c) will be activated in a subset of nominative-accusative languages that selects the nominative as a marked Case. Languages of this subtype are, for example, Choctaw and Japanese. According to Baker's theory, in these languages, the subject gets nominative Case due to the fact that the object sits in the same minimal domain as the subjects. In line with this view, the transitive sentences in the examples below have the syntactic derivation outlined in (26).

CHOCTAW

(24a) *Hattak-at* *taloowa-tok.*
man-NOM sing-PAST
'The man sang.'

(BROADWELL, 2006, p.128)

(24b) *John im-ofi-it* *illi-tok.*
John P-dog-NOM die-PAST
'John's dog died.'

(BROADWELL, 2006, p.68)

(24c) *Ópah tíkchi-it* *alla* *i-paya-ttook.*
Owl wife-NOM child P-call-DPAST
'The owl's wife called the children.'

(BROADWELL, 2006, p.68)

JAPANESE

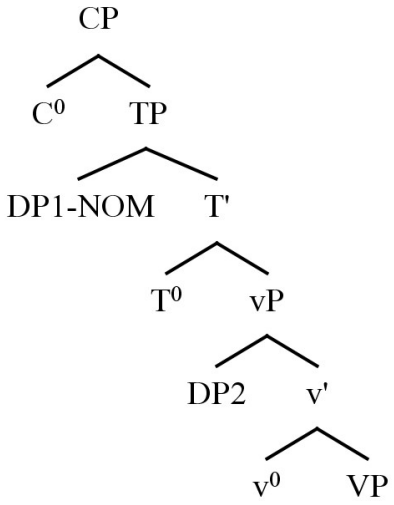
(25a) *Kabin-ga kowareta*
vase-NOM broke
'A vase broke.'

(TSUJIMURA, 2007:382)

(25b) *Watashi-wa kabin-wo kowashita*
I-NOM vase-ACC broke
'I broke the vase.'

(TSUJIMURA, 2007:382)

(26)



According to Baker's (2015) proposal, Nias exemplifies a language that sets positively the parameter proposed in (16d). In such a system, the marked Case is the absolutive. This Case is assigned to direct objects whenever they occupy the same minimal domain as the subject. The syntactic structure in (28) indicates that the higher DP in the subject position clearly c-commands the object in a local domain.

NIAS

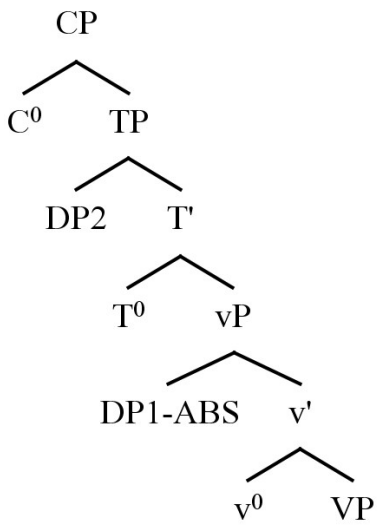
(27a) *Manavuli sui [n-ama-da Tohönavanaetu] ba Maenamölö.*
return again ABS-father-1PLP Tohönavanaetu LOC Maenamölö.
'Ama Tohonavanaetu came back again to Maenamölö.'

(BROWN; DONOHUE, 1999:61)

(27b) *I-a* *[m-bavai]* *[ama* *Gumi].*
3SGS.REAL-eat ABS-pig father.ERG Gumi
'Ama Gumi eats pigs.'

(BROWN; DONOHUE, 1999:61)

(28)



Based on these theoretical assumptions, the main objective in the next sections is to determine what subtype of dependent Case system Tukano belongs to. The working hypothesis is that Tukano sets the Case parameter in (16b) as positive, since the direct object systematically receives the marked accusative Case whenever it moves out of the VP to a specifier position of vP. These premises allow the proposal that the direct object is raised out of the VP, whenever it is definite, situation in which it is obligatorily Case marked by the accusative Case morpheme {-re}. In order to support this proposal, it will posited that VP corresponds to a spell-out domain and that v^{o} may be viewed as a strong phase head[59]. This proposal will be empirically supported by the syntactic distribution of the internal object within the transitive sentences. More precisely, it will be assumed that,

[59] According to Baker's proposal (2015, p.49), one of the sources of cross-linguistic variation is whether v^{0} is a strong or a soft phase head.

whenever the object remains inside the VP, the rules in (16) are not applied due to PIC[60]. However, if the object moves out of the VP, landing in the edge of the vP, we will then propose that the object enters into the TP domain[61]. As a consequence, whenever the subject and the object are in the same Spell Out domain, the dependent accusative Case will be assigned to the object. The next sections address this theoretical proposal in more detail. Section 4.2 starts with a presentation of the relevant empirical data that are crucial for the understanding of how the Tukano DOM system can be syntactically derived.

4.2 THE RELEVANT DATA

Before examining the grammatical properties that regulate the differential object marking in Tukano, it is important to give the reader a brief overview of how definiteness is encoded in this language. Like many other indigenous languages of South America[62], the Tukano grammar does not provide articles to convey the definiteness feature of noun phrases. Nonetheless, Tukano does have a number of different morphemes and lexical items that are used to indicate the definiteness of the noun. One of these strategies regards the syntactic distribution of the Case suffix {-re}. In line with this, one may argue that,

[60] Phase Impenetrability Condition (CHOMSKY, 2001, p.13)

[61] Notice that all the arboreal structures in Section 4.2 are presupposing that such object shift has already taken place.

[62] According to Carlier and Mulder (2011:1), one may argue that '*from a typological viewpoint, the grammatical category of the articles is rather uncommon. According to Dryer (1989), articles would be attested in only one third of the languages of the world. Only 8 per cent would have both a definite and an indefinite article. Moreover the spread of this phenomenon is geographically very unequal, with a high incidence in (western) European languages (for an overview, see Himmelmann 1997: 195–207; Bauer 2007; Dryer 2008)*."

whenever this morpheme occurs on the direct object, it signals that object DP is definite, whereas its absence indicates that the object is indefinite. Compare the examples below:

(29) *Di'pĩhí* *a'mâ-gɨ'* *weé-'*
knife look.for-SS.MSG do-PRES.VIS.1
'I'm looking for a knife (any knife)'

(30) *Di'pĩhí-re* *a'mâ-gɨ'* *weé-'*
knife-ACC look.for-SS.MSG do-PRES.VIS.1
'I'm looking for the knife (the one I lost)'

(31) *Ohakɨhɨ́* *ɨá-sa'*
pen want-PRES.SEN.1
'I want a pen'

(32) *Noá* *yaha-áti,* *yagɨ́* *ohakɨhɨ́-re?*
who steal-REC.PAST.VIS.INT POSS.1 pen-ACC
'Who stole my pen?'

It is important to point out that the numeral *ni'kâ* 'one'[63] marks indefiniteness in Tukano so that it cannot co-occur with a DP marked with {-re}. This is confirmed when we compare the contrast in the grammaticality judgment of the data below. The sentence (34) is ungrammatical owing to the fact the numeral cannot appear before a definite noun, which, in this case, is Case marked by the suffix {-re}.

(33) *Ni'kâ* *wi'i* *da'rê-gɨ'* *wee-mí*
one house make-SS.MSG do-PRES.VIS.3MSG
'(he) is making a house'

[63] Lyons (1999, p.49) argues that "this 'indirect signaling' of indefiniteness by a cardinality determiner, leading to a strong intuition that simple definites and indefinites that it contrasts with definite determiners, is widespread".

(34) **Ni'kâ* *wi'i-re* *da'rê-gɨ'* *wee-mí*
one house-ACC make-SS.MSG do-PRES.VIS.3MSG

Moreover, there are many other lexical items such as demonstratives, possessives, quantifiers and classifiers that may be used in order to make entities more or less definite. Let us take as an example the classifiers. When these morphemes are added to mass nouns, they make these nouns individualized and, as consequence, countable, as is illustrated below:

(35) *komé*
'metal'

(36) *kome-tɨ́*
'metal pan'

(37) *kome-wɨ́*
'metal boat''.

The hypothesis that classifiers can be used as a strategy to indicate definiteness of nouns is reinforced by the evidence below. Observe that the co-occurrence of the classifier and the Case suffix {-re} in the sentence (39) clearly indicates that the referent of the noun is definite. However, if one leaves out the classifier, the sentence becomes ungrammatical, as is shown in (40).

(38) *Ohô* *ba'â-ya!*
banana eat-IMP
'Eat (some) banana!'

(39) *Ohô-poro-re* *ba'â-ya!*
banana-OBLS-ACC eat-IMP
'Eat the banana!'

(40) **Ohô-re* *ba'â-ya!*
banana eat-IMP

In sum, the absence of the classifier in the sentence (40) indicates that the referent of the noun phrase *oho* 'banana' can only be interpreted as generic. This explains why the suffix {-re} cannot occur on this noun, since it is incompatible with the indefiniteness reading.

Another factor reinforcing the analysis that {-re} encodes definiteness is that personal pronouns, known to be the highest in the definiteness scale (AISSEN, 2002, p.3), are always marked with {-re} when occurring as internal arguments of a sentence in Tukano, as exemplified below:

(41) *Madú* *koô-re* *tɨ'sâ-mi*
Madú 3FSG-ACC like-PRES.VIS.3MSG
'Madú likes her'

(42) *Yukɨ kõré* *yɨ'ĩ-re* *toho* *wee-ásĩ*
woodpecker 1SG-ACC like.that do-REC.PAST.SEN.3MSG
'The woodpecker did (like) that to me'

(43) *Aâ pakɨ* *kɨ̃ĩ-re* *niî-pɨ'*
hawk 3MSG-ACC say-REM.PAST.REP.3MSG
'The hawk said to him'

In (41) to (43) above, all internal arguments are pronouns and all are marked with the suffix {-re}. Failure to do so would result in ungrammaticality.

The data above thus favor the hypothesis that, in order to compensate the lack of articles, the Tukano grammar uses the Case suffix {-re} and classifiers in order to encode definiteness. Based on this, the next subsections aim to describe that the Case suffix {-re} plays a major role at triggering a differential object marking system. Let us start the analysis focusing on the direct object construction.

4.2.1. SINGLE OBJECT CONSTRUCTION

From the descriptive viewpoint, one may argue that Tukano is a verb-final language, exhibiting a nominative-accusative alignment. Furthermore, subjects and objects systematically precede the verb, thereby producing the SOV word order commonly seen in transitive clauses. Notice that the object is obligatorily marked with the Case suffix {-re}, whenever it is definite, as the empirical data below demonstrate:

(44) *ɪ'tâ nuhuro* *kero-ré* *pihî-pɨ'*
beetle firefly-ACC call-REM.PAST.REP.3MSG
'The beetle called the firefly.'

(45) *Keró* *ɨ'tâ nuhuro-re* *niî-pɨ'*
firefly beetle-ACC speak-REM.PAST.REP.3MSG
'The firefly spoke to the beetle.'

(46) *ɪ'tâ nuhuro* *wa'i* *boâ-'karã-re*
beetle fish rot-NMLZ.AN.PL.PERF-ACC
ba'â-gɨ' *weé-pɨ'*
eat-SS.MSG do-REM.PAST.REP.3MSG
'The beetle was eating the raw fish.'[64]

[64] The difference between the occurrence of the suffix {-re} in a complex noun phrase, in which there is a nominalized verb root following the head noun, and those contexts, in which the noun phrase is a simple one,

(47) *Yukɨ kõré* *aâ pakɨ* *makɨ-re* *niî-pɨ'*
woodpecker hawk son-ACC speak-REM.PAST.REP.3MSG
'The woodpecker spoke to the hawk's son.'

(48) *Yɨ'ĩ* *María-re* *tɨ'sâ-'*
1SG Maria-ACC like-PRES.VIS.1
'I like Maria.'

Notice that the subject of the transitive sentences is treated in the same way as the subject of intransitive sentences, since both of them may trigger the nominative agreement on the verb system. In line with this, compare the agreement in the intransitive sentences below with the agreement in the transitive sentences above. In both contexts, the verb obligatorily receives an agreement suffix to refer to the argument that occupies the syntactic position of subject.

(49) *Ûhuri* *utî-pɨ'*
Tortoise cry-REM.PAST.REP.3MSG
'The tortoise cried.'

(50) *Aâ-pakɨ* *dahâ-pɨ'*
hawk return-REM.PAST.REP.3MSG
'The hawk returned.'

---

can be explained by saying that this suffix systematically comes at the end of the rightmost constituent of the DP. As such, the reader can compare the following examples in which the object is realized both by a complex noun phrase as in (i) and by a simple one as in (ii).

(i) *Ɨ'tâ nuhuro* *wa'i* *boâ-'karã-re*
beetle fish rot-NMLZ.AN.PL.PERF-ACC

ba'â-gɨ' *weé-pɨ'*
eat-SS.MSG do-REM.PAST.REP.3MSG
'The beetle was eating the raw fish.'

(ii) *Ɨ'tâ nuhuro* *wa'i-re*
beetle fish-re
ba'â-gɨ' *weé-pɨ'*
eat-SS.MSG do-REM.PAST.REP.3MSG
'The beetle was eating the fish.'

(51) *Ni'kâroakã, ĩsâ da'rá-'*
now 1PL.EXCL work-PRES.VIS.1
'Now, we work.'

(52) *Diâ-pɨ koô baa-mó*
river-LOC 3FSG swim-PRES.VIS.3FSG
'She swims in the river.'

In sum, the data presented thus far clearly points out that Tukano is a nominative-accusative language, since the transitive and intransitive subjects trigger the same set of agreement. They also remain unmarked for morphological case. The object, on other hand, picks up the accusative morpheme {-re}, whenever it is high in the definiteness scale. Moreover, objects do not trigger agreement on the verb stem, thereby confirming the hypothesis that Tukano follows a nominative-accusative alignment. Nonetheless, a differential object marking system emerges in the Tukano grammar whenever the referent of the object is interpreted as indefinite, a situation in which the object must remain unmarked. As a consequence, the object cannot receive the Case suffix {-re}, as the empirical examples below confirm.

(53) *Naâ akó sĩ'ri-má*
3PL water drink-PRES.VIS.3PL
'They drink water.'

(54) *Kɨ̃ɨ̃ wesé bube-ámi*
3MSG plantation plant-REC.PAST.VIS.3MSG
'He planted a plantation.'

(55) *Paharã́ wa'î boká-parã*
many fish find-REM.PAST.REP.3PL
'(they) found many fish.'

(56) *Pũũg-ɨ* *su'â-g-ɨ'* *weé-'*
hammock weave-SS.MSG do-PRES.VIS.1
'(I) am weaving a hammock.'

The differential object marking becomes clear when examining the set of minimal pairs below. In the examples in (b), the appearance of the accusative Case suffix {-re} is obligatory, since the object is interpreted as definite. This, thus, signals that the definiteness feature really regulates the accusative Case distribution in the transitive clauses.

(57a) *Ohô* *ba'â-ya!*
banana eat-IMP
'Eat (some) banana!'

(57b) *Ohô-poro-re* *ba'â-ya!*
banana-OBLS-ACC eat-IMP
'Eat the banana!'

(58a) *Wi'í* *weé-'*
house build-PRES.VIS.1
'(I) build house (I'm a house builder).'

(58b) *Wi'i-ré* *weé-'*
house-ACC build-PRES.VIS.1
'(I) build the house.'

(59a) *Itiárã* *yese-á* *wẽhe-áp-ɨ*
three pig-PL kill-REC.PAST.VIS.1
'(I) killed three pigs.'

(59b) *Itiárã-re* *yese-á* *wẽhe-áp-ɨ*
three-ACC pig-PL kill-REC.PAST.VIS.1
'(I) killed three of the pigs.'

Example (57a) is particularly interesting, inasmuch as the object *ohô* 'banana' comes without the classifier suffix {-poro} 'OBLS', context in which the referent of the object must be interpreted as indefinite and generic. Moreover, when the classifier morpheme is attached to the noun, the Case suffix {-re} must occur, thereby signaling that the referent of the object is interpreted as definite. Therefore, the reader might conclude that the co-occurrence of the classifier suffix {-poro} with the Case suffix {-re} leads to a more definite interpretation of the referent of the object, as the interpretation obtained in (57b) indicates. From a pragmatic viewpoint, one may argue that, whenever the object *ohô* 'banana' appears without the classifier morpheme {-poro}, its referent can only be interpreted as being bananas abstractly, that is, bananas in general. Notwithstanding, when the classifier and the Case morpheme are both present on the noun stem, the morphological complex *ohô-poro-re* might be used in contexts such as the ones when someone recommends another person to eat a specific banana. In sum, the co-occurrence both of the Case marker {-re} and of the classifier {-poro} attached in a noun stem can be used as a strong diagnostic to indicate when an object is definite or not. In the next subsection, the aim is to investigate the distribution of the accusative Case morpheme {-re} in double object construction. The purpose is to determine whether the suffix {-re} may appear in both internal arguments or only on the recipient object in the syntactic structure.

4.2.2. DOUBLE OBJECT CONSTRUCTION

In double object construction, hereafter DOC, the empirical data shows that only the recipient (GOAL) is obligatorily Case marked, whereas the THEME object systematically remains unmarked, as the data from (60) to (63) below demonstrate.[65]

(60) *Numiô* *sĩ'i-ré* *ɨmɨ̂tihisé* *wa're-ámo*
woman DEM.AN.MSG-ACC perfume apply-REC.PAST.VIS.3FSG
'The woman applied perfume on that one.'

(61) *Ba'asé-re* *moâ* *sãâ* *nemo-ya!*[66]
food-ACC salt put more-IMP
'Add more salt to the food!'

(62) *Yɨ'ɨ̂* *kɨ̃ɨ̂-re* *su'tí* *o'ô-apɨ*
1SG 3SG-ACC clothes give-REC.PAST.VIS.1
'I gave him clothes.'

(63) *Apêgo* *do'âti-go-re* *akô* *yee-apɨ*
other.AN.FSG be.ill-NOM.AN.FSG-ACC medicine give-REC.PAST.VIS.1
'I gave medicine to the other sick one.'

In order to explain the fact that the Case suffix {-re} can only mark the GOAL in the double object construction above, it will be assumed that the recipient object is also subject to the rule of dependent Case assignment. Therefore, one may argue that the reason why the dependent Case can be activated both in the double object construction and in the simple transitive constructions has to do with the fact that the indirect object (=the recipient/GOAL)

[65] All of them are in the default order for DOCs in Tukano, namely in the [S GOAL THEME V] word order. In the next section, the relevance of such word order will be explained.

[66] In this data, the GOAL object is in its canonical argumental position.

or the direct object (the THEME/affected argument) may occur in the edge of the vP. Either option will depend on the verb valency. More to the point, if the verb selects a definite object, it will pick up the dependent Case. However, if the verb selects a goal object and a theme object, it will be the goal that will be marked with the dependent Case. The purpose of the next section is to provide a formal derivation for this complementary syntactic distribution.

4.3 THEORETICAL PROPOSAL: {-RE} IS A LOW DEPENDENT CASE MARKER

Given that Tukano is a nominative-accusative language in which the nominative Case is the morphological default and the accusative is the marked one, the hypothesis assumed here is that the accusative Case, morphologically realized by the morpheme {-re}, corresponds to the low dependent Case. Pursuing the basic lines of Baker's (2015) Dependent Case theory, let us then posit that the dependent Case assigning mechanism in Tukano must obey the following constraint[67], as stated below:

(64) If DP1 is c-commanded by DP2 in the same TP domain, then assign ACCUSATIVE dependent Case to DP1.

The first piece of evidence that {-re} is really activated as the result of the application of the rule in (64) comes from the fact that it only occurs when there is more

[67] (64) was presented before in Section 4.2 as (16b), its repetition here is for ease of exposition.

than one DP in the TP domain. Such prediction is clearly born out by the fact that {-re} is never present in intransitive predicates, as follows:

(65) *Aâ-pakɨ* *dahâ-pɨ'*
hawk return-REM.PAST.REP.3MSG
'The hawk returned.'

(66) *Ni'kâroakã,* *ĩsâ* *da'rá-'*
now 1PL.EXCL work-PRES.VIS.1
'Now, we work.'

In the sentences shown above, since there is only one DP in the TP spell-out domain, the rule of dependent case assignment (64) does not apply, thereby explaining why it does not receive the accusative Case marker {-re}. The reader might, then, be wondering why the dependent accusative Case is not activated when the object is indefinite in simple transitive sentences, as is shown in the sentences repeated below

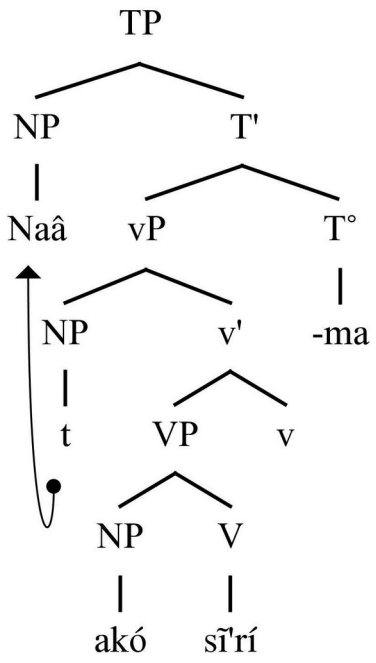
(67) *Naâ* *akó* *sĩ'ri-má*
3PL water drink-PRES.VIS.3PL
'They drink water.'

(68) *Kɨ̃ɨ̃* *wesé* *bube-ámi*
3MSG plantation plant-REC.PAST.VIS.3MSG
'He planted a plantation.'

In both sentences above, despite the fact that each sentence has two overt DPs, none of them is marked with {-re}. The logical reason for this pattern has to do with the fact that

the lower DP of each sentence, *akó* 'water' in (67) and *wesé* 'plantation' in (68), is not in the same Spell-out domain as the higher DP. Let us posit that this higher DP occupies the subject position, which corresponds to Spec-TP. This analysis, then, predicts that, whenever the THEME object is indefinite, there is no object shift to the edge of vP, a fact that allows us to claim that the unmarked direct object remains inside the VP, as is depicted by the syntactic derivation shown in tree diagram below:

(69):



Notice that the proposal above conforms to Diesing's (1992, p.56) theory, according to which the VP is the domain of the existential closure, where indefinite and generic DPs are licensed cross-linguistically[68]. This fact explains why the object *akó* 'water' is not

[68] Diesing (1992, p.56) assumes that 'the domain of existential closure should be defined in sentential terms as the VP of the sentence. In other words, only nuclear scopes (which correspond to VPs, by the Mapping

marked with {-re} in the transitive sentence above. More to the point, the syntactic tree above aims to capture the fact that indefinite objects do not move out of the VP, thereby receiving abstract Case *in situ*.[69]

On the other hand, a different pattern emerges, whenever the direct object receives a definite reading. In such contexts, the object obligatorily receives the dependent Case marker {-re} and is moved to Spec-vP. This syntactic-semantic differential marking serves as an empirical evidence for one to propose that the definite object systematically moves out of the VP to the edge of the vP phase in order for the accusative dependent Case to be assigned, as is shown in the sentences below:

(70) *Ɨ'tâ nuhuro kero-ré pihî-pɨ'*
beetle firefly-ACC call-REM.PAST.REP.3MSG
'The beetle called the firefly.'

(71) *Keró ɨ'tâ nuhuro-re niî-pɨ'*
firefly beetle-ACC speak-REM.PAST.REP.3MSG
'The firefly spoke to the beetle.'

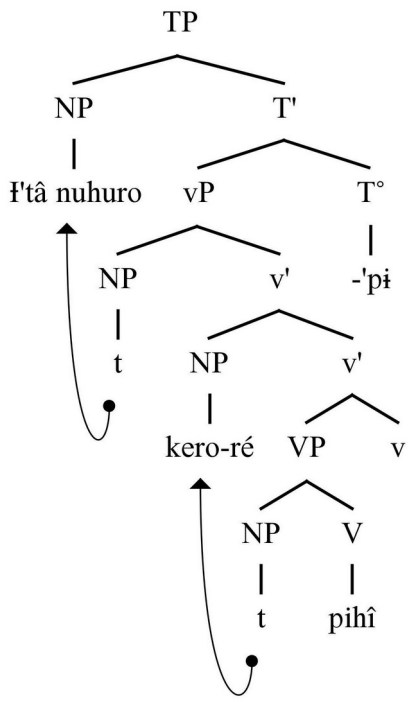
Based on the analysis outlined thus far, one may hypothesize that the definite object receives the accusative Case as a result of the application of the restriction in (64). In other words, since the definite object is sitting in the same minimal domain as the subject in the sentence above, the accusative Case assignment mechanism must be applied. As the object

Hypothesis) are subject to existential closure.'

[69] For limitations of time and space, the issue regarding whether the OV order is derived from a head-initial VP or not will not be dealt with here. For the present purpose, it will suffice to assume that, when the object is indefinite, it remains to the left of the verb, thereby emerging the OV word order, whereas, when it is definite, it moves out of the VP to escape the existential closure. In such context, the object must be marked with the accusative Case suffix {-re} and is raised to the inner specifier position of vP.

is moved to Spec-*v*P, it is then marked with the ACCUSATIVE Case {-re}, as is illustrated by the derivation below.

(72):



A strong piece of evidence in favor of the derivation in (72) comes from the fact that the objects marked with the Case suffix {-re} must be positioned before adverbials and locative PPs, whereas unmarked objects cannot occur in such a position. This then signals that only definite objects can be moved around the locative phrases to the edge of the vP phase, whereas indefinite objects cannot be moved around them, as the ungrammaticality of sentence (73b) indicates. Compare the examples below:

(73a) *Pedurú wa'î-re [naâ basa-ró-pɨ] ba'â-mi*
Pedro fish-ACC [3PL dance-NOM.IN.LOC-LOC] eat.PRES.VIS.3MSG
'Pedro eats the fish where they dance'

(73b) **Pedurú wa'î naâ basa-ró-pɨ ba'â-mi*
Pedro fish 3PL dance-NOM.IN.LOC-LOC eat.PRES.VIS.3MSG

(73c) *Pedurú [naâ basa-ró-pɨ] wa'î ba'â-mi.*
Pedro [3PL dance-NOM.IN.LOC-LOC] fish eat.PRES.VIS.3MSG
'Pedro eats fish where they dance'

Notice that, in the sentence (73c), since the THEME object is indefinite, it remains unmarked and does not move around the locative phrase.

A final piece of example in favor of the proposal above comes from the double object constructions. In these sentences, the recipient argument must systematically appear with the Case marker {-re}, as follows.

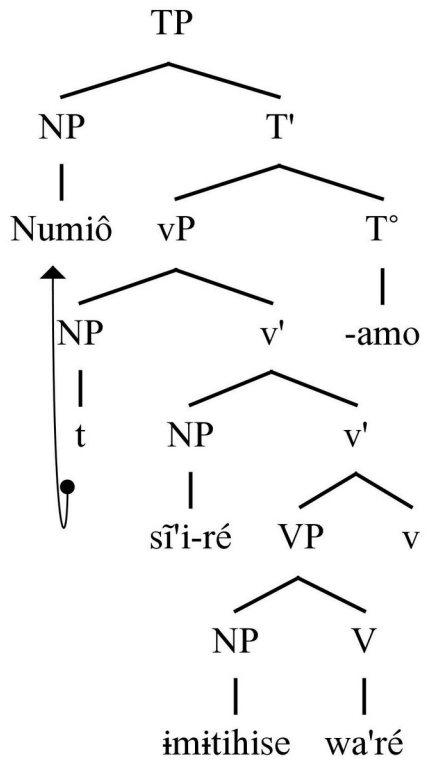
(74) *Numiô sĩ'i-ré ɨmîtihisé wa're-ámo*
woman DEM.AN.MSG-ACC perfume apply-REC.PAST.VIS.3FSG
'The woman applied perfume on that one.'

(75) *Yɨ'î kɨ̃î-re su'tí o'ô-apɨ*
1SG 3SG-ACC clothes give-REC.PAST.VIS.1
'I gave him clothes.'

Based on the data above, one may postulate that the THEME argument never occurs with the Case marker suffix {-re} in the double object constructions. An explanation for this syntactic pattern can be achieved if one admits that, since it is the recipient (GOAL) that is in the domain of the subject, but not the theme object, the indirect object, then, outranks

the direct object and, therefore, must pick up the marked accusative Case. The tree diagram below depicts how the Tukano DOCs[70] are derived:

(76)



[70] Larson's (1988) hypothesis is assumed here, according to which the indirect object asymmetrically c-commands the direct object, thereby occurring in a higher position than the direct object in the syntactic tree. This structure is proposed based on certain asymmetries between the two objects. For instance, it is observed that a quantified object usually binds a pronoun within the direct object, but not vice versa. This is what one can deduce from the contrast below, in which the quantifier '*every'* obligatorily c-commands the pronominal anaphora '*his'* in order to bind it:

(i) John gave every worker$_i$ his$_i$ paycheck.
(ii) *John gave its$_i$ owner every paycheck$_i$.

It still remains to be examined whether in Tukano the double object constructions exhibits the same distribution pattern regarding the asymmetric relation between the two objects. In sum, this is a topic for a future research.

4.4 FINAL REMARKS

This chapter shows that, even though Tukano has an overt object Case marking system, not all objects are marked with the Case suffix {-re}. According to this proposal, only definite objects are marked with {-re}, while indefinite objects remain unmarked in simple transitive constructions, thereby emerging a differential object marking. We derive this system by assuming that the definite objects move out of the VP, whereas indefinite ones remain within the VP. Therefore, after moving to Spec-vP, the object sits in the same domain as the subject, thereby receiving the dependent accusative Case.

As to the double object constructions, it is proposed that only the Goal-DP is marked with {-re}, regardless of whether the theme object is definite or not. In order to derive this pattern, we assume that the recipient occupies a higher position, being able to appear above preposition phrases. According to this view, as the recipient sits in the edge of vP and is in the same domain as the subject, it must receive the lower dependent case in the TP domain. Note that, as the recipient object is in a high position, it blocks the assignment of accusative dependent Case to the theme object. As a consequence, the theme object never gets the dependent accusative Case in DOCs, regardless of whether it is definite or not. According to this view, the recipient will always be in a higher position than the theme object in the structure.

The Dependent Case theory (BAKER, 2015), then, successfully explains the behavior of {-re} in single object constructions and DOCs. However, there is another occurrence of the suffix {-re} that is not so readily explained by it, namely when it marks

topicalized XPs. Next chapter will provide examples of such constructions, as well as an alternate analysis to the behavior of {-re} derived from Chomsky's (2001) proposal regarding Object Shift.

CHAPTER 5: OBJECT SHIFT AND TOPICALIZATION

Last chapter dealt with the issue of Object Marking in Tukano, under the Depedent Case Theory (BAKER, 2015). This chapter aims to investigate the properties of object shift in Tukano following a phase based analysis. The main purpose is to explain why the suffix {-re} can mark both internal arguments that occur in the edge of vP and topicalized XPs that are positioned in the edge of CP. Compare the examples below:

(1) *Kɨ̃ɨ̃* *wa'ĩ-re* *ba'â-mi*
3MSG fish-ACC eat-PRES.VIS.3MSG
'He eats the fish'

(2) *Numiô* *sĩ'i-ré* *ɨmîtihisé* *wa're-ámo*
woman DEM.AN.MSG-ACC perfume apply-REC.PAST.VIS.3FSG
'The woman applied perfume on that one.'

(3) *Too-pɨ́-re* *peêru* *sĩ'ri-wɨ́*
ANA.LOC-LOC-TOP manioc.beer drink-REM.PAST.VIS.1
'There, I drank manioc beer.'

(4) *Ni'kaá-re,* *bu'ê-rã!*
today-TOP study-IMP.PL
'Today, let's study!'

(5) *Yahá-'ke-re* *mɨ'ĩ* *yẽ'e nohó* *masî-sari?*
steal-NOM.IN.PL.PERF-TOP 2SG what know-PRES.SEN.INT
'About the theft, what do you know?'

As the reader might observe, the constituents in (3) to (5) marked with {-re} are adjuncts, sitting in a higher position in the CP domain. Therefore, the occurrence of {-re} in these contexts cannot be explained by using only the Dependent Case theory (BAKER, 2015). Based on the distribution of {-re} in the examples (1) to (5), the analysis presented in this chapter has the objective to demonstrate that its distribution in the two contexts above can be accounted for by assuming that the suffix {-re} has essentially the grammatical role of marking definite non-focused elements that are merged in the edge of a phase: be it the CP or the v*P[71].

This chapter is divided in three sections: Section 5.1 delineates the theoretical background assumed in the course of the analysis, derived from the treatment of Object Shift in Holmberg (1999) and Chomsky (2001). Section 5.2 is dedicated to the Tukano data relevant to the issue at hand. Section 5.3 details the theoretical proposal and its repercussions. Finally, Section 5.4 concludes the chapter with final remarks.

5.1 THEORETICAL ASSUMPTIONS

The analysis developed in this chapter is based on the theories of Object Shift such as the ones developed by Holmberg (1999) and Chomsky (2001). In the next sections, the aim is to address these proposals in detail. Let us start with Holmberg's (1999) proposal regarding object shift in Scandinavian Languages.

[71] Following Chomsky (2001), v*P is used here for a vP with an external argument.

5.1.1 HOLMBERG'S (1999) PROPOSAL REGARDING OBJECT SHIFT

Holmberg (1999) deals with the phenomenon of Object Shift in Scandinavian languages. Specifically, the author is concerned with the restrictions on object shift. The Swedish data in (6) below demonstrates that the object cannot be moved out of the VP unless the verb is moved out of it first. The data in (7) illustrate that other categories, such as PPs and other DPs, also block Object Shift.

(6) a. *Jag kysste* ***henne*** *inte* [$_{VP}$ t_v $\mathbf{t}_o$]
I kissed her not

a'. (*)*Jag kysste inte henne*.
I kissed not her

b. **Jag har* ***henne*** *inte* [$_{VP}$ *kysst* $\mathbf{t}_o$].
I have her not kissed

b'. *Jag har inte kysst henne.*
I have not kissed her

c. **...att jag* ***henne*** *inte* [$_{VP}$ *kysste* $\mathbf{t}_o$].
that I her not kissed

c'. *...att jag inte kysste henne*.
that I not kissed her

(HOLMBERG, 1999, p.1)

(7) a. **Jag talade* ***henne*** *inte med* $\mathbf{t}_o$.
I spoke her not with

a'. *Jag talade inte med henne*
I talked not with her

b. **Jag gav* ***den*** *inte Elsa* $\mathbf{t}_o$.
I gave it not Elsa

b'. *Jag gav inte Elsa den*
I gave not Elsa it

c. **Dom kastade* ***mej*** *inte ut* $\mathbf{t}_o$**.**
they threw me not out

c'. *Dom kastade inte ut mej*.
they threw not out me

(HOLMBERG, 1999,p.2)

In (6) and (7) above, the right column shows the sentences with the object *in situ*, whereas the left column demonstrates the shifted object. As Holmberg notes, his examples indicate that the objects can only be shifted if it does not move across any phonologically

realized XP c-commanding them, with the exceptions of adjuncts. Holmberg proposes that OS is only possible if the verb moves to T or C, otherwise it remains *in situ*. He summarizes these ideas by formulating the generalization below:

(8) Object Shift cannot apply across a phonologically visible category asymmetrically c-commanding the object position except adjuncts (HOLMBERG, 1999, p.15)

Previous analysis on the phenomenon assumed that Case was the feature triggering Object Shift in Scandinavian languages like Swedish, Norwegian and Icelandic. According to Holmberg (1999), this proposal should be modified due to the fact that not all DPs are shifted, suggesting that OS is not exactly related to assignment of structural Case of the object. Holmberg then proposes the following:

> "Object Shift affects only a subcategory of nominal categories, namely definite, light, nonfocused nominals [...] So the triggering feature seems to be a feature distinguishing between nonspecific, heavy, focused, and (for pronouns) strong nominals on the one hand, and specific, light, nonfocused, and (for pronouns) weak nominals on the other hand." (HOLMBERG, 1999, p. 22)

According to this proposal, object shift is motivated not by Case but by an interpretation feature subject to whether the object is definite or not. He refers to this semantic distinction as [±FOC] features. Thus, when the direct object is definite, it must move, whereas indefinite object must remain *in situ*, as the examples above indicate. This conforms to the theoretical proposal, made before by other authors (cf. DIESING, 1992; DIESING and JELINEK, 1993; REINHART, 1995), according to which nonfocused

arguments are systematically moved out of VP. Under this view, VP is the focus domain where new information is introduced. As such, definite non-focused objects cannot remain inside the VP and have to move to the edge of the vP. In this line, Holmberg (1999, p.23) argues that "*arguments which are not moved out are interpreted as focused, while arguments which are moved out are interpreted as presupposed.*"

5.1.2 OBJECT SHIFT UNDER CHOMSKY'S (2001) PROPOSAL

Chomsky (2001) proposes that the syntactic derivation occurs in phases. There are two phase levels: the CP and the vP. He argues that each phase is sent to the phonological component when all the syntactic operations are completed within the domain of a phase, for example, the deletion of uninterpretable features such as the Case of the subject and object and φ-features of the probes T and v. As to the object shift, he argues that Holmberg's proposal is incorrect because Holmberg (1999) had postulated that this was a PF-operation. For Chomsky, the problem with relegating Object Shift to the phonological component is that OS is not semantically neutral and, in his own words, "*surface semantic effects are restricted to narrow syntax*" (CHOMSKY, 2001, p.15) Based on these assumptions, Chomsky proposes that Holmberg's generalization can be reduced to the following formulations:

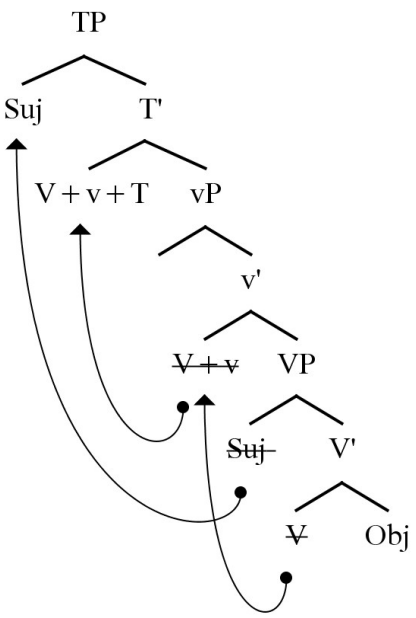
(9) The EPP position of v*P is assigned Int (CHOMSKY, 2001, p.33)

(10) At the phonological border of v*P, XP is assigned Int' (CHOMSKY, 2001, p.34)

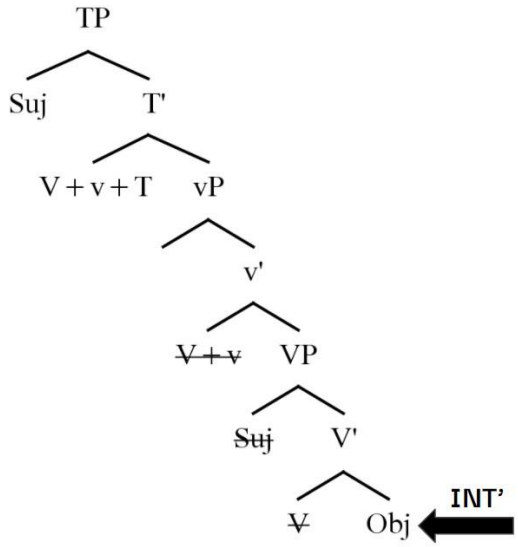
According to Chomsky (2001), (9) is a universal principle, whereas (10) is parametric. The interpretation referred as *Int* in Chomsky (2001) is essentially what Holmberg (1999) refers to as [-Foc] (specific, definite, topic, old information, etc.), whereas *Int'* refers to [+Foc] (non-specific, indefinite, focus, new information, etc.). In other words, the formulation in (9) posits that, universally, all DPs in the outer specifier position of a transitive vP (Spec-v*P) receive a definite reading. The parameter in (10) entails that, in languages such as Norwegian and Icelandic, objects at the phonological border of vP are assigned indefinite (=*Int'*) interpretation. The assignment of an indefinite, non-specific, *Int'* interpretation under the parameter (10) is dependent upon a series of factors. First, a given phrase needs to be "in the phonological border of v*P" to be assigned *Int'*. The phonological border of a phrase is defined by Chomsky (2001, p.34) as a "position not c-commanded by phonological material within" that phrase.[72] So if, for instance, the head of the phrase and its specifiers have been raised to the TP domain, the complement will be left "alone" in the phonological border of the phrase. The derivation below aims to illustrate this proposal:

[72] "Phonological border" is not to be confused with the *edge* of a given phase, which is constituted by the head of the phase plus all its specifiers (and adjuncts, in case it has any).

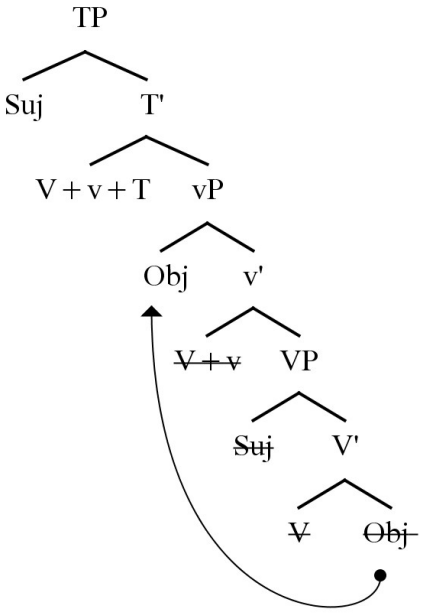
(11) a.



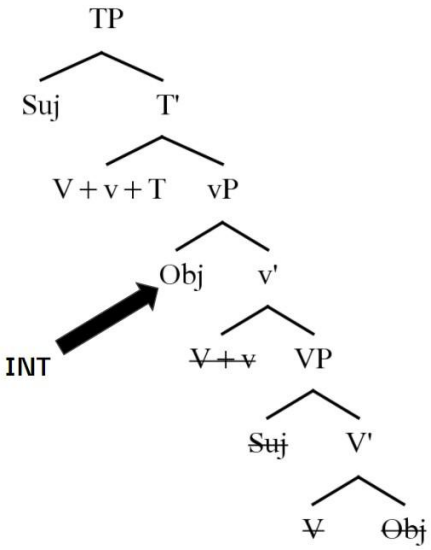
b.



c.



d.



(11a) illustrates the raising movements that leave the Object in the phonological border where, as is demonstrated in (11b), it is assigned *Int'* according to the parameter (10). Whereas (11c) and (11d) show that, if the object is raised, it receives *Int* as is stipulated by principle (9). Therefore, for an object to receive an indefinite and/or non-

specific reading under the parameter (10) it has to remain *in situ.* However, even *in situ*, the object will only be at the phonological border of v*P if everything else inside the v*P has been raised.

Additionally, given the parametric nature of (10), not all languages will assign *Int'* to an object at the phonological border of v*P. English and Portuguese, for example, can have both definite and indefinite objects at the phonological border o v*P, as illustrated by data in (12) and (13) below:

(12) *Eu alimentei o cachorro.*
I fed the dog.

(13) *Eu alimentei um cachorro.*
I fed a dog.

In both languages, the verb 'feed' (*alimentar*) is raised to T, as evidenced by the presence of tense morphology in the base verb, and the external argument is raised to Spec-TP (as per the EPP rule). However, the definite article 'the' (*o*) indicates that in neither Portuguese nor English is the object DP assigned *Int'*.

For the languages that observe the parameter (10), however, if any object "*is at the phonological border of the v*P and resists interpretation Int' (say, a definite pronoun), it must undergo OS to avoid a deviant outcome, raising to the EPP position so that the chain will be assigned Int.*" (CHOMSKY, 2001, p.34).

In sum, Chomsky's (2001) proposal reduces Holmberg's Generalization in (8) to the formulations in (9) and (10). In this sense, languages in which objects cannot occur at

the phonological border of the v*P do not force object shift. However, in languages that do allow the object to remain in the phonological border, OS might be triggered if the parameter in (10) is applied. In such cases, an EPP feature is inserted in v^0 so that the object shift must occur. The purpose in the next section is to present the relevant data that will serve to develop the theoretical proposal. Our proposal is that object shift in Tukano is similar to the one that occurs in Scandinavian languages in the sense that it is raised to the edge of the vP (i) because the head v^0 has an EPP feature and (ii) so that (whenever necessary) the object is not assigned *Int'* interpretation by remaining at the phonological border of the vP.

5.2 RELEVANT DATA

The data in (14a) and (15a) below show that the suffix {-re} does not obligatorily mark all objects. Notice that when {-re} is present, the referent of the object must be definite. This is confirmed by the fact that the unmarked objects in (14a) and (15a) have an indefinite, non-specific reading ([+Foc], *Int'*), whereas the {-re} marked objects in (14b) and (15b) have a definite, specific reading ([-Foc], *Int*).

(14) a. *Naâ* *paharã́* *wa'î* *boká-parã*
3PL many fish find-REM.PAST.REP.3PL
'They found many fish'

b. *Kɨ̃ɨ̃* *wa'î-re* *ba'â-mi*
3MSG fish-ACC eat-PRES.VIS.3MSG
'He eats the fish'

(15) a. *Di'põhí* *a'mâ-gɨ'* *weé-'*
knife look.for-SS.MSG AUX-PRES.VIS.1
'I am looking for a knife (any knife)'

b. *Di'põhí-re* *a'mâ-gɨ'* *weé-'*
knife-ACC look.for-SS.MSG AUX-PRES.VIS.1
'I am looking for the knife (the one I lost)'

In some cases, however, the {-re} marking is obligatory. Namely, when the object is a personal pronoun, as exemplified by the data in (16) and (17) below:

(16) a. *Yukɨ kõré* *yɨ'î-re* *toho* *wee-ásĩ*
woodpecker 1SG-ACC like.that do-REC.PAST.SEN.3MSG
'The woodpecker did (like) that to me'

b. **Yukɨ kõré* *yɨ'î* *toho* *wee-ásĩ*
woodpecker 1SG like.that do-REC.PAST.SEN.3MSG

(17) a. *Aâ pakɨ* *kĩ̂-re* *niî-pɨ'*
hawk 3MSG-ACC say-REM.PAST.REP.3MSG
'The hawk said to him'

b. **Aâ pakɨ* *kĩ̂* *niî-pɨ'*
hawk 3MSG say-REM.PAST.REP.3MSG

The ungrammaticality in (16b) and (17b) is a clear indication that the personal pronouns in Tukano resist an *Int'* interpretation and, therefore, need to be marked with the suffix {-re}. This in turn signals that pronominal objects must systematically perform movement to the outer specifier of the vP.

In double object constructions the situation is different. In DOCs the one argument marked with {-re} is the GOAL argument, rather than the THEME argument, as the data in (18) and (19) demonstrate:

(18) *Numiô* *sĩ'i-ré* *ɨmîtihisé* *wa're-ámo*
woman DEM.AN.MSG-ACC perfume apply-REC.PAST.VIS.3FSG
'The woman applied perfume on that one.'

(19) *Yɨ'î* *kɨ̃ɨ̃-re* *su'tí* *o'ô-apɨ*
1SG 3SG-ACC clothes give-REC.PAST.VIS.1
'I gave him clothes.'

As opposed to sentences (14) and (15), the {-re} marking in (18) and (19) above is not optional. DOC data, like (18) and (19) pose a difficulty to a case-marking interpretation of {-re}. While it is not impossible to explain this behavior using the Dependent Case theory (BAKER, 2015)[73], what is not in any way possible to explain using Dependent Case theory is the assignment of {-re} to topicalized elements, given the hierarchical position they occupy. Examples of topicalized elements marked with {-re} can be seen in (20) to (26) below:

(20) *A'to-ré,* *no'o-pɨ́* *kãri-gɨ́* *nii-áti?*
here-TOP where-LOC sleep-NOM.MSG AUX-REC.PAST.VIS.INT
'Here (in this place, village, etc.), where do (you) usually sleep?'

(21) *Too-pɨ́-re,* *peêru* *sĩ'ri-wɨ́.*
ANA.LOC-LOC-TOP manioc.beer drink-REM.PAST.VIS.1
'There (in the place previously mentioned), I drank manioc beer'

(22) *Wese-ré,* *dɨkɨ̂* *bu'bê-gɨ'* *weé-'*
plantation-TOP cassava.stake plant-MSG AUX-PRES.VIS.1
'In the plantation, (I) am planting the cassava stakes'

(23) *Ni'kaá-re,* *bu'ê-rã!*
today-TOP study-IMP.PL
'Today, let's study'

[73] Cf. Chapter 4, Section 4.3.

(24) *Yamiákã-re,* *Manáus-pɨ* *wa'â-gɨti'*
tomorrow-TOP, Manaus-LOC go-FUT.MSG
'Tomorrow, (I) will go to Manaus'

(25) *Yahá-'ke-re* *mɨ'ɨ̃* *yẽ'e nohó* *masî-sari?*
steal-NOM.INAN.PL.PERF-TOP 2SG what know-PRES.SEN.INT
'What do you know about the theft?'

(26) *Numiô-re* *uúkũ-ama.*
woman-TOP talk-REC.PAST.VIS.3PL
'(They) talked about the woman'

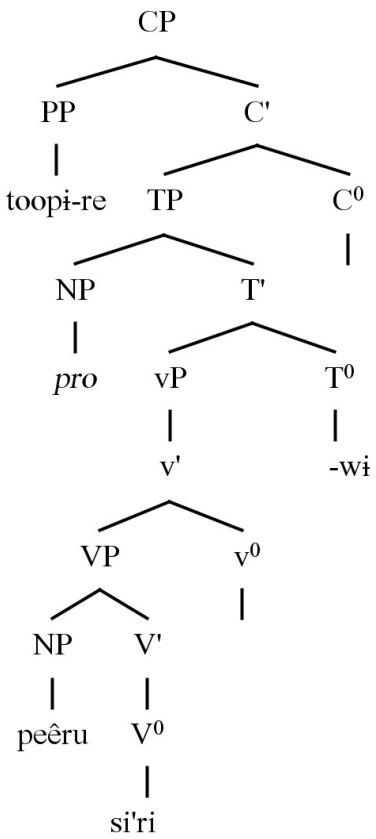
The first reason why it is difficult to explain the data above in terms of morphological case marking is that, in sentences like the ones in (20) to (26) there are different kinds of elements receiving the suffix {-re}. That was not the case with single object constructions, like (14) to (17), where all {-re} marked elements were internal arguments. Similarly, in DOC constructions, like (18) and (19), it is always the GOAL arguments there are marked with {-re}

In sentences (20) to (26) above there are three distinct kinds of elements receiving the suffix {-re}. In (20), (21) and (22) the {-re} marked elements are locatives. In (23) and (24) temporal expressions are the ones receiving the suffix {-re}. In the sentences (25) and (26) the items marked with {-re} are the internal arguments that receive the theme theta role from the verb. Notice that the translations of the {-re} marked elements in (25) and (26) require the preposition *about* to be introduced. And, just as the translation implies, *yahá'ke* 'the theft' and *numiô* 'the woman' are not THEME arguments, they are adjuncts. The sentence would be completely grammatical if they were to be omitted.

On top of that, contrary to what happened in all of the sentences described in the previous chapter, in (20) to (26) the elements marked with {-re} are on the edge of CP phase, as the syntactic structure (27b) of the sentence (27a) shows.

(27) a. *Too-pɨ́-re, peêru sɨ̃'ri-wɨ́.*
ANA.LOC-LOC-TOP manioc.beer drink-REM.PAST.VIS.1
'There (in the place previously mentioned), I drank manioc beer'

b.



Even considering a syntactic derivation that differs from the one that is proposed in (27b) above, one may observe that none of the {-re}-marked phases in (20) to (26) are higher in the hierarchy than the subject. Therefore, they are lower in the TP domain, as is

predicted by the Dependent Case assignment rule, discussed in Chapter 4 and repeated in (28) below.

(28) If DP1 is c-commanded by DP2 in the same TP domain, then assign ACCUSATIVE dependent Case to DP1.

The Dependent Case assignment rule in (28) specifically relied upon the fact that the {-re}-marked element should be positioned in the same phase domain as the DP subject, and remain below it, being c-commanded by it. However, this is not the case for the sentences in (20) to (26). Based on these empirical facts, I will assume that the {-re} marked phrases in the examples (20) to (26), are not in the same domain as the subject, rather they sit in the edge of CP.

In spite of the semantic differences in the {-re} marked elements of (20) to (26), what they all have in common is their hierarchical position. More to the point, they are all in the leftmost position of the sentence, more precisely in Spec-CP. This in turn serves as a diagnostic for us to assume that all {-re} marked arguments (objects or adjuncts) are systematically merged on the edge of the phases (be it a CP or v*P phase). The purpose of the next section is to explore the details of this hypothesis.

5.3 THEORETICAL PROPOSAL

This analysis here investigates the data presented in the previous section. The purpose is to explain the distribution of the {-re} marked arguments using the phase based

analysis. We assume Chomsky's (2001) approach, according to which elements on the edge of v*P are assigned a definite interpretation and that, in OS languages, objects at the phonological border receive indefinite interpretation. The formulations in question were stated in (9) and (10) above and are repeated below as (29) and (30):

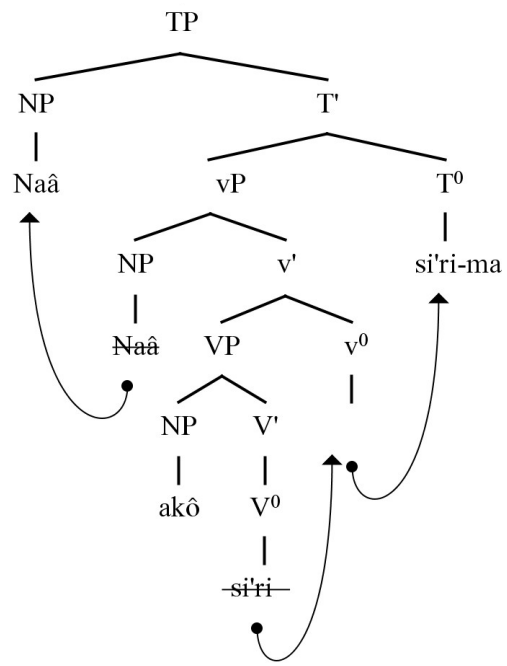
(29) The EPP position of v*P is assigned Int (CHOMSKY, 2001, p.33)

(30) At the phonological border of v*P, XP is assigned Int' (CHOMSKY, 2001, p.34)

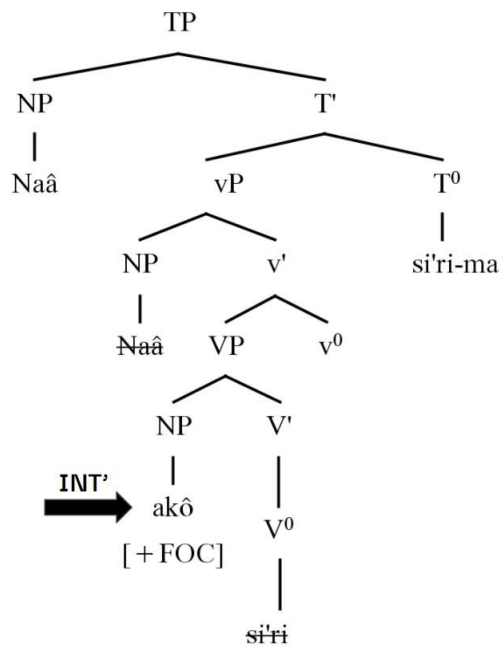
Like Swedish, Tukano, is an OS language. This means that Tukano observes the parameter in (30), which predicts that, in Tukano, any object that remains *in situ* needs to be assigned *Int'*, if the subject and the verb are raised to a higher position in the functional spine of the sentence. The following derivation confirms this prediction.

(31) *Naâ* *akó* *sĩ'ri-má*
3PL water drink-PRES.VIS.3PL
'They drink water'

(32) a.



b.

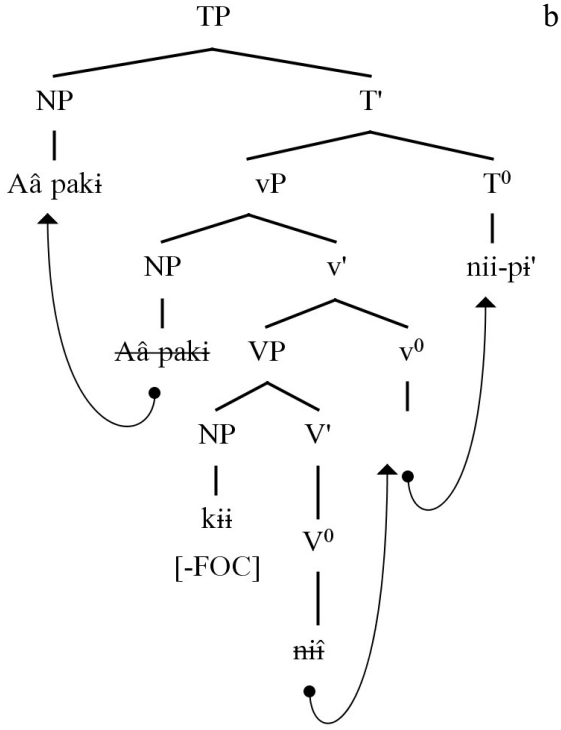


In (32a) above the object *akô* 'water' is left in the phonological border of the v*P, due to verb-raising; first to v then to T, and subject-raising to Spec-TP. In accordance with the parameter (30), this is the position where *Int'* is assigned. Since *akô* 'water' is not an element that resists the indefinite interpretation, it does not need to undergo Object Shift. Instead, the object *akô* 'water' remains *in situ* and is assigned *Int'* as illustrated in (32b).

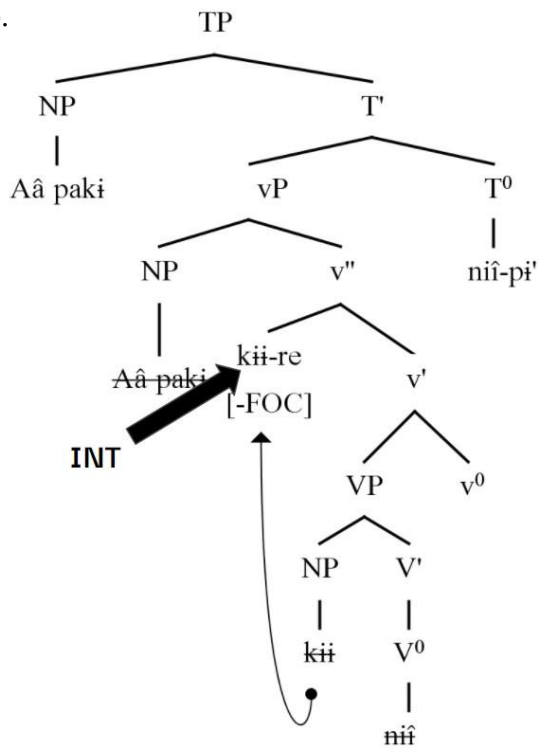
In a situation where the object resists such interpretation, for instance, when the object is a personal pronoun, then Object Shift has to take place. This is what happens in sentences such as (17a), repeated below as (33) and whose derivation is illustrated in (34):

(33) *Aâ pakɨ* *kɨ̃ĩ-re* *niî-pɨ'*
hawk 3MSG-ACC say-REM.PAST.REP.3MSG
'The hawk told him'

(34)a.



b.



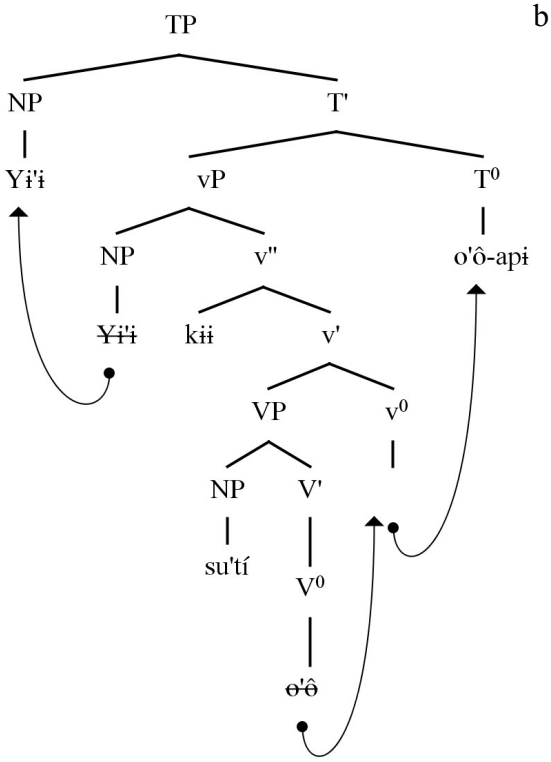
(34a), much like (32a), shows the raising of both the verb and the subject. The difference between (32) and (34) is that, as a personal pronoun, the object *kɨ̃ɨ̃* '3MSG' resists the *Int'* interpretation. Therefore, it must undergo Object Shift as shown in (34b). When the object *kɨ̃ɨ̃* '3MSG' is moved to the EPP position of the v*P, it is instead assigned the definite interpretation *Int* as per the principle in (29). Interestingly, unlike what happens with Scandinavian languages, Tukano has a morphological marker to indicate the assignment of *Int* to the element raised to the edge of v*P. This marking is morphologically expressed with the suffix {-re}.

The application of the principle in (29), as well as the impossibility of application of the parameter in (30), also explains the behavior of DOC in Tukano. The derivation of an

example where the marker {-re} is added to a GOAL argument, taken from the data (19) and repeated below as (35), is shown in (36):

(35) *Yɨ'ɨ̃* *kɨ̃ɨ̃-re* *su'tí* *o'ô-apɨ*
1SG 3SG-ACC clothes give-REC.PAST.VIS.1
'I gave him clothes.'

(36) a.



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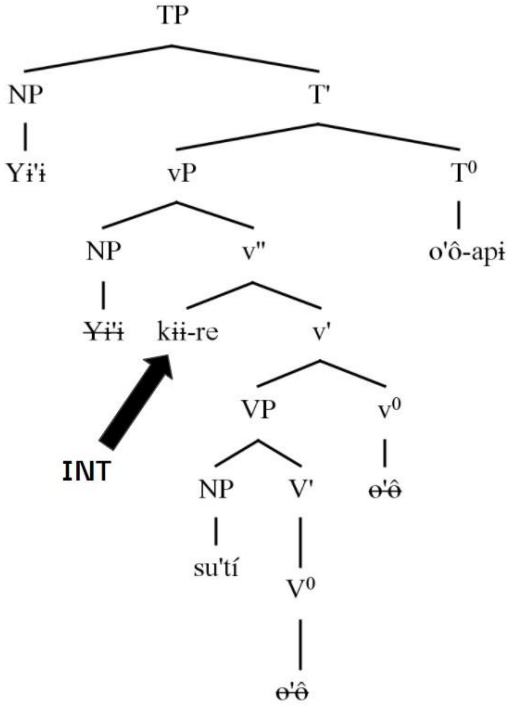


(36a), like (32a) and (34a), shows the raising of the verb and the subject, whereas (36b) is distinct from both (32b) and (34b). Firstly, (36b) shows that, as per the principle in (29), since the GOAL object *kɨ̃ɨ̃* '3MSG' is in the EPP position of v*P, it is assigned the definite interpretation *Int,* as evidenced by the {-re} marking. The THEME object *su'tí* 'clothes,' however, despite remaining *in situ* does not observe the parameter in (30), because it is not on the phonological border, since the GOAL object *kɨ̃ɨ̃* '3MSG' is in the specifier position of v*P, thereby c-commanding it. This explains why, in Tukano double

object constructions, the definiteness of the THEME object does not need to be marked with {-re}. As a matter of fact, since neither (29) nor (30) apply in the case of the THEME object of the DOC in Tukano, both [+Foc] and [-Foc] nominals are free to appear in this position.

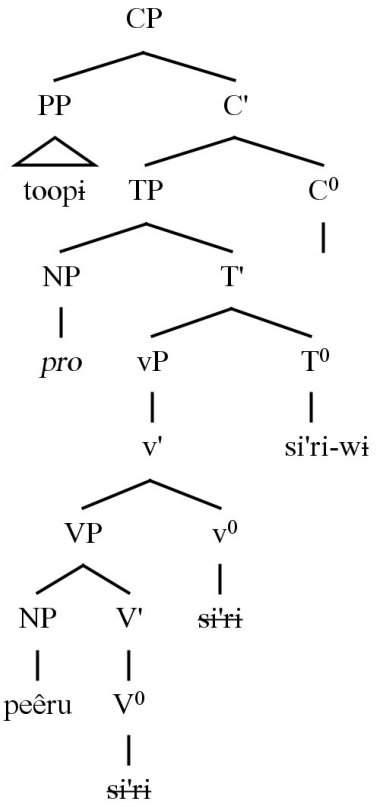
So far, what is seen in this section is basically the result of the application of (29) and (30), originally proposed by Chomsky (2001), to the Tukano data. However, when considering the topicalization data, shown in (20) to (26) above, a new theoretical proposal has to be made. In (37) below an extension of the principle in (29) is postulated, giving the edge of CP the same properties as the edge of v*P:

(37) The EPP position of CP is assigned Int

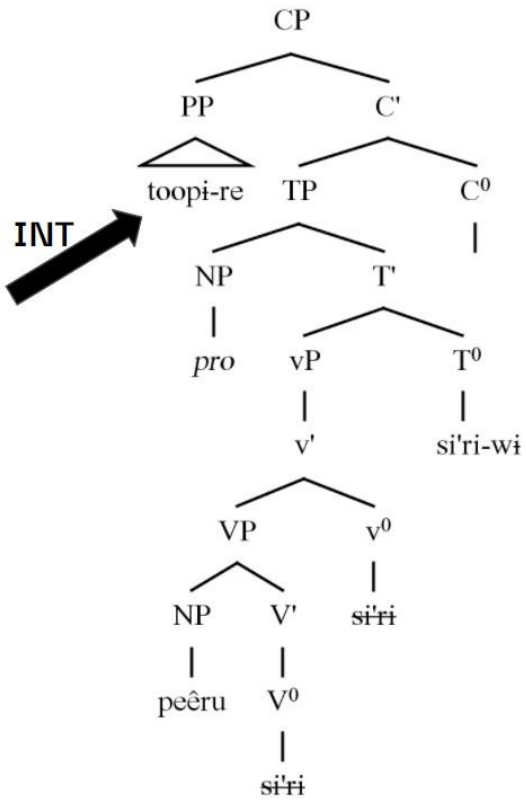
Thus (37) explains why the same suffix {-re} is assigned in Tukano for elements in the edge of v*P as well as the ones in the edge of CP. The application of (37) to a sentence like the one in (21), repeated below in (38), is illustrated in (39):

(38) *Too-pɨ́-re,* *peêru* *sĩ̃'ri-wɨ́.*
ANA.LOC-LOC-TOP manioc.beer drink-REM.PAST.VIS.1
'There (in the place previously mentioned), I drank manioc beer'

(39) a.



b.



The derivation in (39b) shows that, since the topic XP *toopɨ́* 'there' is at the edge of CP, it is assigned *Int*, as postulated in (37) and evidenced by the fact that it is marked with the suffix {-re}. This hypothesis, then, unifies the account of all the different occurrences of the morpheme {-re} in the data presented, by proposing that the Tukano suffix {-re} functions as an *Int* marker on the elements occupying the edges of both the CP and the v*P phase.

5.4 FINAL REMARKS

This chapter presented an alternate analysis of the Tukano data discussed in Chapter 4. This time, without recurring to Case. Instead I rely on the phase-based analysis of Object Shift, as it is proposed by Chomsky (2001). The proposal made in this chapter is that elements on the edge of the phase, be it CP or v*P, are assigned a non-focused, definite and/or specific interpretation and, in Tukano, that interpretation is morphologically marked with the suffix {-re}.

The obvious advantage of the theoretical analysis pursued in this chapter is the possibility of a unified treatment for the behavior of the suffix {-re} in single object constructions, double object constructions and sentences with topicalized elements.

The proposal in (35), though a logical extension of (27), still needs to be tested in light of cross-linguistic data to proper evaluate its relevance. It is also worth mentioning that further research in the Tukano language might reveal inconsistencies in the current proposal, given how relatively little (compared to, say, Indo-European languages) investigation has been conducted on Tukano syntax. However, the analysis postulated here adequately describes all the data collected in Tukano, as well as the data presented in the works consulted during the course of this research (cf. References).

CHAPTER 6: FINAL REMARKS

The goal of the present research was to investigate some aspects of the Tukano syntax and to help cover the gaps in the description of some of the linguistic phenomena present in Tukano. To this end, the first half focused on some broad analyses of the language as a whole, while the second half explored the syntactic phenomena of Differential Object Marking and Object Shift in greater detail.

The second chapter, after dealing with some cultural and sociological background about the Tukano people and language family, analyzed the vitality of the Tukano language. The results showed that Tukano should be considered an endangered language by many of the relevant criteria. However, much of the analysis was superficial, intended to give a general understanding of the issues. Therefore a more in-depth research of each one of the topics related to language vitality still needs to be done in order to give a proper assessment of Tukano's vitality.

The third chapter dealt with the phonology of the Tukano language. Most of the discussion was geared towards a summary of the previous analysis, to give the reader a general understanding of Tukano's phonological structure. Nonetheless, some of the previous proposals were shown to have serious gaps in them, especially concerning nasalization, glottalic features, tone and stress. Each one of those still require further investigation as the present work only scratched the surface of them.

The fourth chapter focused on DOM and demonstrated that, even though Tukano has an overt object Case marking system, not all objects are marked with the Case suffix {-re}. That chapter pursued the hypothesis that the Case suffix {-re} is a low dependent Case marker (ACCUSATIVE) that is activated whenever the object, regardless of whether it corresponds to the THEME or the GOAL argument, is in the same Spell Out domain as the subject. This analysis entails that the morpheme {-re} corresponds to an abstract Case that is assigned to the lowest DP within the domain of the CP phase. In order to develop this analysis, Baker's (2015) Dependent Case theory was adopted, according to which some DPs can be assigned a structural dependent Case, depending (i) on the Spell-Out domain they are located and (ii) on the structural (i.e. c-command) relationship that they establish with other nominals that are also positioned in the TP domain. Despite being a robust hypothesis, it still needs further investigation and a greater amount of data to fully back it up.

The fifth chapter, explored a different analysis of the distribution of the morpheme {-re} in Tukano. The chapter demonstrated that elements that occur on the edge of the phases CP and v*P are assigned a definite/specific interpretation, and are morphologically marked with the suffix {-re}. This allows us to unify the explanation regarding the syntactic distribution of the suffix {-re} both in direct/indirect object constructions and in sentences with topicalized adjuncts. In sum, the restriction one may propose is that the occurrence of the suffix {-re} depends on whether the DP is raised to the edge position of the CP/v*P phase or not.

As it should be clear to the reader, this thesis does not presume to be the final word on any of the topics discussed here. Rather, it is our hope that this work will spark interest in each of the linguistic phenomena highlighted here and, even more so, in the descriptive and analytic work for Amazonian languages and a recognition of the contribution that such work can bring to linguistics as a whole.

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